

Legend :

Scientific Programme

Careers Programme

Science to Business Programme

**09/07/2018****14:00 - 18:00 OPENING CEREMONY***Place : Palais des Sports***18:30 - 20:30 Opening of the exhibition in CCPB and networking Cocktail****21:15 - 23:00 Concert by Orchestre National du Capitole***Place : Prairie des Filtres*

# 10/07/2018

**08:30 - 09:45 Plenary Panel Discussion: FP9: The future European framework for research and innovation beyond horizon 2020**

Carlos MOEDAS - Commissioner for Research, Science and Innovation, European Commission ; Dr. Maria LEPTIN - EMBO Director ; Dr. Angela BELLIA - Marie Curie Researcher, National Research Council, Institute for Archaeological and Monumental Heritage National Research Council, Chair of the Events and Network Working Group Marie Curie Alumni Association

*Place : Palais des Sports*

**08:45 - 10:00 Parallel sessions**

## Scientists and citizens unite to combat plastic pollution in the ocean

Plastics are now considered a threat to the marine environment. Scientists are trying to understand what happens to these particles in order to predict their impacts on the oceans and on humans. Nevertheless, as total ocean clearance is not possible, upstream pollution reduction at the source should be achieved through integrated catchment management, water sanitation and improved waste management (collection and recycling). Controlling plastic pollution also involves promoting recycling and the circular economy. These measures must be accompanied simultaneously by a change in our consumption behaviour, through education and citizen awareness, because the health of the sea and the oceans depends on each of us. The accumulation of waste in the sea is a global problem that requires comprehensive and coordinated solutions.

*Submitted by Alexandra TER HALLE - laboratoire des IMRCP CNRS*

*Speakers :*

*BECERRA Sylviia - CNRS, SINKEL Carsel - BASF SE, VAN ROOST Herman - Total, DEIXONNE Patrick - Expedition 7th Continent*

## Science-Flashmobs at Shoppingmalls? From Scientific Output towards Scientific Outreach: Re-Assessing Values of Career Logics in Science

The panel addresses the efforts of scientific experts and organization to contribute to social utility of science through outreach activities. It opens the discussion whether the values inherent in scientific careers need re-assessment, if the mission of scientific communication - a key path to make the social utility of science intelligible for the public beyond academia - is to be pursued with a stronger dedication from scientists. Best-practices of scientific communication groups from France, Germany, Italy, and Spain will showcase current efforts in addressing non-academics. Scientific outreach often lags behind scientific output. Outreach of science beyond academia is less prioritized and valued in research careers than output inside academia. Yet it is precisely the complexity of issues which researchers deal with that requires efforts for scientific outreach. For a sustainable environment, public health, or digitization, insight from academia needs acceptance beyond academia. Scientific outreach also strengthens the stance of science itself. Scientists were not immune from backlashes of varying degrees, such as refusals to accept science-based facts, structural weakening though the cut of public funding, or even threats to scientists in some countries. An investment of energy in scientific

communication is therefore also an investment in science itself. The key debate of the panel will be a critical examination of the priorities prevailing scientific careers, where the social utility of science still seems secondary in contrast to the rule of academic reputation. Do scientific institutions have to change in order to assign recognition and active support for researchers who dedicate their resources for scientific communication activities? In practical ways, the panel will draw on the experience of the international speakers to discuss how outreach can become more effective to communicate science to a diversity of people beyond academia.

*Submitted by In-Sook CHOI - Baden-Württemberg International*

*Speakers :*

*ARMENGOU Sonia - Institute for Research in Biomedicine (IRB), Barcelona, AUBIN Jean-Baptiste - Maison des mathématiques et de l'informatique (MMI) Lyon, CHOI In-Sook - Baden-Württemberg International, CRESS Ulrike - Leibniz-Institut für Wissensmedien (IWM), Tübingen, GAD Gernot - German Research Foundation, L'ASTORINA Alba - Institute per il rilevamento elettromagnetico dell'ambiente (IREA), National Research Council of Italy*

### **How can Responsible Research and Innovation (RRI) enable Blue Growth initiatives? A hands on approach and roadmap**

This highly interactive workshop will showcase lessons learned and best practices from 34 local and 8 international mobilisation and mutual learning European workshops from the EU-funded RRI-project MARINA. The MARINA workshops have actively engaged more than 1100 actors and stakeholders from policy, science, business, NGOs/ CSOs and society to debate and define actionable roadmaps of how to embed Responsible Research and Innovation (RRI) in Blue Growth topics. The topics cover blue energy, sustainable tourism, coastal urban development, aquaculture, fisheries, marine litter, re-invigorating old harbours, deep sea mining and nanotechnology. All these activities have resulted into a collection of lessons learned and best practices for applying RRI, participatory approach and stakeholder engagement. This collection has been boiled down into the RRI Roadmap for Blue Growth and beyond. The workshop will be highly participative testing the RRI Roadmap for Blue Growth and Nanotechnology. Participants in groups will test the RRI-Roadmap and compete or collaborate to achieve Blue Growth initiatives using RRI. Each group will be given limited RRI resources and it will be required to compete and/ or collaborate with other groups in achieving a concise RRI common approach. At the end of the participatory exercise, the workshop facilitator will collect experiences from the participant-groups and draw conclusions. The workshop will continue with short "fire" presentations from MARINA and other EU-funded RRI-related projects for discussing and consolidating how RRI can enable Blue Growth. The workshop will end by sharing a summary of policy-oriented RRI initiatives based on the MARINA European policy survey and experiences from engaging multi-disciplinary actors in blue growth and nanotechnology initiatives. The RRI Roadmap and its best practices do not only relate to marine fields but to any business-science-policy societal challenge field such as nanotechnology.

*Submitted by Xenia R THEODOTOU SCHNEIDE - XPRO Consulting Limited*

*Speakers :*

*GIN Iwona - Nausicaa, Centre National de la Mer, CIRA Manuel - World Ocean Network, RAICEVICH Sasa - Italian Institute of Environmental Protection and Research (ISPRA), SANDERS Robert - EBN, THEODOTOU SCHNEIDER Xenia - XPRO Consulting Limited*

### **Environmental impact of transportation on Europe: view of science and industry**

Environmental impact is a reality and an issue of increasing concern nowadays, especially in Europe. While this is an issue that affects all the population, governmental intervention is necessary, such as with projects embedded in European frameworks like "Horizon 2020" among others, in order to motivate the industry and accelerate positive changes towards greener solutions. A large part of the current research projects in European universities is strongly related to limit the environmental impact of current industry or to reduce the effect of the actions taken in the past. Transport accounts for 26% of global CO<sub>2</sub> emissions. It is one of the few industrial sectors where emissions are still growing. European companies like Volvo and Airbus are determined to develop new ways to reduce the footprint of transportation, in means of climate impacts as well as pollutants and noise emissions. Some countries are implementing effective regulations to change the mobility sector towards the use of renewable resources. The Netherlands and Norway, for example, plan banning the introduction of road vehicles with fossil fuels by 2025; and Norway also aims to reduce its greenhouse gas emissions from local shipping by 40% in 2030 compared to 1990. Apart from technological solutions, there are approaches to lower the demand for emission intensive transportation. As an example, a Swiss retailer removed fresh green asparagus from overseas from its shelves, because due to air transport they have about 15 times higher climate impacts than local asparagus. In order to bring industry and academia together, this session aims at combining the views and opinions of experts of European companies (Airbus, e-GO, SBB) and universities and research institutes (TU Delft, ETH, Chalmers).

*Submitted by Pavlo BAZILINSKY - Delft University of Technology*

*Speakers :*

*BÖSCH Michael - SBB (Swiss Federal Railways), DE HAAN Peter - EBP Switzerland (group leader); ETH Zurich (lecturer), MERINO-MARTINEZ Roberto - Delft University of Technology, VAN WEE Bert - Delft University of Technology*

### **From Lab to Executive Suite: How to Effectively Support Careers from Science to Industry**

Roughly two thirds of R&D in Europe, Canada, and the US happens in the private sector. More scientists are likely to pursue careers in industry - be it as researchers, consultants, or in management - than stay in academia. Moreover, more and more early-career researchers are considering careers as entrepreneurs to see their ideas all the way from bench to market. For a long time, both public and private sector left it to the researchers themselves to make this transition. The development of transferrable-skills, networks, and first-hand experience necessary for a successful start in industry was a daunting task, especially for PhD candidates and postdocs. The transition from academia to industry and careers as entrepreneurs and managers posed - and in many cases still poses -- a particular systemic challenge for women and scientists with children. In recent years, however, many universities and public research institutions have begun to systematically train their graduates and postdocs to raise awareness and facilitate the step towards careers in the private realm. Companies, at the same time, are increasingly reaching out to researchers as early as the bachelor level. A wide spectrum of public-private partnerships focused on career development of the next generation cover joint PhD programs, research collaborations, or mentoring. A growing number of policies is aimed at lowering the threshold for women, parents, and dual career couples to succeed in the private sector and the entrepreneurial field. This workshop aims to discuss strategies with which stakeholders from different areas of the research communities and from different regional backgrounds support scientists in planning their careers across the different sectors. The session is not specifically designed to offer career advice as such, but asks how advisors, recruiters, and managers on both sides approach the

issue and facilitate the transition - a question, for now, largely missing from the conversation.

Submitted by Gerrit K. ROESSLER - German Center for Research and Innovation, New York

Speakers :

KIMPE Bérénice - ABG France, LEMMENS Markus - Liaison Office North America, University of Freiburg & Eucor The European Campus, PAYNE David - Nature Publishing Group, ROESSLER Gerrit - German Center for Research and Innovation

#### 09:45 - 10:00 Flash Presentations

Place : Palais des Sports

#### 10:15 - 11:30 Parallel sessions

### Insights from Asia: Building cities of the future today that reach Sustainable Development Goals 2030

The UN 2030 Agenda for Sustainable Development includes an Urban Sustainability & Resilience Goal (No 11 of 17). This panel examines just how far the 193 signatory states have gone on the road to pioneering a new urban nexus between cities and regions. They will unravel how the SDGs are giving new impetus to pioneering sustainable urban solutions for a vast range of inter-connected issues. These include water scarcity, energy supply, infrastructure, transportation, housing and refugee collection etc. Of relevance will be case-studies from ongoing Asian projects. For example, how Myanmar is dealing with maximising economic growth in parallel with the need to develop resilient natural disaster systems. Similarly, how automated driving is taking hold in Japan as part of new urban transport systems. Bringing together the brightest minds from Japan, South East Asia, Europe and Africa, not limited to academia but also from policy and industry, we will examine best practices and potential pitfalls in cross-border approaches. Our overriding argument is that the Urban Nexus challenge is crucial to resolving core social problems such as poverty and the deterioration of human well-being. It can only be met head-on by understanding how citizens think and want to live and by plugging in to the power of social sciences. The outcomes of this session and audience discussion will influence broader arguments put forward in UN forums.

Submitted by Natsuko KAWAZOE - JST

Speakers :

ROCKSTRÖM Johan - Stockholm Resilience Centre/Water Systems and Global Sustainability at Stockholm University, SZÖLLÖSI-NAGY Andras - World Water Council, UNESCO/Sustainable Water Resources Development at the National University of Public, ARIMOTO Tateo - Automated Driving System Program for Cross-ministerial Strategic Innovation Promotion Program (SIP)/National Graduate Institute for Policy Studies, ENDO Aiko - Research Institute for Humanity and Nature, KAWAZOE Natsuko - JST, PILLAY Vineela - Department of Science and Technology, South African Mission to the EU, YU Khin Than - Yangon Technological University

### Plastic pollution in the ocean: environmental perspectives

The world production of plastic is growing exponentially and reached 288 million tons in 2012. The economic success of plastic comes from its remarkable qualities: it is easy to shape, low cost,

shockproof and has high mechanical strength. In 2010, mismanagement of household or municipal waste generated 5-13 million tons of plastic in the oceans, and this number is projected to increase dramatically by 2025 to 50-130 million tons. The majority of plastic ocean debris is produced by the fragmentation of macro-waste with the continuous release of fragments that are only of a few millimeters (microplastic). The abundance of microscopic particles in the natural environment is not yet well understood by the scientific community, but the effects on a wide range of organisms, from plankton to large vertebrates, such as fish, turtles or whales, are clear. Each year, more than 100,000 marine mammals and one million birds die trapped in plastic bags or after ingesting floating waste by confusing them with prey. Plastic pollution is also associated with a chemical pollution (additives, pesticides, dioxin, and chlorinated compounds). Some bio-available chemicals are then transferred to the animals organisms that ingest them and bioaccumulative molecules can then concentrate along the food chain.

Submitted by Matthieu MERCIER - CNRS-IMFT

Speakers :

THOMPSON Richard - University of Plymouth, VAN CAUWENBERGHE Lisbeth - Ghent University, Laboratory of Environmental Toxicology and Aquatic Ecology, GIGAULT Julien - CNRS-Univ. Rennes, MERCIER Matthieu - CNRS-IMFT, TER HALLE Alexandra - laboratoire des IMRCP CNRS

### **Ensuring the quality and usefulness of science advice to policymakers in times of crisis**

Informed and effective policy making demands timely, relevant, and robust scientific advice and evidence, especially when governments deal with unforeseen large scale crises. One characteristic of these crises is that they have policy implications for multiple countries. In response to the Great Japanese Earthquake and Fukushima nuclear disaster, Ebola and Zika epidemics, and the global economic downturn of 2008, governments re-examined their structures for connecting scientific evidence to policy making. Japan created the post of a Science Adviser to the Foreign Minister and Canada recently named a Science Adviser to its Prime Minister. The session will build on the 2015 OECD report on Science Advice: rights and responsibilities of scientists and more recent work on the international coordination of science advice in crises. It will examine efforts to improve scientific advice to policymakers at times of crisis in Europe, the United States, Japan. It will explore innovative and forward-looking practices to improve the credibility, relevance and overall effectiveness of science advice.

Submitted by Carthage SMITH - Organisation for Economic Cooperation and Development (OECD)

Speakers :

IMPERIALI Olimpia - EC DG ECHO and Emergency Response Coordination Centre, ALLEGRA Alessandro - University College, London, GRIMES Robin - United Kingdom Foreign Office, KOIZUMI Kei - AAAS, SATO Yasushi - Niigata University, IMPERIALI Olimpia - EC DG ECHO and Emergency Response Coordination Centre

### **Science diplomacy on the ground: protecting researchers in difficult environments**

The session brings together researchers conducting work in difficult environments from Afghanistan to Syria and Mexico. Their work involves examining sensitive issues ranging from asylum procedures to transitions to democracy or the roots of religious communities. This research is, at times, a risky endeavour, not only concerning the risk of failure of an experiment or a scientific theory, but also in terms of researchers' safety and the safety of research subjects. Some research involves the need for



fieldwork in conflict areas or countries where freedom of research is not safeguarded. Ethical protocols are being developed by research institutions to deal with such cases. The panel will argue that this is necessary but insufficient to protect researchers and research subjects. Diplomacy for science is mostly considered in terms of fostering S&T Agreements and other forms of scientific cooperation between different countries. Less understood is the role of diplomacy in safeguarding the researchers themselves. Protecting scientists and scientific freedom is an increasingly important element of 'diplomacy for science but when cases of researchers' safety become "high politics", what should we expect? How can 'traditional' diplomacy at state level and 'bottom-up' diplomatic practices e.g. by universities, interact? This panel will chart the development of Science Diplomacy as an important tool ensuring that the right conditions for research to be pursued are met. For example, by facilitating access to sites (e.g. access to archaeological sites, access for field work in/with displaced persons or minorities) or protecting scientists in cases of tensions (with initiatives aimed at protecting refugee scientists and other academics at risk) and facilitating cooperation between 'foreign' and 'local' researchers.

*Submitted by Angela LIBERATORE - European Research Council*

*Speakers :*

*GANA Alia - National Center for Scientific Research (CNRS), KALIR Barak - University of Amsterdam, KUHN Frank - European Research Council Executive Agency, LIBERATORE Angela - European Research Council, LOOSLEY Emma - University of Exeter, MANDOLESSI Silvana - Mrs. RUIGROK Inge - European Research Council Executive Agency, SAXER Martin - LMU Munich*

### **Science in Africa - working towards Agenda 2063 & new paradigms in STI partnerships**

Agenda 2063 is the strategic framework for the socioeconomic transformation of Africa over the next 50 years. It builds on, and seeks to accelerate, the implementation of past and existing continental initiatives for growth and sustainable development. Science, technology and innovation are key to realising this transformation, and successful implementation will also contribute to achieving the sustainable development goals (SDGs). This panel will discuss the successful partnerships between Africa and Europe; e.g the ERAFRICA project, in which African and European countries participated as completely equal partners in all phases of the project including conception, design, and implementation and funding. We will highlight some of the strategic opportunities for collaboration between Europe and elaborate on discussions held during the Young African Scientists in Europe conference, a satellite event of ESOF2018 (6th July 2018, Toulouse).

*Submitted by Jean ALBERGEL - Institut de Recherche pour le Développement (IRD)*

*Speakers :*

*ALBERGEL Jean - Institut de Recherche pour le Développement (IRD), ALLEMAND Luc - Afriscitech, BASSIONI Ghada - Ain Shams University, DU TOIT Daan - DST, MURENZI Romain - TWAS, KUBAYI-NGUBANE Mmamoloko - Minister for Science & Technology of the Government of South Africa; Co-President of the World Science Forum 2021 Cape Town, PILLAY Vinny - South African Department of Science and Technology, BARBIER Élisabeth - IRD, HARRINGTON Jack - Wellcome Trust, SEVERINSON Peter - Federation for the Humanities and Social Sciences Canada*

### **The reconfiguration of research and innovation: new directions and policy approaches for tackling global change**

The challenges that science and innovation are expected to resolve are increasingly global and transformative in nature. They require collaboration at different scales, between disciplines and with stakeholders, in order to align scientific opportunities with societal needs. Many new opportunities are emerging to conduct research and innovation in novel ways: open science and innovation, the use of social media, big data, and social experimentation. This session will discuss how these new opportunities affect research and innovation policy as well as research funding. We will look at the balance between blue sky research, research to understand complex global phenomena, and finding new solutions for societal challenges. Will we need to configure research and innovation differently in the future, and what opportunities might arise from this? Can FP9 help address such needs and opportunities?

*Submitted by Matthias WEBER - AIT Austrian Institute of Technology*

*Speakers :*

*ATTANÉ Muriel - EARTO, BORRELL-DAMIAN Lidia - European University Association, CUHLS Kerstin - FRAUNHOFER ISI, CURAJ Adrian - National School of Political and Administrative Studies, FIASCHI Maryline - Science Business, GIOVANNINI Enrico - Italian Alliance for Sustainable Development, KASTRINOS Nikos - European Commission, DG Research & Innovation, LARRUE Philippe - OECD, RICCI Andrea - ISINNOVA, SCHOT Johan - Science Policy Research Unit (SPRU), University of Sussex, WEBER Matthias - AIT Austrian Institute of Technology*

### **Stem cells: the exploitative marketing techniques of under-regulated clinics**

Since the first human embryonic stem cell line was created in 1998, the public has been excited about regenerative medicine and its potential to make revolutionary changes in medicine. When initial promises of unprecedented progress in medicine went unfulfilled, many people were disappointed in science and the slow pace of medical research. As a result, clinics offering experimental stem cell treatments for numerous illnesses have flourished despite little or no evidence that their treatments are safe and effective. The panel will spotlight the exploitive marketing techniques these clinics use to promote their procedures. Speakers will reveal how clinics misrepresent scientific information to make the treatments seem clinically proven. They will also identify the ethical obligations and goals regarding the use of scientific information that should inform policy and regulatory efforts. Speakers will also consider the social forces driving this phenomenon, including social media, "fake news" about stem cell interventions and the role of popular culture.

*Submitted by Kirstin MATTHEWS - Rice University*

*Speakers :*

*CAULFIELD Timothy - University of Alberta, Edmonton, ILTIS Ana - Wake Forest University, MATTHEWS Kirstin - Rice University*

### **What would it take to regrow an arm?**

Salamanders are natural super-animals: they can regrow lost limbs into new functional ones. All their tissues - muscles, vascular network, nervous extensions, bones, skin - regenerate in a coordinated way to reform a functional limb. But what would it take for humans to do the same? To-date, biology has focused mainly on the very small (microscopy) or the very big (macroscopy) scales. But what lies in-between (how cells get organised into tissues) is less well studied. This interactive round table of experts will discuss how technological advances, mainly in biological imaging, are allowing scientists to bridge those two scales, enabling us to finally observe tissues and groups of cells in greater detail. How



these new frontiers in tissue research can translate into biomedical applications and improved health will be debated.

*Submitted by Iris KRUIJEN - European Molecular Biology Laboratory (EMBL)*

*Speakers :*

*FURLONG Eileen - EMBL, IKMI Aissam - EMBL, KRUIJEN Iris - European Molecular Biology Laboratory (EMBL),*

*PREVEDEL Robert - EMBL, SHARPE James - EMBL*

## **A New Kind of Science? Supporting scientists at all career stages in the future**

The world is experiencing an unprecedented transformation due to globalisation and digitalisation. Changes in the science system will affect the way research is performed, funded, and rewarded. They will have implications for how research questions are designed, how research is communicated, and how research is evaluated by its 'owners' and by society. The question is what impact they will have on as a profession and what they mean for career pathways both in- and outside of research. There will be many opportunities and barriers for early-career scientists in such an increasingly unstructured research landscape. Mentors can play a big role in advising researchers on career strategies. They should provide them with training in new scientific techniques and data management, as well as in 'soft skills', such as sharing information openly and collaborating in multi-stakeholder or international teams. Funding agencies should facilitate the mobility of researchers across countries and sectors to maintain their knowledge base. They should improve career-structuring schemes and acknowledge different qualifications and diplomas. Europe needs to create frameworks for a future science system that can address societal challenges, while reducing inequality in gender and diversity, and prevent brain drain. The session will be supported by interactive voting (such as through [www.mentimeter.com](http://www.mentimeter.com)) and will address questions on: how to train and support researchers in Open Science practices for academia, industry and society; how to prepare them for the non-academic labour market and for entrepreneurship; how to incentivise and reward researchers to address current societal challenges and engage with the general public. Contributors will represent early-career and senior scientists from different disciplines and institutions, national funding agencies, and umbrella organisations such as Science Europe, YERUN, EURODOC and RI ELIXIR.

*Submitted by Bonnie WOLFF-BOENISCH - Science Europe*

*Speakers :*

*ERSTAD Ola - University of Oslo, MENDEZ RODRIGUEZ Eva M. - YERUN (Young European Research Universities),*

*O'NEILL Gareth - EURODOC (European Council of Doctoral Candidates and Junior Researchers), VANDEVELDE Karen -*

*Ghent University, WOLFF-BOENISCH Bonnie - Science Europe, SCHILTZ Marc - Science Europe President*

## **The Network Effect?**

Networking is nowadays an essential element to be successful in science, both in terms of maximizing the impact of research and in terms of developing an academic career. Science is not done in isolation, and especially with the current call for Open Science practices - which aims at making the research enterprise more transparent and more collaborative - networking with peers can result in interesting collaborations, opening up opportunities for interdisciplinary projects, and help career progression. The advent of networking tools designed specifically for scientists has boosted the potential for collaboration and opened up new, faster and easier ways to exchange knowledge. With these tools,

researchers have unprecedented ways to connect worldwide with peers, or publicly engage even beyond the academic community. In this panel we will look critically at how networking tools can help researchers interact, network, and stay up to date on what's happening in their field. We will also investigate the link between networking and career development. We will invite on stage publishers and start-ups active in shaping networking platforms, along with academics and science organizations that are experimenting with the development of online scientific communities.

Submitted by Federica ROSETTA - Elsevier

Speakers :

MILNE Gemma - Science Disrupt, SPEIDEL Rusty - Center For Open Science, CROUZIER Thomas - Royal Institute of Technology, KTH, KOERS Hylke - Elsevier, LIN Jennifer - Crossref, MENHINICK Chloe - International Water Association, PENGEL Liset - Centre for Evidence in Transplantation Nuffield Department of Surgical Sciences University of Oxford, ROSETTA Federica - Elsevier, THIEDE Charles - Zapnito

## Business and Entrepreneurship in Disruptive Science

"The science of today is the technology of tomorrow". - Edward Teller From green cities to robots, from undiscovered materials to cancer therapies, bottom-up research devoted to future and emerging technologies is a key ingredient in modelling the science, society and the market of tomorrow. Unexplored collaborations between advanced multidisciplinary science and cutting-edge engineering has been previously supported to foster breakthrough innovation and tackling the major technological, scientific and societal challenges of the future. Taking place in a defining moment for the future of EU Research and Innovation policies, this roundtable discussion intends to set the debate on research driven approaches to disruptive innovation by identifying best practices of bottom-up research which defined the business needs of tomorrow. Different stakeholders - whom taken advantage from cutting-edge research and innovation supporting measures- will share their opinion on major needs and opportunities, opening at considerations for the next Research and Innovation Framework Programme by whom benefit from it. Organizer: EFFECT project European visionary thinking, scientific excellence and breakthrough innovation: how will FET research impact on society? The EFFECT project, funded by the HORIZON 2020 FET-Open Programme, is trying to answer this question by developing easy-to-understand contents for the broad public accessible on the web, social and TV media and by fostering direct engagement and debate among different communities. To know more: <http://www.fetfx.eu/about-effect-project/> In the framework of EFFECT project, there is the opportunity to organize a Brokerage event aimed at fostering collaboration between science and business community.

Submitted by Marta CALDERARO - APRE

Speakers :

CALDERARO Marta - APRE, ECHARRI Javier - European Business Network - EBN, FERREIRA Afonso - CNRS Institut de Recherche en Informatique de Toulouse, MYERS Tom - Platform Kinetics Ltd., TRUCCHI Daniele - Consiglio Nazionale delle Ricerche

## Retrospective on the diffusion of adhesive bonding technology into industrial sectors and lessons learned for today: how to accelerate innovation by a straightforward technology-push approach?

We argue that the initial idea of applying a new technology in a specific industrial setting requires deep

understanding of that cutting-edge technology AND real-life insights in the potential application. The exchange between researcher and business (wo)man is crucial for the advancement of any technology. Therefore a dedicated funding instrument has to be initiated that aims at the exploration of the full application potential of a technology from an early stage (TRL 4) on. This new funding instrument would close the gap between basic research (development of technology without a specific application in mind) and industrial implementation of a new technology (when benefits are already well-known and economic risk assessment is possible). The session is divided into four parts. Part 1: Introduction and setting the scene by the moderator. [5 min] Part 2: Here, the story of the diffusion of adhesive bonding technology into our lives over the past 40 years will be presented. Five examples are used to illustrate the widespread usage of adhesives in diverse sectors of industry and life (household&hobby, wood, packaging, automotive&aerospace, medical). They are presented in Pecha Kucha style (20 slides à 20 sec = 6min40sec each) by experts from each sector. [35 min] Part 3: The Pecha Kucha overview is followed by our hypothesis of how the natural diffusion of the new technology could have been accelerated by a targeted technology push approach and how that should be done with every promising technology to come. [10 min] Part 4: During this part the audience is invited to ask question to the panel of 6 presenters, to comment, and to propose new application areas for emerging technologies. We would aim to facilitate and enhance interaction by a software tool like slido.com or discuto.io if that was possible for organizers of conference. The moderator will wrap-up the session in time. [25 min]

*Submitted by Julia SCHMALENBERG - Fraunhofer EU-Office Brussels*

*Speakers :*

GROß Andreas - Fraunhofer IFAM, GRUNWALD Ingo - Fraunhofer IFAM, WOLF Michael - Fraunhofer IFAM, LEISSNER Johanna - Fraunhofer-Gesellschaft, RAUCH Mathias - Fraunhofer-Gesellschaft, SCHMALENBERG Julia - Fraunhofer EU-Office Brussels

#### 11:45 - 12:30 Plenary Keynote: Digital humanities

Pr. Lorna HUGHES, Professor of Digital Humanities, Head of Subject Information Studies

*Place : Palais des Sports*

#### 12:30 - 13:30 LUNCH BREAK and POSTERS VIEWING

#### 13:30 - 14:45 Parallel sessions

##### **Trusting science: public attitudes in Germany, Sweden and Switzerland**

The role and value of science have become objects of public debate in light of populist politicians and pseudo- or antiscience movements in Europe and beyond. Scientists all over the world have publicly united in the March for Science in order to emphasise the societal role of research. But are we actually seeing changes in public attitudes towards science in European societies? Are people generally losing trust in science or are different segments of society drifting apart when it comes to trust in what science can tell us about the world? In this session, we will focus on 'trust in science'. We will discuss what trust in science means conceptually and which factors might predict different degrees and kinds

of trust in science within a society. Our contributions are based on results from the latest editions of national surveys on public attitudes towards science in Sweden, Switzerland and Germany. After short inputs from the speakers, we will use live polling to actively include the audience as the session continues. Based on those, the speakers together with the audience will comparatively discuss the implications of the survey results for science communication, with a focus on targeting different groups within society and how science can be a part of cultural identity.

*Submitted by Ricarda ZIEGLER - Wissenschaft im Dialog.gGmbH*

*Speakers :*

*BROMME Rainer - University of Munster, KIENHUES Dorothe - University of Munster, LINDHOLM Maria - VA (Public & Science), METAG Julia - University of Fribourg, SCHÄFER Mike - University of Zurich, WEIßKOPF Markus - Wissenschaft im Dialog.gGmbH, ZIEGLER Ricarda - Wissenschaft im Dialog.gGmbH*

## **Experiments in responsible metrics: how can we use indicators and data to support open science?**

Across the scientific community, there has been an explosion in the range and reach of metrics to capture research qualities, and to benchmark institutional or individual performance. Citations, H-indices, journal impact factors, grant income and other indicators now play a growing role in research management. In the near future, increasingly granular data on research is likely to be combined with more sophisticated metrics for impact, teaching and learning, to give planners and policymakers access to an unprecedented wealth of real-time analytics. However, debates have intensified about pitfalls, such as the concern about a narrowing of managerial focus onto things that can be measured, at the expense of those that matter. Some worry about a reduction in diversity, as an emphasis on particular metrics drives universities to adopt similar priorities, and researchers to focus on lower-risk, incremental work. Others point to the risks of gaming and perverse incentives, exacerbating problems of research integrity and reproducibility. In response, over the past five years, there have been a series of high profile efforts to reform how metrics are used. This session brings together key players from the Netherlands, Spain and the UK, plus a senior policymaker from the European Commission, to review progress, consider prospects and agree next steps on the road towards more responsible metrics.

*Submitted by James WILSDON - University of Sheffield*

*Speakers :*

*BURGELMAN Jean-Claude - DG Research and Innovation, European Commission, DE RIJCKE Sarah - Centre for Science and Technology Studies (CWTS), HILL Steven - Research England, PRICE David - University College London (UCL), RAFOLS Ismael - INGENIO (CSIC-UPV), WILSDON James - University of Sheffield*

## **COURAGE An interdisciplinary dance science performance debate about sustainable futures**

Good artists and good scientists are on a lifelong journey driven by curiosity searching for truth. On that journey, they reach out to the public for instance, with articles, books and performances. But perhaps we could get to a new place if we reach out together. That is the motivation behind the interdisciplinary dance science performance debate involving artists, scientists and decision makers: Lets join hands and create a crossroad in our quest to understand the present and draw a path for the future. The topic is COURAGE in times of multiple interconnected crises. How can we together tackle the pressing problems of our time: How can we today say yes we can when so many of us are losing their hope? A dance performance accompanied by a violin will be combined with a debate centred on

the narrative of the ESOF theme 'Global change: challenges and opportunities'. In the debate the panelists will take up the impulse given by the artists and discuss how science, policy and arts must team up to achieve the Sustainable Development Goals.

*Submitted by Gloria BENEDIKT - International Institute for Applied Systems Analysis (IIASA)*

*Speakers :*

*BENEDIKT Gloria - International Institute for Applied Systems Analysis (IIASA), GLOVER Anne - Strathclyde University, KABAT Pavel - International Institute for Applied Systems Analysis (IIASA), MICCOLIS Domenico - Independent, RUEBIG Paul - European Parliament, TWAALFHOVEN Merlijn - La vie sur terre*

## **Challenges and benefits of digital technologies for ageing well**

The age of the EU population is greatly changing according to the dynamics of fertility, life expectancy and migration patterns. The population is projected not only to be larger in overall size, but also much older, which has socioeconomic and geopolitical implications. Individuals, specialised organisations and public authorities now have huge challenges, if they want to be able to provide adapted solutions, including how to efficiently take care of the health of the population, while preserving the socio-economic health of the systems that supply services in healthcare and retirement. Digital technologies already contribute to addressing many of these challenges. New technologies, as wearable sensors, robots, diagnostic tools, create opportunities, engendering healthcare cost containment, increased social participation and market development. But often these solutions are generic, addressing many issues and kinds of people, and not attending to a specific demand or age group. Furthermore, there is evidence to suggest that existing inequalities and segregation can be reinforced and further exacerbated by the introduction of technology platforms in health. Altogether, unavoidable societal questions are raised, as how to maintain and improve the quality of care and life, or prevent ageism and social exclusion of older persons within the design and deployment of digital solutions.

*Submitted by Karina MARCUS - COST (European Cooperation in Science and Technology)*

*Speakers :*

*DEUSDAD Blanca - Rovira i Virgili University (Tarragona, Spain) Dep. Anthropology, Philosophy and Social Work, GARCIA Nuno - Universidade da Beira Interior, MASKELIUNAS Rytis - Kaunas University of Technology, TIMMERS Paul - Oxford University, formerly European Commission, DG CONNECT, VENEMAN Jan - Tecnalía*

## **AFRICAN PERSPECTIVES ON SCIENCE POLICY-MAKING: TOWARDS THE CAPE TOWN DECLARATION**

This high-level panel bridges the 2017 launch of the Brussels Declaration to ongoing work towards its pan-African equivalent, the Cape Town Declaration to be launched at the World Science Forum in 2021. Why the Brussels Declaration matters is because it is a unique, twenty-point blueprint for a new set of ethics & principles to inform work at the boundary between science, society and policy. Its strength lies in its five-year reflection period, the robustness of twenty-five preparatory workshops and above all, the diversity of its contributors with over 350 draftees and 3000 reviewers. With over five million views already, it makes the case for a multi-disciplinary approach to policy encouraging greater integrity and accountability amongst all stakeholders. The Cape Town Process (2017-2021) picks up this baton and following two initial workshops brings its first findings to ESOF. It adopts a similar bottom-up approach within the African 55 nations to involve the grass-roots with politicians, science advisers, chief scientific officers from industry, civil society leaders, medical doctors, social scientists, academics and science



editors. In open debate, panelists will boost understanding of how power operates in science & society and explain why evidence plus dialogue rarely equals good decisions & laws. Speakers will argue that most policy decisions worldwide are informed by evidence provided by experts. All too often, who these experts are, how they are chosen and how reliable their advice really is, is open to question. This decadal-long initiative will emphasize our collective interest in benefiting from 'evidence-based policy-making' rather than suffering 'policy-biased evidence-making'. The key to promoting public discourse, scientific clarity, policy implementation and ethical balance is not only greater transparency and scrutiny, but genuine inclusivity. xxxxx

*Submitted by Aidan GILLIGAN - SciCom - Making Sense of Science*

*Speakers :*

*ANYANG AGBOR?S Sarah - African Union Commissioner for Human Resources, Science & Technology, COMPTON Wilson - National Institute on Drug Abuse (NIDA), National Institutes of Health & Brussels Declaration Co-Chair, DIAB Roseanne - Academy of Science of South Africa, GILLIGAN Aidan - SciCom - Making Sense of Science, KAZATCHKINE Michel - United Nations & Brussels Declaration Co-Chair, KUBAYI-NGUBANE Mmamoloko - Minister for Science & Technology of the Government of South Africa; Co-President of the World Science Forum 2021 Cape Town, SCHLEGEL Flavia - UNESCO, YAHIA Mohammed - World Federation of Science Journalists (WFSJ) & Nature Research in the Middle East*

## **GOING DIGITAL - SUPPORTING THE SUSTAINABLE DEVELOPMENT GOALS**

Going digital is key to driving the economy, addressing social issues and developing skills. E-infrastructure, research clouds and the management of data are all central to this digital agenda, and enable the implementation of national, regional and global plans. Both in Europe and in Africa, the digital revolution is seen as providing a multitude of benefits, and key platforms that help to address diverse global challenges, from health and climate change to disaster management. The implementation of the UNs Sustainable Development Goals, as well as the African Unions Agenda 2063 in addressing the global issues, will benefit from the digital agenda. This session will highlight strategic platforms to maximise the benefits of data in addressing the key challenges. The development of an African Data Intensive Research Cloud will provide a unique platform to enable African researchers across many disciplines to access large data sets and tools for data analytics. The European Open Science Cloud will assist with better data management and access. Initiatives such as the Group on Earth Observations and the European Developing Countries Clinical Trial Partnership will also highlight the strategic work that is undertaken through the use of digital platforms and data in informing decision-making and strengthening partnerships between Africa and Europe. A private sector will highlight the links with skills and the ways in which they are responding towards creating and enhancing sustainable development. Ultimately, these initiatives could help to assist with the key issues of analysis and decision-making towards the enhancement of quality of life and economic growth.

*Submitted by Vinny PILLAY - South African Department of Science and Technology*

*Speakers :*

*ADAM Rob - SKA Africa Office, BURGELMAN Jean-Claude - DG Research and Innovation, European Commission, DUTOIT Daan - South African Department of Science and Technology, MAKANGA Michael - European & Developing Countries Clinical Trials Partnership (EDCTP), KUBAYI-NGUBANE Mmamoloko - Minister for Science & Technology of the Government of South Africa; Co-President of the World Science Forum 2021 Cape Town, PILLAY Vinny - South African Department of Science and Technology*



## Look around: tomorrows smart cities are being planned and delivered today

This panel of city planning experts and engineers showcase how science, technology and innovation are being embraced to radically reform our urban experience today, as we migrate to so-called smart cities of the future. With 68% of European Union citizens estimated to be already living in cities, the challenges we face are enormous. Neither can necessary change happen overnight. Yet, the ingenuity of our inventors, engineers and entrepreneurs is already there for all to see in an increasing number of our cities. For example, technology advances in smart-grid energy management, cybersecurity, electromobility integration in urban transport, waste management or even the concrete we use in our buildings are breath-taking. This panel will spotlight how investments in innovative, integrated technologies and services such as buildings, heating/cooling, mobility, lighting, broadband communications and other utilities are already fast changing our urban life experience. Social advances through art are also making our cities better places to live. At the same time, technologies that are available today could find themselves surpassed and should evolve to cope with future challenges. A major question will be how can cities and their rural surroundings jointly resolve spacial planning, transportation, energy transition, waste, pollution, social and cultural ties and health?

Submitted by David WIZEL - European Commission - Research Executive Agency

Speakers :

MOUCHTARIS Athanasios - Foundation for Research and Technology - Hellas and University of Crete, ROOZEN Nicolaas Bernardus - Katholieke Universiteit Leuven, VALE Zita - Instituto Politecnico do Porto, SILVA Joana - Research Executive Agency

## How blue are our cities? Lessons in water management

Water is the source of life and is essential for all human settlements. It is not only used for drinking, food preparation, cleaning, heating, cooling and irrigation, but also for food production, industrial processes, waste management and energy production. For all these purposes, water is borrowed from natural resources. To ensure its sustainability, it needs to be treated after use and returned to the natural water cycle. Water is a sustainable resource, provided that it is not over-used. As water scarcity already affects more than 10% of Europe's population, cities have no other choice but to become water-wise, and better manage this precious resource. Scientific and technological knowledge to foster innovative water management must be accessible for all. This panel will look at the role of water in European cities and examines best practices, viable solutions and cutting-edge developments in water management across Europe that contribute to ensuring that water is used more efficiently and sustainably.

Submitted by Nina KAJANDER - European Commission - Joint Research Centre

Speakers :

ARNOLD Mona - VTT Technical Research Centre of Finland, ELELMAN Richard - EURECAT-CTM, GAWLIK Bernd - European Commission - Joint Research Centre, KAJANDER Nina - European Commission - Joint Research Centre, KAZEZY?LMAZ ALHAN Cevza Melek - Istanbul University

## Is sectoral and disciplinary mobility the key to promote PhD careers?

ANDès, the French National Association for Doctors (PhDs), proposes a roundtable on sectoral mobility

of Doctors in Europe. Created in 1970, ANDès mainly focuses on 3 missions: promoting the PhD by highlighting its added value, making PhDs' skills available for the whole society, and building a network to increase PhDs' visibility and promote their marketability. The PhD degree is originally dedicated to research, generating geographical mobility through research team partnerships, fellowships and career opportunities. However, PhD mobility is not only geographical, it is also disciplinary (via transferable skills promoted by the PhD) and sectoral (academy/industry, research/functions, business creation, etc...). Several programs exist to stimulate mobility during PhDs' careers, even so major variations can be observed across Europe. The proposed roundtable will focus on sector (private or public) and field (R&D or not) specificities, and their attractiveness for PhDs. The guest speakers will discuss the factors encouraging mobility and their influence on careers. Thus questions dealing with disciplinary and sectoral mobility will be addressed. For example, what makes positions more attractive, leading PhDs to switch their expertise field? How are seen PhD degrees accross European countries? What motivates a PhD to switch from industry to academy and vice versa during his/her career? How do Human Resources recognize the added value of a PhD, all along his/her career? Is mobility required to add value to PhDs after several years of experience? The speakers of this roundtable will be chosen to bring a European perspective on the topics described above, based on their own research or mobility. Moreover, during ESOF 2018, ANDès will also organise a one-day satellite event dedicated to all aspects of PhDs' mobility: this will be the third edition of the "Journée de la Communauté Française des Docteurs" (JCFD).

*Submitted by Clément COURVOISIER - Association nationale des docteurs*

*Speakers :*

*DUTHOIT Christine - ANDès Toulouse, GHINELLI Barbara - STFC, KARALIJA Erna - university of Sarajevo, METCALFE Janet - Vitae, RUL Sébastien - Public Investment Bank (BPI), VANDEVELDE Karen - Ghent University*

## **Gender and Diversity Inclusion in Science Education Activities**

In Europe only 33% of researchers are women. Girls are under represented in maths, physics, engineering, computer science, ...Research shows that the way sciences are communicated to young people, in out of school, is not yet gender and diversity inclusive. Young Europeans, both boys and girls, still have very little idea of the variety of careers in science and technology and ths skills that are relevant for those paths. If we want to promote scientific studies and careers towards young people, we should be more inclusive when running science education activities. The Hypatia European project, funded by the EU Horizon2020 program has defined a theoretical framework for gender inclusion criteria to be applied when promoting science and technology for teens and developed a digital toolkit of 15 activities for schools, industry and research and science centers. Some examples will be given as well as other programs runned by L'Oreal Fondation" For Girls in Science", the Experimentarium of Copenhagen and French science centers.

*Submitted by Marie-Agnès BERNARDIS - UNIVERSCIENCE*

*Speakers :*

*BLACK Annie - Fondation l'Oréal, CHICOINEAU Laurent - Quai des savoirs - Toulouse Métropole, LAURSEN Sheena - Experimentarium*

## **Electric vehicles driving the future**

Rendering individual road transport clean and efficient is a global challenge that can only be tackled

through innovation. E-mobility is key for this goal, and the main component of global strategies to shift vehicle design away from the use of fossil fuels and their harmful gaseous emissions. Advanced, faster and easy-to-use recharging technologies embedded into smart electric grids are also essential ingredients for this future, where people will hopefully pay even less for their mobility-energy. Will electric vehicles enable us to decarbonise road transport? Will they make the world greener and more resilient? What are the challenges and obstacles to their adoption? Are they the preferred greener option for all types of cities and routes to take? This session will look at the status of e-mobility, recent technological breakthroughs and future plans. Researchers, academics and industry representatives will discuss the role of research and standards in the common efforts towards further adoption of e-mobility to support the transition to a low-carbon society and lower pollution levels in cities.

*Submitted by Nina KAJANDER - European Commission - Joint Research Centre*

*Speakers :*

*HARDY Keith - Argonne National Laboratory, KAJANDER Nina - European Commission - Joint Research Centre, MCGARRY Darren - European Commission Joint Research Centre, PONCI Ferdinanda - Institute for Automation of Complex Power Systems at the E.ON Research Center at RWTH Aachen University, SCHOLZ Halard - European Commission - Joint Research Centre, SELLE Wolfgang - Ford of Europe AG*

#### 15:15 - 16:30 Parallel sessions

### **Solving the gender paradox in academia**

Gender equality is essential to the development of democratic societies. The future of the knowledge economy in Europe and beyond depends on our ability to attract the most highly qualified men and women. International competition is increasingly important, our welfare states are under ever-greater pressure, and development of solid knowledge as basis for decision making in all parts of society is crucial. However, much work remains before women and men have equal opportunities in academia. The under-representation of women in academia, and particularly at the top-level positions, is still among the most important issues in research and higher education. To strengthen the knowledge base to meet this challenge, the Nordic countries have established the research programme Solving the gender paradox. The panel will present the outputs of this research and invite the audience to provide their input on how cross-border research cooperation can be further developed.

*Submitted by Eivind SÆTRE - NordForsk*

*Speakers :*

*LINKOVA Marcela - Institute of Sociology of the Czech Academy of Sciences, WERDELIN SIMONSEN Jesper - Research Council of Norway, GRIFFIN Gabrielle - Uppsala University, REISEL Liza - Institute for Social Research, FLÅØYEN Arne - NordForsk, BJARNAR Siri - NordForsk*

### **Bridging the Gap Between Experts and the People: Rethinking Science Communication**

With more opportunities and channels for communication, scientists are in closer contact with the public than at any other period. Almost every scientific institution has an educational outreach programme, complete online courses are available for free, and open data and open publishing trends gain momentum. At the same time, the distrust in science has reached a peak point and there is a substantial and growing amount of public disagreement about basic scientific facts, expressed both in

democratic voting results but also in governmental policy. Has science communication failed completely? The panel will address: how does science communication need to respond to a changing environment, of distrust in facts and the scientific method? Does every scientist also need to be a science communicator? Does communication need to be an obligatory part of university curricula? Are Twitter, YouTube and similar social media services really a way to bridge the gap, or self-promotion tools within the filter bubble? Do we actually reach new audiences? With one chair left empty, any member of the audience is invited to occupy the empty chair and participate in the discussion.

*Submitted by Gero VON DER STEIN - Lindau Nobel Laureate Meetings*

*Speakers :*

*GERPOTT Fabiola - VU Amsterdam University, MAIER Tobias - National Institute for Science Communication (NaWik),*

*RAMAKRISHNAN Venkatraman - The Royal Society, TIZABI Minu D. - University of Heidelberg*

## **Research Integrity Funders on the case**

This session focusses on the responsibilities of funding agencies to sustain and referee a European research environment built on the highest standards of research integrity. Funders can have an important role in changing the system by attaching conditions to grants and adopting appropriate internal policies. Positive examples are the Open Access mandates that are changing the way researchers publish their results. Other conditions might be that grantees adhere to a set of defined good practices, that institutes provide training in scientific practices such as statistical methods and data management, and that institutes have systems to advise on research integrity issues. Funders might also adopt internal policies to foster research integrity, such as setting an upper limit on publications listed in applicants CVs to shift focus away from quantity towards quality of research outputs. They might also start funding replication studies and supporting the publication of negative results. But what happens when the research environment may not be fit for purpose in rooting out the causes of violations of scientific norms and values? The importance of publication metrics in research assessment; the focus on positive and novel results by journals and funders; and the increased competition for jobs may push actors to skew their moral compass. At the end of the day, all systems are created by individuals and institutions. This panel of interested parties will critically assess the roles of universities and research institutes, funding agencies, journals, academies, scientific organisations and researchers themselves

*Submitted by Sandra BENDISCIOLI - EMBO, Science Policy Programme*

*Speakers :*

*BENDISCIOLI Alessandra - EMBO, FERGUSON Mark - Science Foundation Ireland, HINEY Maura - Science*

*Europe/Health Research Board Ireland, LEPTIN Maria - EMBO, SMITH Jim - Wellcome Trust*

## **The third millennium surgeon: a robot with artificial intelligence**

The most advanced minimally-invasive robotic surgery is taking over the traditional open surgery, and could change the nature of surgery, forever. The nimble robotic arms that are teleoperated by the surgeon from a high-technology computer-controlled console are capable of complex procedures in hard-to-access areas with unprecedented control and precision. The surgeons eyes are cameras with bright lighting embedded in the robotic fingers, providing high-resolution 3D images that can be magnified on a display, and the "surgeon's hand" movements are translated through the high-technology console into tiny and precise movements of the robotic hands. Since 2000, more than 3

million patients worldwide have been operated by the "Da Vinci Surgical System", that is considered the pioneer of the surgical robots. In the session, the speakers will describe minimally-invasive robots for diagnostic applications, wearable robots for teleoperated surgery, new concepts for automatic robotic surgery, as well as micro-robots for precise drug delivery and personalized therapies.

*Submitted by Anna GRAZIA MIGNANI - European Research Council Executive Agency, <http://erc.europa.eu>*

*Speakers :*

*CUSCHIERI Sir Alfred - Institute for Medical Science and Technology, University of Dundee, MANFREDI Luigi - Institute for Medical Science and Technology, University of Dundee, DOGRAMADZI Sanja - University of West England Bristol, FIORINI Paolo - University of Verona, NELSON Bradley J. - ETH Zurich ? Swiss Federal Institute of Technology*

## How to Lobby for Science?

Much of what is happening on the political agenda affects directly or indirectly the scientific sector. However there is often a low representation of scientists in parliaments or science advisory mechanisms keep room for improvements. Somebody has thus to take a stand for science and represent the position of the scientific sector: The lobbyists for science! Politics affect science directly in many ways, being it in form of science, innovation or educational policy. On the other hand they also affect science indirectly: cases like BREXIT, the eventual Catalan independence or the 2014 Swiss vote on immigration affected or could affect the participation of those regions in the H2020 program. Finally, new legislations on topics such as energy, health, food safety etc. have as well repercussion on science. For those reasons it is of the utmost importance that the scientific sector gets its voice onto the political scene and attempts to influence actions, policies or decisions of legislators or members of regulatory agencies. In the first part of this session we will look at the way different organisations have been active in lobbying for science across Europe and how they encouraged scientists to get engaged. Scientists Dating Forum (Spain) gave a voice to science during the Catalan independence referendum and the subsequent political crisis. Also they mobilised the scientific community of Barcelona for the March for Science. Scientists for EU (UK) lead the campaign by UK scientists to keep the UK in the EU. Sense about Science (EU) strongly promotes evidence in policy making and has lead various workshops on how to stand up for science. LERU (EU) is advocating the values of research-intensive universities to policy makers. In the second part, the audience, facilitated by the speakers, will get involved with a case study about a political scenario in which they have to lobby for science. Results & conclusions of the case study will subsequently be shared & discussed.

*Submitted by Yoran BELDENGRÜN - Scientists Dating Forum / IQAC-CSIC*

*Speakers :*

*BERLIN March For Science - March for Science Berlin, BELDENGRÜN Yoran - Scientists Dating Forum / IQAC-CSIC, DEKETELAERE Kurt - LERU, DIAZ Laura - Scientists Dating Forum, GALSWORTHY Mike - Scientists for EU, VANTHOURNOUT Sofie - Sense about Science (SAS)*

## Success Factors in University-Industry Collaboration

Collaboration between universities and companies have long served a critical mainstay of corporate R&D - from creating the knowledge foundations for the next generation of technologies, to serving as an extended "workbench" to solve short-term, incremental problems, to providing a flow of newly minted talent. As corporations cut down on their internal R&D activities and look to open innovation as



an alternative, universities have become an even more essential partner. This workshop focuses on how to be successful in creating and further developing strategic partnerships between universities and local and international corporations - including SMEs. The workshop gives the target audiences a unique opportunity to learn about the five success factors for creating strategic industry partnerships and how to use the University/Industry Partnership Canvas as a strategic tool in the process. The workshop is based on the book *Success Factors for University Partnerships* (forthcoming Elsevier, fall 2017, edited by Lars Frølund & Max Riedel) where leading companies (Siemens, BMW, IBM, DuPont, Novo Nordisk, AstraZeneca, Rolls-Royce, Ferrovial, and Schlumberger) describe their excellence in industry-university collaboration and the article *Engaging in Regional Innovation Ecosystems - Six Questions to Get Your University Partnerships Right!* (Frølund, Riedel & Murray, forthcoming in *Sloan Management Review*, December 2017).

*Submitted by Lars FRØLUND - MIT Innovation Initiative & Aarhus University*

*Speakers :*

*PAUNOV Caroline - OECD, FRØLUND Lars - Aarhus University & MIT, RIEDEL Max - Siemens AG*

### **Designing future particle colliders: Accelerating particles and innovation**

The field of particle physics works on long timescales. CERN's current flagship research facility, the LHC, was formally conceived in the 1980s, began operation in 2008, and will run for around 30 years. Following the discovery of the Higgs boson, we look forward to much more from the LHC. The Future Circular Collider (FCC) study brings together research centres and business to design the tool that should come after the LHC to continue humankind's journey of discovery. By the end of 2018, the FCC collaboration will present a design report discussing the opportunities offered by large-scale research infrastructure. Breaking the barriers of knowledge and answering the open questions in modern physics require significant technological developments and breakthroughs. From high-field magnets - key components of an accelerator- that call for advancements in superconductivity to issues of reliability and safety applications, the FCC R&D programmes presents numerous challenges for innovators, scientists and entrepreneurs from all over the world who collaborate to address them. Equally important is the training opportunities for the next generation of researchers and innovators. The session will discuss the lessons from the LHC but also the opportunities opened for business in the framework of the FCC study. Participants will discuss about the interplay between fundamental research and technological challenges and more broadly the role that innovation plays in the competitiveness of the European economy. What the different actors involved, from policymakers to scientists, can do to further profit from investments in large-scale research infrastructure? Which are the lessons learned from high-tech companies and how can we maintain the knowhow developed already from the design of the LHC? Which are the technological challenges for a post-LHC machine and how investing in big-science projects can ensure a better future for our societies?

*Submitted by Panosv CHARITOS - CERN*

*Speakers :*

*PELLECHIA Antonio - representatives from another magnet industry company with experience in LHC., BALLARINO Amalia - CERN, STANYARD Joanna - CERN, BOEHM Tea - Fraunhofer Venture, CHARITOS Panagiotis - CERN, LEBRUN Philippe - European Scientific Institute, LEHTINEN Timo - Ramentor*

**15:15 - 16:30 Plenary Panel Discussion: Beyond COP21, challenges of climate change**



Laurent FABIUS - former president of the COP21, President of the Constitutional Council ; Pr. Thomas STOCKER - Professor of Climate and Environmental Physics, Physics Institute, University of Bern, IPCC Coordinating Lead Author then Co-Chair of Working Group ; Pr. Camille PARMESAN – Professor NMA Chair in Public Understanding of Marine Science & Human Health Plymouth University, Adjunct Professor Dept. of Geological Sciences and Senior Research Fellow Environmental Science Institute University of Texas at Austin ; Dr. Jean JOUZEL - former vice president of IPCC, Nobel Peace Prize with the IPCC, emeritus research director CEA

*Place : Palais des Sports*

#### 16:30 - 16:45 Flash Presentations

*Place : Palais des Sports*

#### 17:00 - 18:15 Parallel sessions

##### **Autonomous machines: what are the ethical issues?**

Machines can now automatically learn new skills (pattern recognition, game playing, car driving, etc.) and make efficient decisions in increasingly complex situations. Search engines, self-driving cars, electronic markets, smart homes, military technology, software for big data analysis, and care robots are just a few examples. As the scope of those autonomous machines' activities broadens, it is imperative to ensure that such systems will not make irrelevant, counter-productive or even dangerous decisions. The issue is all the more important as autonomous machines embedded with artificial intelligence and deep learning encounter new situations, evolve in open environments, interact with other agents based on different design principles, act on behalf of human beings and share common resources. This interactive round table focuses on the question: what ethical issues are raised by the use of autonomous machines?

*Submitted by Ganascia GABRIEL - LIP6 - Université Pierre et Marie Curie*

*Speakers :*

*ASAI Ryoko - Uppsala University, DOGAN Ebru Burcu - VEDECOM, GANASCIA Jean-Gabriel - University Pierre and Marie Curie, HARBERS Maaïke - Rotterdam University of Applied Sciences*

##### **Gender inclusiveness: changing cultures, mindsets and the design of research structures in life sciences**

This session presents key findings on research performance, including output, impact, collaboration and mobility through a gender lens across Europe. There is strong evidence that gender diversity in research leads to higher impact research, fosters greater innovation, and results in enhanced business performance. A key question will be how to achieve gender equality in practice. Via concrete case-studies, speakers will argue that gender equality in science will not be complete unless the sex and gender dimension in research design is thoroughly addressed. Examples of how gender equality might be better embedded in the culture of leading research institutes will be given. In line with the United Nations sustainable development goal SDG 5, Achieve Gender Equality and Empower All Women and Girls and the Global Research Councils statement, this panel will offer insight into how research

organisations can position themselves as stewards of gender to promote fairness and equity in research.

*Submitted by Sonja REILAND - Centre for Genomic Regulation*

*Speakers :*

*AGOSTINHO Marta - EU-LIFE, ALMOUZNI Genevieve - Institut Curie, BERGHMANS Stephane - Elsevier, VERNOS Isabelle - Centre for Genomic Regulation Barcelona (CRG), WAKELAM Michael - The Babraham Institute*

## **Resilience and adaptation of forest social-ecological systems in the context of global change**

Healthy forests are part of the solution to climate change but global change is challenging forest policies and management. Forest policies and management have to anticipate decisions for uncertain future scenarios and adaptive strategies are required. In the context of state of change, resilience thinking is preferred to stability thinking. Extreme climatic events, extreme elements and pathogen outbreak will be the main drivers of forest health. New paradigms on risk and multi-risk are needed. Forest policies and management have to consider simultaneously short-term and long-term benefits and risks associated to any decision. Several recent and ongoing research projects have addressed the challenges at a European and international level, in particular in the Mediterranean. The panel will discuss the possible outcomes and pitfall of these approaches. Using a Kahoot!, attendants will be asked to give priorities for selecting the field of actions for an efficient implementation of adaptive strategies.

*Submitted by François LEFÈVRE - INRA*

*Speakers :*

*BAIGES ZAPATER Teresa - CPF Catalonia Centre de la Propietat Forestal, and ARCMED association of Mediterranean forest owners, DALY-HASSEN Hamed - INRA, LEFÈVRE François - INRA, MURATORIO Sylvie - INRA, PETTENELLA Davide - TESAF, University of Padova, WINKEL Georg - EFI European Forest Institute, Bonn Office*

## **Digital media: opportunities and risks for communicating research**

Modes of communication have changed over the past 10 years with more people than ever catching the news online and on social media. In this session, we will assess how the digital era is affecting different levels in the scientific information continuum. Scientific editors, scientific writers, scientific communicators and lay people must all get used to this new landscape. Some questions rise from this evolution: What does a scientific report nowadays consist of? How do journalists work under the pressure of algorithms? How are opinion and comprehension of scientific topics by lay audiences influenced by media consumption habits? We will also examine how scientific editors are adapting their processes, with a new generation of online peerreview systems. We will investigate how some research institutes have renewed their communications staff to be able to develop an owned media strategy. On the one hand, direct access to an increasing amount of research information is now available. On the other hand, face-to-face conversations are used more and more by young people to share information. During the session, speakers will share experiences and present international studies in order to evaluate risks and opportunities of such "non-intermediated communication". They will question whether this kind of communication is required to regain trust in science amongst citizens.

*Submitted by Séverine CIANCIA - Institut National de la Santé et de la Recherche Medicale (INSERM)*

*Speakers :*

BROSSARD Dominique - Department of Life Sciences Communication, the University of Wisconsin-Madison, CIANCIA Séverine - Institut National de la Santé et de la Recherche Médicale (INSERM), DEGETT Jens - European Union of Science Journalists' Associations (EUSJA), FRANCIS Ruth - F1000

### Why don't governments take citizen scientists seriously?

Citizen Science has expanded thanks, in part, to new apps and tools. Examples range from tools for monitoring invasive alien species in Europe to apps that provide information on the use of public space. These developments increased citizen participation and the amount of data generated. However, strategies still need to be found in order to recruit and retain citizens' engagement, and to address competition among projects as the number of projects increases. There remains a lack of trust in the use of the results of citizen-led initiatives by decision makers and established institutes, diminishing the generalised uptake of this approach. Policy-makers lack accurate estimates of the potential impact of Citizen Science initiatives and there are few examples of projects with a tangible impact on decision-making. One key issue to address is the lack of trust in the quality, continuity and robustness of the citizen-collected data and of the scientific knowledge created out of it. This session will address these issues by bringing together Citizen Science initiatives, citizens and policy-makers to share short accounts of their experiences with the emerging structures, and debate the recent advances and the most promising future developments, particularly for building trustful relationships.

Submitted by Mafalda QUINTAS - COST

Speakers :

CARDOSO Ana Cristina - European Commission DG JRC, GALIAY Philippe - European Commission, DG Research & Innovation, ROBERTS Stuart - Not applicable, ROY Helen - NERC Centre for Ecology & Hydrology, SCHADE Sven - European Commission, DG Joint Research Centre, SILVA FERREIRA Cristina - Lisbon City Council, VOHLAND Katrin - Museum für Naturkunde Berlin, MATEUS Diogo - Universidade Lusófona

### How to improve the involvement of patients in health research?

Patient engagement in health research is being increasingly recognised by industry, patients and citizens, researchers and policy makers. However, there is a lack of structure and consistency on how to approach the different phases of the process: research priority setting, research design and planning, research implementation, evaluation and dissemination. What are the benefits for the different stakeholders to work with patients? How does the digital era change the interface between patients and researchers? How can patients participate in the different phases of the process - from setting up of research priorities to executing the research and communicating it? The session will map the current state of the art, benchmark governance setting and identify drivers and barriers. It will allow to gather best practices in Europe and give a practical roadmap to patients and research organization to better manage these interactions.

Submitted by Clémentine CHENOST - Institut Pasteur

Speakers :

GEISSLER Jan - European Patients' Academy on Therapeutic Innovation, BROERSE Jacqueline - Vrije Universiteit Amsterdam (VU Amsterdam), AKRICH Madeleine - Mines Paris Tech, DENEGRÉ Simon - National Institute for Health Research (NIHR), KAPITEIN Peter - Inspire2Live, MALAGRIDA Rosina - Irsicaixa, CHENOST Clémentine - Institut Pasteur

### The three-legged stool: synergies between environmental planning, the landscape approach and

## community engaged design to create a shared sense of city place

Science and society relations are at the heart of spatial planning processes. This session examines increasing urban sprawl and unprecedented levels of pollution to ask how can we live together and share and apply science in our cities? Success implies sustainable lifestyles based on a critical mind-set, an awareness of others and our surroundings as well as a real empowerment of communities and designers. Yet, how can we involve whole communities in the design of our cities? Urban design and planning practices, informed by national policies, implement scientific technologies that contribute to local spatial identities, to allow us to come together as societies and create a shared sense of place. Citizens movements also organise systems of local urban governance by reclaiming public spaces as common ground. Yet, applying science to a territorial and social project is not straight-forward. Our panel introduces speakers from research, professional practice and collectives. Their presentations use local and international action research case-studies to develop a dual perspective on contemporary urban design and place-making. Insights into urban ecological design and participatory practices are discussed as part of a co-design approach. This cross-disciplinary perspective allows for debate between environmental and social sciences in their approach to innovative design in the evolving cultural urban setting.

*Submitted by Anaïs LEGER-SMITH - Ecole Nationale Supérieure d'Architecture de Toulouse, Laboratoire de Recherche en Architecture*

*Speakers :*

*CLASSE Jérôme - Atelier ATP, Architecture and Landscape studio , Toulouse / French Federation for Landscape Architecture, Region Occitanie / Toulouse National School of Architecture, HOWLETT Rachel - British Landscape Institute & University of Sheffield, United Kingdom, LEGER-SMITH Anaïs - Ecole Nationale Supérieure d'Architecture de Toulouse, Laboratoire de Recherche en Architecture , LEQUOY Thomas - Laboratoire de Recherche en Architecture, Toulouse National School of Architecture / POEP UP collective, MOISSET Alexandre - Toulouse National School of Architecture, PÉRÉ Anne - Laboratoire de Recherche en Architecture, Toulouse National School of Architecture, SANDRINI Clara - Laboratoire de Recherche en Architecture, Toulouse National School of Architecture, SMITH Paul - Independant Landscape Architect, British Landscape Institute*

## Assessing and enhancing the social impact of research

The scientific research establishment strives to achieve scientific, societal and economic impact. Governments around the world are increasingly demanding that public investments in science demonstrate tangible impacts. Europe has been leading global best practice in targeting and assessing research impact. Research Impact Assessment (RIA) is well established but the changing relations between research, innovation, and society require new ways of conceiving and practicing RIA. The UKs Research Excellence Framework includes the largest ever ex-post evaluation of research impact. Europe is currently aiming to improve the innovation ecosystem in order to increase the economic impact of research. This session will discuss best international practice on Research Impact Assessment and how it is being used to set national policies.

*Submitted by Mark FERGUSON - Science Foundation Ireland*

*Speakers :*

*BAULD Linda - University of Stirling, FERGUSON Mark - Science Foundation Ireland, MOLAS GALLART JORDI - INGENIO (CSIC-UPV), HILL Steven - Research England, JOLY Pierre-Benoit - INRA, JOLY Pierre-Benoit - INRA,*

GUNNING-SCHEPERS Louise - University of Amsterdam, VEUGELERS Reinhilde - KU Leuven

## **Innovative Entrepreneurship in the fields of Humanities and Social Sciences**

If technologies and natural sciences are always in the spot lights when we think about innovation, humanities and social sciences can also be an important driver for value creation in a knowledge based economy. However, only few early stage researchers in these fields can envision themselves as entrepreneurs. They face difficulties to imagine ways they could transform the results of their research into a business model. Many tools today exist to assist PhDs in the process of creating a business in Europe: from business awareness up to extensive guidance provided by different kinds of valorization and development structures. With 15 years' experience in Transfer of Technologies applied to exact and applied sciences such as Engineering, IT or Biotechnologies, these tech-transfer offices mainly focus on the creation of disruptive innovation-based startups with indicators like the Proof of Concept and the patent application. Unfortunately those indicators are not always relevant for innovations in the fields of Humanities and Social Sciences. In this session, we propose to review different approaches to transform research results into innovation and value creation in the fields of Humanities and Social Sciences, and initiatives to help PhDs become innovative entrepreneurs

*Submitted by* Clément VARENNE - Université Fédérale de Toulouse Midi-Pyrénées

*Speakers :*

CHRISTELLE Ventura - Adoc Talent Management, FURET Deborah - EHESS Paris, MARGRAFF Frédérique - Université Libre de Bruxelles (ULB), MARK Mann - Oxford University Innovation

## **Are policies of "excellence" excellent for the careers and for scientific activity?**

For at least 10 years research policies have tended to focus on "excellence" in most OECD and European Countries and favored the implementation of devices like Labex (laboratories of excellence) or Equipex (Equipment of excellence) in France, Excellenz Initiativ in Germany, etc. What can be said about the effects on careers of these policies in a few years? Do they favor already heavily funded researchers to the detriment of others (according to the Mathew effect) or do they create communities in which everyone can perform "excellent" activities? Are they pushing creativity or do researchers fear so much for their careers that they imitate the leaders and heavy names of their field? In this session, researchers will endeavor to address this issues from experiences in a variety of countries.

*Submitted by* Vincent SIMOULIN - CERTOP

*Speakers :*

BACCINI Alberto - University of Siena, CRESPI Cecile - LaSSP, LANGFELDT Liv - Nordic Institute for Studies in Innovation, Research and Education - NIFU, SIMOULIN Vincent - CERTOP, TÖNISMANN Teele - LaSSP, VICENTE Jerome - LEREPS - Sciences Po Toulouse

## **TechTrends 2021 - Impact of technologies and innovation in scholarly communications**

The use of new technologies is changing the world of research and simultaneously having an impact on scholarly communications. The STM Association Future Lab Committee via the TechTrends 2021 project has been looking at technology trends for years, trying to map the complex technology landscape we find ourselves in at this times of digital transformations. What Heinz R. Pagels, American Physicist, described back in 1982 in his book The Cosmic Code: Quantum Physics as the Language of



Nature, "The world changed from having the determinism of a clock to having the contingency of a pinball machine" has inspired the The Future Lab to visualize the new digital environment as a giant pinball machine, with different components reflecting the "ball" of value around the field of play, buffeted by bumpers, and potentially high-scoring opportunities in service of various areas. The ball, in this visual metaphor, is launched through innovation onto the playing board, with the ball representing value for all of scholarly communications, including researchers, libraries, and publishers. The overall board is divided into several sections, where technologies have a role around the key themes of integrity and trust. These core values are critical elements of what it means to provide scholarly information, that is vetted, reviewed and that people can rely on now and in the future. Around each of these sections are mapped all the technology trends and innovations that are related and supporting the core values. Using the infographic described above as a starting base for discussion, the session wants to understand how digital technologies are changing scholarly communications and how Publishers are embracing innovation and technologies to support evolving needs of researchers.

*Submitted by Federica ROSETTA - Elsevier*

*Speakers :*

*AALBERSBERG Ijsbrand Jan - Elsevier, BURGELMAN Jean-Claude - DG Research and Innovation, European Commission, FERGUSON Liz - Wiley, JONES Phill - Digital Science, MARCHANT Liz - Taylor & Francis Group, ROSETTA Federica - Elsevier, SMIT Eefke - International Association of STM Publishers, VAN WEGBERG Rolf - PhD candidates Network of the Netherlands (PNN)*

## **IoT 360°: FROM SKIES TO DEEP SEA. HOW TECHNOLOGY AND BUSINESS WILL SHAPE THE FORTHCOMING POST-HUMAN (AND POST-EMBODIED) SOCIETY**

Such as we know IoT is at the heart of Innovation and has by now an enormous impact on the way we do business. By 2020, 50 billion devices will be connected and the expected market worth is ? 14 trillion. From skies to deep sea every domain will be soon over-connected, while the globally flaunt premise is to make human's lives easier and less risky. But, are we sure it will gonna be like that? Industry leadership and cutting edge research must take into account that commercial value should always fit with human one and with (changing) worker's rights. That's why we try to figure out how humans could work under machines and what's gonna be the real sense of 'interaction' in the new post-human era. Furthermore, we will highlight what are either current or future trends of technology, what are the needs and the wants of industry and how disruptive technologies IoT-like are rapidly boosting the so craved Blue Growth. The new deal of forthcoming Digital World has still to be written but in our panel we have right persons who can address right issues. Are human societies under a 'cyborgization' process? Professor Paolo Benanti from Pontificia Università Gregoriana of Rome will answer to this fascinating question, as well as Dr Isabelle de Cremoux from french Seventures will point out how an innovative startup focused either on Life Sciences or IoT technology could manage this multi perspectives approach to boost projects that will enrich future societies. Professor Chiara Petrioli from Italian Wsense, a leader company in the field of Internet of Underwater Things, will talk about new blue economy opportunities and related technologies, while Dr Adam Schink from UK based National Oceanography Centre innovation hub, will focus on how marine robots are going to change our lives and business. Last but not least, the UK expert of Data integrity and security for IoT Michele Nati will talk about data-driven economy or how "Digital Catapult" may generate economic growth.

*Submitted by Marco MEROLA - Journalist & Communication manager*



*Speakers :*

DE CREMOUX Isabelle - Seventure Partners, BENANTI Paolo - Pontificia Università Gregoriana of Rome, MEROLA Marco - Journalist & Communication manager, NATI Michele - Digital Catapult, PETRIOLI Chiara - Wsense, SCHINK Adam - NERC's National Oceanography Centre

**18:30 - 19:15 POSTERS VIEWING****20:00 - 23:00 President's diner (upon invitation)**

# 11/07/2018

## 08:30 - 09:45 Plenary Panel Discussion: War on drugs

Nicholas CLEGG - Member, The Global Commission On Drug Policy; Former Deputy Prime Minister 2010 - 2015 & Leader of the Liberal Democrats Party 2007 - 2015 ; Pr. Michel KAZATCHKINE - Professor, Special Advisor to the United Nations Joint Program on AIDS (UNAIDS) in Eastern Europe and Central Asia, Member, The Global Commission On Drug Policy, Former Executive Director of the Global Fund to Fight Aids, TB & Malaria

Place : Palais des Sports

## 08:45 - 10:00 Parallel sessions

### Lets talk rubbish: creating value from crop & food waste

In Europe alone, around 90 million tonnes of food and 700 million tonnes of crop are wasted every year. This session demonstrates how researchers and technologists are developing new ways to produce a wide range of innovative products from unavoidable agricultural, horticultural and food processing waste. These include functional foods, active packaging, biodegradable materials, fertilisers and biofuels. To ensure future sustainable growth, Europe is encouraging the replacement of fossil fuel-based products with sustainable alternatives from renewable, biological sources, such as plants, microbes and animals. But how can we supply an increasing world population with both food and other bio-based materials sourced from a finite area of agricultural land? Part of the solution must lie in making more from waste. This panel will argue that the take-make-waste business model applied to agriculture is both undermining food security and endangering the global ecosystem. For example, over a billion tonnes of food is wasted globally every year, with significant losses at the field and food-processing levels. Topics raised will include what the potential is for using agri-food waste to meet our resource needs? Are there any risks to human or soil health? What are the commercial, technical or regulatory barriers to success? What is the current state of bio-economy in Europe and what are the likely impacts for farming, industry and the environment?

Submitted by Elspeth BARTLET - BioVale

Speakers :

BARTLET Elspeth - BioVale, BRADSHAW Carrie - University of York, United Kingdom, BUGNICOURT Elodie - IRIS, Spain, DE NEVE Stefaan - Ghent University, Belgium, MURPHY Fionnuala - University College, Dublin, PIOTROWSKI Stephan - Nova institute, Germany

### Is the current measure of excellence perverting science?

Scientific reproducibility is a fundamental aspect of the Scientific Method, a process established in the 17th century which marked the start of modern science. Yet the current reproducibility crisis has led us to an era where scientific results are regularly questioned and challenged. How did we get there? What made scientists slowly diverge from a principle that should be at the core of their methodology? Elements of answers can be found in a system where excellence in science is being drowned by numerical ranking, favouring productivity over discovery. Challenges are similar across disciplines, and a disruptive change in policy is required in the short-term. The promised deluge of data generated by

megascience projects and infrastructures, and the consequent deluge of methods to analyse those data, should not detract from excellence in science. Solutions are starting to emerge, involving using e-science technologies to enhance scientific collaboration, ensuring transparency, opening data collection and methods, or encouraging open science, amongst others. Are we ready to take up that challenge? It seems time to ask ourselves, What research do we want to do tomorrow? In this session, experts from different fields will discuss this critical issue, through both concrete initiatives in radio astronomy, physics, biology and environmental science but also from the point of view of a prestigious science journal and the European Commission.

*Submitted by William GARNIER - SKA Organisation*

*Speakers :*

*CHIAO May - Springer Nature, CHRYSTOSTOMOU Antonio - SKA Organisation, DOZIER Jeff - University of California, Santa Barbara, GARNIER William - SKA Organisation, GOBLE Carole - University of Manchester, NEUBERT Sebastian - University of Heidelberg, VERDES-MONTENEGRO Lourdes - IAA-CSIC (Instituto de Astrofísica de Andalucía), von schomberg rene - european commission*

## **Ethics, social values and artificial intelligence**

When designing autonomous machines embedded with artificial intelligence, the integrated design of ethical safeguards can be difficult. One way may be to consider human values that are at stake in the machines behaviour, and identify when those values are promoted or infringed. In artificial intelligence, the notion of human values is left to the end-users discretion with respect to the targeted application. The reason is that human values are abstract concepts from philosophy, social sciences and psychology while computer science needs explicit formal definitions. While some works tried to define what should be general values for intelligent systems, modelling those values remains a key issue. This highly interactive session will put the audience in an ethical designers shoes, and let it experience the difficulties of designing with values. As an example, social networks moderation is important due to the presence of racist, sexist or illegal content, or to fight bullying. However, automated moderation may also forbid and constrain freedom of speech. The audience will be asked to design of a moderation procedure in terms of social values, identify situations when those values could be conflicting, and find ways to deal with them.

*Submitted by Thibault DE SWARTE - IMT Atlantique*

*Speakers :*

*DE SWARTE Thibault - IMT Atlantique, DE SWARTE Thibault - IMT Atlantique, GUIZOL Léa - ARDANS, NICOLAS Cointe - Ecole des Mines de St Etienne*

## **The values of biomedical innovation**

Biomedical Innovation (BI) is acknowledged as a potentially game-changing set of innovations that could transform the practice of medicine. It includes bioprinting, regenerative medicine, biomaterials, nanomedicine, gene editing, stem cell therapies and other forms of treatment based on life sciences. Valued by multiple stakeholders such as academia, regulators, health technology assessment and ethics bodies, trade, health professional and patient organisations, several BI initiatives have been launched in Europe. This panel explores how the values of BI are expressed, represented, materialised and aligned or contested. This will be in different biomedical contexts of regulation, public (health and economic) policies, bio-healthcare provision, producers' strategies ('value chains'), and in other arenas

of innovation. While value might have different meanings, it can be understood as something that has a financial or symbolic interest. In the fields of health and healthcare policy, there is an increasingly explicit debate using the terminology of value itself, with different interests expressed. Providing their own disciplinary view on the values of BI, speakers will help identify areas of interdisciplinary convergence and divergence around risk and safety, health inequalities and ethical issues while signposting common solutions.

*Submitted by Aurélie MAHALATCHIMY - UMR7318 DICE-CERIC (CNRS-Aix-Marseille Université-Université de Pau et des Pays de l'Adour-Université de Toulon et du Var)*

*Speakers :*

*BLASIMME Alessandro - Epidemiology, Biostatistics and Prevention Institute, University of Zurich, BROS-FACER Virginie - EURORDIS-Rare Diseases Europe, FAULKNER Alex - Centre for Global Health Policy, School of Global Studies, University of Sussex, HILDEBRANDT Martin - TUM Cells TU München, University of Munich, MAHALATCHIMY Aurélie - UMR7318 DICE-CERIC (CNRS-Aix-Marseille Université-Université de Pau et des Pays de l'Adour-Université de Toulon et du Var), PARIS Valérie - Organisation for Economic Co-operation and Development (OECD)*

## **Why do so few girls choose fundamental science and engineering?**

Girls are excellent pupils in secondary schools in Europe; outperforming boys in some countries, particularly in scientific formations. In higher education, although Life Sciences, Chemistry and Medical studies are very popular among girls, mathematics, data processing, physics and engineering are lacking women. Change is extremely slow, and these areas are crucial in solving the great challenges of humanity in the next 50 years. Ingrained cultural biases in education systems go to the heart of the problem and addressing these should be a priority. What should the role of the scientific community be to empower young people and parents to make appropriate subject and career choices? Different associations in Europe led by successful scientific women have developed tools and interaction with girls to stimulate their interest for the scientific orientations and notice that when female students are informed they choose these fields with great interest. So girls need more support than boys, because of the lack of historic female role models and their frequent belief of lower legitimacy than boys in scientific fields.

*Submitted by Sylvaine TURCK-CHIEZE - Association Femmes & Sciences/ CEA*

*Speakers :*

*HERMANN Claudine - Association Femmes & Sciences, LOUSADA Isabel - NOVA FCSH - CICS.NOVA Interdisciplinary Centre for Social Sciences, PALECO Carole - Institut royal des sciences naturelles de Belgique, Brussels, ROWSON Jessica - IOP, education department*

## **Science is never boring**

"In the short term, science helps make our lives better; but in the long term, it will be crucial to our continued affluent survival": These are the words of Nobel Prize winner, Brian Schmidt, at the World Economic Forum 2016. The challenge facing scientists is that not everyone is convinced of this type of assertion and so it is vital that they continually prioritise the promotion of science and its value to all areas of our present and future lives. In an increasingly 'noisy' world where messages are competing fiercely with each other, it is vital that scientists are heard amongst the many contradictory voices that inhabit the global 'airspace'. As the guardians of our scientific future, early career scientists will need to

develop advanced creative and innovative communication skills and to engage in high-impact outreach activities to deliver their messages to society's actors, including the public, government and the media. Recent advancements such as social media, video, podcasting, Snapchat, etc allow scientists to reach their audiences through many more avenues of knowledge exchange than ever before, however the message must always be clear, engaging and high-impact. In this interactive session we invite science communicators from countries in Europe to tell short stories about their communication experiences. We will hear from science writers, journalists, outreach professionals and theatrical artists, as well as working scientists who are using different methods to promote science in ways that are serious, exciting and engaging. Furthermore, we aim to link with ESOF's "Science in the City" as an excellent example of scientists engaging with the public directly, and we will invite members of our audience to relate their own experiences of positive and successful communication.

*Submitted by [Sarah Blackford - Independent/Lancaster University](#)*

*Speakers :*

*[CATANZARO Michele - Independent](#), [Blackford Sarah - Independent/Lancaster University](#), [GOULD Julie - Freelance](#), [LEBOEUF Adria - The Catalyst](#), [VIARISIO Verena - EMBL](#), [ZUPANC Jernej - Seyens Ltd.](#), [CHABROL Elodie - Pint of Science](#), [LEVINE Alaina - President, Quantum Success Solutions](#)*

#### **09:45 - 10:00 Flash Presentations**

*Place : Palais des Sports*

#### **10:15 - 11:30 Parallel sessions**

##### **Urban mining: dream and realities**

"Urban Mining", a short cut for naming the extraction of precious or strategic metals out of discarded equipments, including electronics industrial and domestic equipment, is today considered as a way to reduce pollution by solid state wastes, secure the procurement in strategic chemical species at the scale of a country and anticipate the sustainable industrial development worldwide. It sets economic, scientific, social, legal and political issues which will be discussed during this workshop by 4 internationally renowned speakers from 4 different countries in Europe. A discussion with the audience will be organised and possibly continued in a "science in the City" event organised later during the forum in the city of Toulouse.

*Submitted by [Pierre AIMAR - Université de Toulouse](#)*

*Speakers :*

*[BAHERS Jean-Baptiste - Université de Rennes 1](#), [BEOLCHINI Francesca - Università Politecnica delle Marche](#), [DEADY Eimear Anne - British Geological Survey](#), [REUTER Markus - Helmholtz-Institute Freiberg for Resource Technology](#)*

##### **How best to integrate academics and students refugees into higher education**

Access to basic and higher education are among the numerous challenges refugees face. Refugees often interrupt their studies when they leave their native countries. This panel aims to identify and discuss ways to integrate displaced students and academics into higher education institutions in receiving countries. It will highlight initiatives that allow various paths to access to higher education and

to encourage the sharing of scientific knowledge. The panel presents perspectives from a refugee scientist, nongovernmental organisations, a university leader responsible for international initiatives and a European policymaker. They will share their insights on the various initiatives as well as obstacles that refugees face in accessing higher education and in continuing their scientific training or work. They aim to stimulate interaction with the audience through the application Kahoot.it or Twitter. The audience will have the opportunity to contribute to a Europe-wide survey and resulting policy paper on the issues.

*Submitted by Miguel ANTONIO LIM - University of Manchester; The policy working group of Marie Curie Alumni Association*

*Speakers :*

*AL OUSTAH Amir - Université Paul Sabatier, Toulouse, FEHRINGER Kitty - European Commission, LAERA Andreina - University of Paris Est / The policy working group of Marie Curie Alumni Association, LIM Miguel Antonio - University of Manchester, MURRAY Rebecca - Article 26, Helena Kennedy Foundation, BLÖCHER Maria - Kiron Open Higher Education, ROSEBROOK-COLLIGNON Jaclyn - CoMUE Migrant Work Group of the Grenoble Alpes University, ADRIANOPULU Eleni - Welcome Centre / EURAXESS Service Centre of Bielefeld University*

### **Citizens and Science Advice - challenges and opportunities of participatory science advice**

If as some say, we have had enough of experts then is there a future for expert science advice to policy makers? If facts are a turn-off, can we ever really engage the public in the process of evidence informed decision-making, and is it even feasible? Eurobarometer surveys suggest that most Europeans believe that science will help society face its most pressing issues in the next 15 years. So why for example are vaccination rates declining? And why are so many other scientific achievements and recommendations so contested? To be trusted and accepted by the public, science advice must be based on the core principles of transparency, integrity, independence, accountability and excellence. This session will examine if and how credibility, acceptability and impact of science advice can be strengthened by involving citizens, rather than treating them as passive recipients. Should science advisors also consult the public when choosing issues on which to produce advice? Can a diverse and numerous citizenry really be involved in a truly representative and participatory manner? And how can this be done in an efficient manner while ensuring the independence of experts and the policy relevance of the science advice? What are the additional advantages or possible challenges to be considered? How can different actors scientific advisors, scientists, citizens, politicians, and media help to bring science advice and citizens closer? Can digital and social media help? Different structures delivering science advice to governments, including the European Commission's Scientific Advice Mechanism (SAM), science advice bodies from European Member States, the European Academy Networks and national Academies will be presented in this session. It explores ways of engaging citizens at different stages during the development of science advice, in particular on questions which are of direct concern to civil society (such as climate change, health and environment-related issues, digital rights and cyber security). It discusses experience and lessons learned drawing on the experience of SAM and other science advice structures, and aims at identifying best practice. This includes an interactive discussion with the audience on new ways of bringing science advice and citizens closer together.

*Submitted by Sigrid WEILAND - European Commission*

*Speakers :*

*WIDEGREN Erika - Re-Imagine Europa, KEIZER Anne-Greet - Scientific Council for Government Policy(WRR), The*



Netherlands, DYKSTRA Pearl - European Commission Scientific Advice Mechanism, BUJNICKI Janusz - European Commission's Scientific Advice Mechanism, MAXTON Julie - Royal Society, BESTMANN Sven - Young Academy of Europe

## **Carbon capture and utilization for climate change: hype or hope?**

Carbon is a vital element at the basis of our life on Earth. Yet carbon dioxide produced by human activities is one of the main Green-House Gases responsible for climate change. Managing CO<sub>2</sub> in our atmosphere is one of the greatest social, economical and political challenges of our time. In this session speakers will discuss how businesses are addressing climate change, in relation to CCU (carbon capture and utilization), and how EU climate change strategy affects business practices. In April 2018, the Scientific Advice Mechanism will produce an Opinion (from the High Level Group) and an Evidence Review Report (using expertise from Academies across Europe via SAPEA). The session will present the climate change mitigation potential and economic viability of CCU technologies, how these findings will inform future EU policy decisions in this field, but also the challenges. A number of CCU technologies and innovations are being developed to transform CO<sub>2</sub> from a liability into a resource. CO<sub>2</sub> can be used to manufacture new building blocks for the chemical industry as cleaner and more sustainable alternatives to petrochemicals. CCU technologies are subject of a policy debate at EU level as could offer the potential for transitioning to a low-carbon green economy and reaching the Paris agreement targets (which for the EU is to reduce GHG emission by 40% by 2030 compared to 1990). The EC has initiated many proposals to revise the current regulatory framework (EU ETS), where an Innovation Fund could be created to support decarbonization innovative technologies which show climate change mitigation potential. The climate change mitigation potential of CCU technologies is still unclear and some of the challenges to be discussed are: quality and quantity of CO<sub>2</sub> which need to be captured whether the techniques are energy efficient, environmentally friendly, and socially and economically viable - as they need to replace existing technologies and products

Submitted by Antonella DI TRAPANI - Euro-CASE

Speakers :

CARVALHO Maria Da Graca - EC DG RTD SAM Unit, CARVALHO Maria Da Graca - EC DG RTD SAM Unit, DI TRAPANI Antonella - Euro-CASE, FORTUNATO Elvira - EC HLG, MATRAIA Tomas - The Adwisers, NEVICATO David - Total, SCHLOEGL Robert - Fritz-Haber-Institut der Max-Planck-Gesellschaft

## **How has gender influenced the very fabric of science ?**

This session will question the way in which science has been structured according to gender. The panel will consider the ways in which gender can orient knowledge production: humanities studies of research work positions have shown that in the sciences, the increase of women led to a reconsideration of certain subjects and hypotheses. The case of primatologist Donna Haraway, for example, is emblematic of how the arrival of women into a field has revolutionised scientific knowledge. We will also discuss the way in which knowledge about health is mediated. For example, women were pioneers in the field of endocrine disrupters and brought this question to the safety, risk assessment and policy agencies, with this ingrained idea in biology that female is "the sex by default". Finally, we will discuss how biological studies influenced by sexual dimorphism and how preclinical studies in female animals and medical studies for women were overshadowed in some fields, leading to gender inequality in terms of knowledge about female physiology and health.

*Submitted by Laurence HUC - TOXALIM UMR1331*

*Speakers :*

*BRIVES Charlotte - Emile Durkheim center, sciences Po, DELLA SUDDA Magali - Emile Durkheim center, sciences Po, HUC Laurence - TOXALIM UMR1331*

## **THE WAR ON OPIOIDS VERSUS ADVANCING DRUG POLICY REFORM & DECRIMINALISATION**

This high-level, plenary-style panel will evidence how the goal of a 'drug-free world' backed up by a 'war on drugs' anchored in 'science' and enshrined in the international drug control treaties is both naïve and dangerous. Naïve, in that prohibition has had little impact on drug use with the number of consumers increasing by almost 20% from 2006-2013 to 246 million people. Dangerous, in that prohibition fuels inhuman and coerced drug treatments, massive incarcerations, extrajudicial killings and the death penalty in contravention of international law, stokes the spread of blood-borne viruses, drives human rights abusers for profit and contributes to the drug-related deaths of nearly 200,000 people annually. Strict drug laws have also escalated public health crises in the form of HIV and hepatitis C epidemics, Eastern Europe and Central Asia being regions of concern. Case-studies on Crimea, Georgia and EU countries will be given, alongside updates from Latin & Central America. Nevertheless, a welcome shift is taking place in global drug policy, both in terms of public discourse, scientific evidence and policy implementation. An increasing number of national or local authorities are experimenting different ways of regulating the cannabis market, facilitating opioid substitution therapies and harm reduction interventions, supervising and scaling-up injecting facilities and drug testing services, or implementing alternatives to criminalising those who use drugs. Yet, much still needs to be done to challenge the way societies view drugs and those who use them. This panel will draw on the evidence of the Global Commission on Drug Policy, including the direct testimonies of the mother of a child needing medical cannabis, a person using drugs or a Minister responsible for corrections. XXXXXXXXXX

*Submitted by Aidan GILLIGAN - SciCom - Making Sense of Science*

*Speakers :*

*CLEGG Nicholas - Member, The Global Commission On Drug Policy; Former Deputy Prime Minister 2010 - 2015 & Leader of the Liberal Democrats Party 2007 - 2015., COOKSON Clive - Financial Times, FORDHAM Anne - International Drug Policy Consortium (IDPC), GILLIGAN Aidan - SciCom - Making Sense of Science, KAZATCHKINE Michel - United Nations & Brussels Declaration Co-Chair, SARANG Anya - Rylkov Foundation for Health & Social Justice, TALAKVADKE Archil Talakvadke - Government of Georgia, VERSTER Annette - World Health Organisation*

## **Soft hacking Science: improving research through hacker culture**

Under the moto, "Open Science, Open Innovation, Open to the world", Europe has outlined a clear vision for Research and Innovation in the digital age. Openness is the key to becoming more collaborative, efficient, transparent and inclusive, for the benefit of all: researchers, citizens, policy-makers, funding bodies and the private sector. It's a beautiful idea, but how do we put this into practice? Much of the innovation in this space comes from open and collaborative practices that have developed around the free and open source software movements, hackerspaces, maker and DIY culture. Through real-world research these communities, both on- and offline, have been iterating and evolving the tools and practices for open transdisciplinary collaboration. But how can hacker culture, which emerged as a challenge to authority, and traditional institutions come together? What happens

when open practices are adopted and adapted by institutions so called, "soft hacking"? In this session, we will look at the role of new spaces and initiatives at the crossroads of these different worlds. We will present case studies of projects where institutional actors (private sector, public research centers and universities) connect with new spaces (biohacker spaces), events (hackathon, data sprint), communities (DIY communities, artists, clinicians, entrepreneurs) and infrastructures (open science platforms). Each project will share two versions of their story: their success and their failures.

*Submitted by Célya Gruson-Daniel - 1986*

*Speakers :*

*GRIGOROV Ivo - National Institute of Aquatic Resources, DE FRESNOYE Olivier - Epidemium, FOURNIER Marc - La Paillasse (collaborative open research space), Gruson-Daniel Célya - 1986, PATERSON Lucy - Berlin Science Hack Day and Community, CHENOST Clémentine - Institut Pasteur*

### **Connected toys & social robots: what measures are in place to assist but equally protect your kids?**

Sales of "connected toys" from smart watches to interactive teddy-bears are expected to reach 10 billion by 2020, up from just 2.6 billion in 2015. Together with other connected appliances they form the Internet of Things, bringing technology into our daily lives more than ever. Proponents argue that connected toys provide important opportunities for play and learning, as well as for health and educational support. For example, social robots may help the acquisition of foreign language skills by compensating for the lack of native speakers as language tutors. There is also evidence supporting the benefits of child-robot interaction for children with developmental problems, such as autism or learning difficulties, who may find human interaction difficult. Opponents point to concerns about children's safety, privacy and social development. These toys' can record, store and share information about their young users. This data such as the sounds children make, records of their images and movements are protected by national legislation and the EU data protection framework, as well as by the new General Data Protection Regulation (GDPR). However, the information on how this data is stored, analysed and shared might be hidden in long privacy statements or policies and often go unnoticed by parents. In this Pecha Kucha session, speakers will argue the case for and against the Internet of Toys while making firm recommendations about future research and policy requirements.

*Submitted by Nina KAJANDER - European Commission - Joint Research Centre*

*Speakers :*

*CHAUDRON Stephane - European Commission - Joint Research Centre, KAJANDER Nina - European Commission - Joint Research Centre, MARSH Jackie - The University of Sheffield, MASCHERONI Giovanna - Università Cattolica del Sacro Cuore, MCGARRY Darren - European Commission Joint Research Centre, YAMADA-RICE Dylan - Dubit Ltd*

### **A new era for migration data?**

Globalisation, climate change, inequality, instability and conflicts will continue to push people to move in search of safety, a better life and better economic opportunities. As a result, migration will stay, and this will have an impact on multiple aspects of our lives, including employment, education, welfare and healthcare systems. Accurate and timely data are needed to understand migration and its impact on societies. Although not replacing the need to improve official statistics and data collections, big data and alternative uses of existing data offer a way to reduce uncertainty and to overcome current gaps related to migration data. Addressing data challenges improving comprehensiveness, timeliness and

comparability of data, employing new and innovative types of data (e.g. micro-census, social media or mobile phone data), using the most advanced methods to combine different data sources (e.g. techniques to derive migration flows worldwide from migration stock data) and improving interactive data visualisation and customised views can further facilitate the understanding of the complexities behind migration and its new forms, their drivers and impacts. The panel will discuss how developments in data science can help our understanding of migration, how this information is relevant for policy-making, and how scientific evidence may help to balance public debate.

*Submitted by Nina KAJANDER - European Commission - Joint Research Centre*

*Speakers :*

*KAJANDER Nina - European Commission - Joint Research Centre, RANGO Marzia - International Organization for Migration, THOROGOOD David - European Commission DG EUROSTAT, VESPE Michele - European Commission - Joint Research Centre, YILDIZ Dilek - Wittgenstein Centre for Demography and Global Human Capital, VITALI Agnese - University of Southampton, ZAMPIERI Alessandra - European Commission - Joint Research Centre*

## **Why I wanted to become a scientist**

ESOF 2018 motto is "Sharing Science: towards new horizons". Moreover, around 40% of attendants are expected to be students and young researchers. We propose in this session to share the experience of some of these young researchers coming from extra-european horizons, and who may be role models for their peers and for younger students from Europe and elsewhere. Some of these experiences may also inspire more senior scientists. We will seize the opportunity of the Young African Scientists in Europe (YASE) satellite conference of ESOF to share the experience of some of its attendants, especially regarding their motivations to become scientists. For many of these young African scientists, it has been a hard challenge to come in Europe for a PhD : no scientific familial background, overcrowded universities in their home countries, difficulties to get grants (and small ones), difficulties to get a visa to come in Europe, etc. However, they persevered, and they are doing well! The session will be made of six live interviews with six of these young scientists (duration of each interview between 10 - 12 minutes). Questions will make the scientists tell their story with science. Of course, what they are working on, but especially why they decided to do science, and how they choose their field and topic : curiosity driven, specific problem solving, applications, etc. And also what they plan to do after they defend their thesis. We will make a call for written applications during the registration process for the YASE conference. From these, we will select 10 candidates. During a special session of the YASE conference, we will narrow the selection to 6 (3 women and 3 men), from oral presentations. The interviews will then be prepared by an African science journalist with the selected young scientists. The YASE conference organizers plan also to video record the session, in order to broadcast it on the Web.

*Submitted by Luc ALLEMAND - Afriscitech*

*Speakers :*

*NDIAYE Mamadou - CESTI, Cheikh Anta Diop University, Dakar, ALLEMAND Luc - Afriscitech*

## **With a PhD you can do anything**

As co-founders of the CARE group (Careers Advisers supporting Researchers in Europe), we will draw upon our network of career professionals, as well as co-ordinators of PhD and postdoctoral

associations to moderate discussions created in our World Café. In this way, we aim to cast a critical lens over the range of training and skills acquired during the course of a PhD and postdoctoral. By analyzing its strengths, weaknesses, opportunities and threats (SWOT), we will demonstrate the value of a PhD as a unique grounding for aspiring innovators of the future, both within and outside academic/industrial research. In particular, we will acknowledge state-of-the-art policy discussions and innovative concepts (e.g. competence profiles, concepts and practices to work towards equal playing fields for researchers of diverse backgrounds). We aim to generate new ideas and thoughts around this topic that we can put in writing and share with the community and other stakeholders, such as policy makers, as an outcome of the event. The session will start three weeks before the event using dedicated twitter hashtags to engage with a wide community of interested stakeholders such as citizens, employers, students and researchers in order to start the process of discussion. During the ESOF meeting we will extend this engagement further via randomized short interviews with the public of Toulouse in French and English, about what value they think PhD-qualified people have to offer society.

*Submitted by Sarah Blackford - Independent/Lancaster University*

*Speakers :*

*Blackford Sarah - Independent/Lancaster University, GEBHARDT Philipp - German Cancer Research Center (DKFZ), KIMPE Bérénice - ABG France, KUZET Sanya Eduarda - Université Côte d'Azur, ROESSLER Gerrit - German Center for Research and Innovation, SCHOLZ Beate - Scholz CTC GmbH, SEIXAS Ana - i3S, Institute for Research and Innovation in Health, SEUMENICHT Oksana - Max Delbrück Center for Molecular Medicine*

## **ADDRESSING POTENTIAL TECHNOLOGY THREATS THROUGH RESPONSIBLE RESEARCH AND INNOVATION**

This session will leverage on the results of an ESOF labeled colloquium, which will take place in Toulouse on April 2018, to study and discuss the needs for addressing potential technology threats through responsible research and innovation, and the means for promoting global RRI across the borders of technical areas, corporations and countries, towards a more proactive technology developments and disseminations.

*Submitted by Bernard BUREL - GREP Midi Pyrénées*

*Speakers :*

*DESSOULI Marie-Alix - Federal University of Toulouse, FORSBERG Ellen-Marie - Oslo Metropolitan University, GHALLAB Malik - CNRS-LAAS, NEWTON James - Synchrologix, BENSAUDE-VINCENT Bernadette - Université Paris 1 Panthéon-Sorbonne; Académie des Technologies; Comité d'éthique Inra-Cirad-Ifremer*

### **11:45 - 12:30 Plenary Keynote: Enhancing reproducible research**

Pr. John P.A. IOANNIDIS – C.F. Rehnberg Chair in Disease Prevention at Stanford University, Professor of Medicine, Professor of Health Research and Policy, and Professor (by courtesy) of Biomedical Data Science at the School of Medicine; Professor (by courtesy) of Statistics at the School of Humanities and Sciences; co-Director, Meta-Research Innovation Center at Stanford; Director of the PhD program in Epidemiology and Clinical Research, Stanford University

*Place : Palais des Sports*



**12:30 - 13:30 LUNCH BREAK and POSTERS VIEWING****13:30 - 14:45 Parallel sessions****Growing mini-organs on a petri dish: myth or reality**

Growing miniature versions of organs in a dish sounds like science-fiction. Yet advances in stem cell technology made it possible to grow masses of cells or tissue that resembles an organ, known as organoids. The recent development of organoids is a major technological breakthrough and the use of organoid culture models is widespread in areas including organogenesis models, drug testing, modelling tumour, disease and infection, toxicity screening, personalised and regenerative medicine and organ replacement. This session will shed light on scientific advances on organoid technology and how they can be used as an in vitro model of human development and disease. Advantages, limitations and challenges faced with organoid cultures will be also discussed.

Submitted by Mariam BENJDIA - European Research Council Executive Agency

Speakers :

KNOBLICH Juergen - Institute of Molecular Biotechnology, MARTÍNEZ FRAIZ Elena - INSTITUTE FOR BIOENGINEERING OF CATALONIA (IBEC), PUSCHLOF Jens -

**Women in science: let's change the world!**

Which affirmative actions could reduce the underrepresentation of women in different fields of science? In today's changing world we need to tap the potential of every talented mind to develop solutions for a sustainable future. We need inspirational narratives that provide tools and ideas to change the world. This panel will focus on assertive actions that generate changes. We will present a range of approaches, measures and policies that have been successful in promoting women participation and advancement in the research area. We will examine the place of women in science. We will argue that equal opportunities should not be a 'women's issue'. and will present choices and structures that promote or impede equal opportunities for men and consequently for women. Finally we will present various successful examples of the importance of speaking up and taking action for both women and men.

Submitted by Claudia JESUS-RYDIN - European Research Council

Speakers :

JESUS-RYDIN Claudia - European Research Council, CONLEY Daniel - Lund University, Sweden, EL MJIYAD Nadia - European Research Council (ERC), GARCON Veronique - CNRS-LEGOS, KEIL Andreas - European Research Council (ERC), VERNOS Isabelle - Centre for Genomic Regulation Barcelona (CRG), MONTANARI Alberto -

**Science in the Sustainable Development Goals: where science advice meets science diplomacy**

The Sustainable Development Goals (SDGs) are ambitious. Setting out 17 areas where concerted global action is needed to safeguard the health of our planet and ourselves, the SDGs are not conventional development discourse, but a recognised global concern. Without the input of scientists, however, the SDGs will fail. This session will explore how science can better inform public policy and international diplomacy to make a real difference for the SDGs. There is a need to identify knowledge

gaps, to systematise current knowledge and to better connect science advice at a national level with the more diffuse science advisory processes operating at the international level for ultimately, the SDGs will be operationalised at national levels. The obvious gaps between the national and international science advisory ecosystems need to be addressed, for example, through a stronger mandate for the next UN science advisory board, if one is to be appointed. The SDGs also need the innovation and technology that science can bring, but there are also more subtle reasons to bring science to bear on the SDGs. Science uniquely can provide a common language for agreement on evidence, which should make the values-based policy negotiations that much smoother.

*Submitted by Peter GLUCKMAN - Office of Prime Minister's Chief Science Advisor*

*Speakers :*

*ONI Tolulah - Global Young Academy and University of CapeTown, TUREKIAN Vaughan - State Department, United States of America, GLUCKMAN Peter - Office of Prime Minister's Chief Science Advisor, HACKMANN Heide - International Council for Science (ICSU)*

### **Mathematics: a powerful tool for solving pressing business and societal challenges**

Mathematics underpins the whole of modern science and technology but the knowledge and understanding of mathematical concepts and problem-solving within universities is generally poorly exploited outside academia. The panel will present several impressive success stories in academia-industry-society collaboration, leading sometimes to millions in economic benefits. We will show that alongside businesses and society, universities also greatly benefit, as mathematical scientists focus on practically relevant and cutting edge research problems. Moreover, the training of a new generation of researchers has also been a key objective in the mission of the industrial mathematics communities and several MSc and other programmes have been successfully established, in close collaboration with industry. We will review the current state of industrial mathematics in Europe and engage in a fruitful discussion with all stakeholders in order to identify the next steps in the road to achieving a more productive and connected Europe.

*Submitted by Katerina KAOURI - Cardiff University*

*Speakers :*

*SCHILDERS Wil - TU-Eindhoven, HJORTH Poul - DTU - Technical University of Denmark, KAOURI Katerina - Cardiff University, MICHELETTI Alessandra - University of Milano, JORDAN Joanna - Chair of Mathematics for Industry Network, Bath Institute for Mathematical Innovation, ATHANASIADES Andreas - Transportation Organization of Nicosia District*

### **My health, my data? A role-playing game surrounding the (re)-use of health data**

Data holds the power to revolutionise healthcare, but it also entails unprecedented technical and ethical challenges. It is often stored in incompatible formats or inaccessible systems that make it difficult or even impossible to reuse the information to improve patient outcomes. Difficulties integrating data result from the lack of standards, differences in national legislation, and organisational policies. This panel will explore the fundamental challenge of getting stakeholders to appreciate the importance of sharing data. For patients and healthcare users, this is a particularly sensitive and crucial issue: who actually owns their health data and what ethical standards are in place to protect patients privacy? This session follows the PlayDecide format, a role-playing game to tackle controversial issues in a simple and effective way. Participants will take on the roles of stakeholders involved in medical research with the goal of gaining new insights and perspectives on data sharing. Facilitators will lead the discussion

to identify insights and ideas generated, and to help the audience gain a deeper understanding of the many complex issues surrounding the use of health data for research.

*Submitted by Alessandra PACCAMICCIO - Innovative Medicines Initiative (IMI)*

*Speakers :*

*HAMERLIJNCK Dominique - EUPATI, Dutch Lung Foundation, MEULIEN Pierre - Innovative Medicines Initiative (IMI), PACCAMICCIO Alessandra - Innovative Medicines Initiative (IMI), WAGERS Scott - BioSci Consulting*

## **Next Generation Nicotine Products: Killing Me Softly or Our Greatest Public Health Opportunity?**

Smoking remains the major preventable cause of death in the 21st century. At least 1.5 billion people are smokers, killing up to three-quarters of them or 6 - 7 million annually or 13 times the population of Toulouse! As richer countries kick the habit with usage rates plummeting, especially amongst youth, poorer countries continue to take it up. This panel examines the ethics of tobacco control and the robustness of the scientific evidence supporting it. For the first time, a real possibility exists for this 'institutionalised manslaughter' to end, and rapidly: next generation nicotine products. Not since the Internet has society seen a comparative disruptive technology with the capacity to so fundamentally impact lives. According to Public Health England, e-cigarettes are 95% safer than classic cigarettes. According to US National Institutes of Health, smoking kills. Vaping they are not yet sure about. According to Action on Smoking & Health (ASH), there is no magic bullet but there is mounting evidence of these innovations' positive role in supporting switching, supporting quitting and discouraging relapse i.e. increasing total cessation. Surely a good thing? What the panel will show is that while the jury is out, the global regulatory picture from acceptance to partial and total bans is a mess. While experts for and against mount onslaughts at the WHO, FDA and EU, evidence-based science is taking a back seat. Despite our much touted 'patient-first' health systems, the voice of the smoker/vaper is non-existent. This session unites leading medical, policy, industry and civil society experts to explore the latest data for and against new nicotine products. A strong focus is separating scientific fact from fiction, now made possible by unprecedented advances in information gathering, toxicological risk evaluation, medical imaging and analysis. A common aim is advocating greater empathy and challenging the way societies view nicotine and those that use it. xxx

*Submitted by Aidan GILLIGAN - SciCom - Making Sense of Science*

*Speakers :*

*BRITO Lidia - UNESCO Regional Bureau for Latin America & The Caribbean, COMPTON Wilson - National Institute on Drug Abuse (NIDA), National Institutes of Health & Brussels Declaration Co-Chair, ETTER Jean-François - Faculty of Medicine, University of Geneva, GILLIGAN Aidan - SciCom - Making Sense of Science, HARTUNG Thomas - Johns Hopkins University, Bloomberg School of Public Health, Dept. of Environmental Health & Engineering, LEGLU Dominique - Science et Avenir, La Recherche; Chair, ESOF 2018 International Media & Marketing Committee, PEITSCH Manuel - Philip Morris International*

## **Intelligent lighting for smart homes and smart cities**

The 2015 winner of the Nobel Prize in Physics, Shuji Nakamura, will lead a panel to discuss the frontiers of lighting systems science and technology, including the Solid-State Lighting (SSL) revolution and how it will be used to meet society's needs now and in the future. SSL (such as LEDs, O-LEDs and solid-state lasers) are challenging conventional technologies. In particular, LED has been a game-changer, outperforming the conventional technologies in all aspects. It is therefore anticipated that in

the near future, all electric lighting will be based on SSLs. Should the SSL revolution proceed to the projected conclusion, replacing all legacy technologies, there will be a further major change in the lighting market. Artificial light production absorbs one-fifth of the world's annual electricity production, leading to centuries of research and development that focussed on a single energy efficacy enhancement. Industry has coined a new term, human-centric lighting, to draw renewed attention to its primary effort to be successful in meeting society's needs. Furthermore, we are witnessing a transition from the conventional analogue lighting technologies to digital lighting. Intelligent lighting will become the backbone for smart homes and smart cities. This way, lighting will become the heart of the Internet of Things.

*Submitted by Georges ZISSIS - Université Toulouse 3*

*Speakers :*

*HALONEN Liisa - Aalto University, NAKAMURA Shuji - University of California, Santa Barbara, REA Mark - Rensselaer Polytechnic Institute, TOPSU Suat - OLED COMM, ZISSIS Georges - Université Toulouse 3*

## **Ethics and the use of online personal data for research**

We produce massive quantities of data online, providing a digital record of our lives, from the transactions we carry out to the communications we make and the entertainment we select.. Although such data are often not collected primarily for academic research they have enormous research potential and can provide important insights into society, health and the economy. This in turn could have major policy implications. However, alongside these potential benefits, the ready online availability of these data also presents a number of ethical challenges. These include risks relating to the disclosure of the identities of individuals or organisations; reputational risks for data providers and controllers and specific ethical issues relating to the type of studies that these data can be used for. The possibilities for the linking and use of data in the digital world are forcing us to re-visit the long accepted rules of good ethical practice in relation to human subject research. Informed consent and anonymisation need to be looked at through a new lens. Is prior informed consent from every individual data subject for every possible research use feasible or even desirable? Is data anonymisation possible when multiple datasets are being linked? This panel will explore some of these critical and unresolved ethical issues. We will consider what governance arrangements are necessary to ensure the privacy of individuals and protect the collective interests of data providers, whilst promoting societal trust in research using new forms of data.

*Submitted by Carthage SMITH - Organisation for Economic Cooperation and Development (OECD)*

*Speakers :*

*ELIAS Peter - University of Warwick, FOSSHEIM Hallvard - University of Bergen, SMITH Carthage - Organisation for Economic Cooperation and Development (OECD), VAN ZYL Christa - Human Sciences Research Council, WINICKOFF David - Organisation for Economic Co-operation and Development (OECD)*

## **PhDs perception from the public to the private sector**

The aim of this session is to analyse the fluidity between public and private sector, in particular through the career paths of PhD holders. Young researchers are good vectors to improve the fluidity between public and private Sector. Indeed, the companies' perception of the academic research in general and of the PhD skills can evolve when recruiting a PhD holder. Not only science based professions are

concerned. But this fluidity between public and private sectors requires a reciprocal knowledge of the different actors. Translation Medicine is typically a field where both worlds, industry and academia, need to find a common language to work together and interact. The session will be complemented by the experience from the European infrastructure for Translational Research where Industry rigour needs to be applied to the academic mindset. The interaction with the public will allow to enrich the discussion and to complete the panel of the different perceptions of this concern. An infographic on translational scientists will be key support to the discussion, developed as a shared 'currency' applicable to all learning types and career stages in a highly interdisciplinary field. Questions addressed in the session: How is the PhD considered in industry? What competences are required? What careers for PhD holders? Is there a difference according to the country? Impact of international mobility on careers? Can a PhD become a manager? Differences between public and private research? Reality or perception? Organization of the session : Interactive session with : an introduction presenting the theoretical vision of the PhD careers in industry a short presentation of the vision of an industry with a European dimension testimony of a PhD holder working in the industry, including management perspective from the European Infrastructure for Translational Research in training the next generation of translation scientist discussion with the audience.

*Submitted by Clément VARENNE - Université Fédérale de Toulouse Midi-Pyrénées*

*Speakers :*

*HERRERA Liliana - University of León, MATHIEU Bailly - Eurodia Industrie, ROUX-DE-BALMANN Hélène - Université Fédérale de Toulouse, USSI Anton - EATRIS*

## **Researchers Associations beyond borders: how many computations to design an interactive constellation?**

In the rapidly evolving global research enterprise, new scientific and societal challenges require multidisciplinary approaches and the involvement of a higher and diverse number of stakeholders. Accordingly, researchers are increasingly required to work across disciplines, sectors and institutions at regional, national and international levels. Researchers associations are an invaluable resource to foster researchers communities and to support researchers along their career development. Across the world, a number of researchers associations can be counted, each one referring to a different scientific community. Some associations aim at gathering researchers according to their common scientific field, some address specific alumni communities, some others point at offering support for career development. Most of the time, associations focus on precise interests or groups of researchers, standing somewhat isolated. Why is it important, instead, to keep other associations on the radar and collaborate with them? And which forms can such a collaboration take (and which not)? How can we strengthen an open researchers community? Which are the benefits for researchers? Would these collaborations also improve researchers' career development? A panel gathering speakers from different associations such as the Marie Curie Alumni Association (MCAA), EuroScience, Eurodoc, ICoRSA, UKRSA will share experiences and bring case stories highlighting factors that may influence successful exchanges among associations. In the second part of the session, key questions will be discussed with the audience in the form of a 'brainwalk' (structured group exercise). The session aims at collecting input as a basis for a strategy on how to systematize the collaboration between researchers associations in order to foster researchers networking beyond national and discipline borders and to support their careers. The outcomes will be merged into a visual summary, a captivating format easy to share.



Submitted by Maria-Antonietta BUCCHERI - Marie Curie ALumni Association (MCAA)

Speakers :

THORNE Lucy - United Kingdom Research Staff Association (United KingdomRSA), BUCCHERI Maria-Antonietta - Marie Curie ALumni Association (MCAA), DALTON Gordon - University College of Cork, KERSSCHOT Margaux - EURODOC (European Council of Doctoral Candidates and Junior Researchers), RADICEV Slobodan - EuroScience, SAUER Juliane - OxygenEUM/MCAA

## Clean Flights Blue Skies

Ever wondered what is left behind when we cross the skies? If global aviation was a country, it would rank in the top 10 emitters. With flying being a fast and comfortable way of commuting, the demand for aviation will constantly increase from 9 million flights in 2015 up to an estimated 15.4 million flights in 2035, reflecting not only population and economic growth, but also the societal impact of connectivity across the globe. The continuous efforts by industry to reduce the environmental footprint of aviation have resulted in the manufacture of efficient and quieter aircrafts, such as the Airbus A380, and have achieved the fuel efficiency per passenger of a small car. Nevertheless, the expansion of the sector is expected to lead to 70% more emissions in 2020 compared to the 2005 levels. What happens in the next 20 years? Climate change will also impact aviation, due to more severe conditions causing more disruptions and turbulence. The stakeholders set ambitious goals for carbon-neutral development, increased fuel efficiency and aircraft resilience. With the global fleet planned to be largely renewed in the next two decades, there is a golden opportunity to minimise the environmental impact of aviation by changing the game through science and innovation. ECO-FAST-SAFE 'Come fly with ERC' exploring ground-breaking ERC-funded projects that can tackle the challenges in aviation from different angles: i) improving the efficiency of turbine engines, while decreasing emissions and damages by predicting and designing out combustion instabilities and ii) developing multifunctional materials that mimic biological systems and actively morph the wings providing improved control and strength. These inspiring techniques aim to bridge industrial practice and scientific breakthroughs for engines and shape of new aircrafts. If supported by the stakeholders can make step changes in aviation allowing us to travel safer and faster and take a deep breath of fresh air in the future.

Submitted by George SYMEONINIDIS - ERC

Speakers :

LANZARA Giulia - University of RomaTre, MORGANS Aimee - Imperial College London, SYMEONINIDIS George - ERC

## Open Innovation for Biopesticides: a new paradigm

Although traditional innovation used to be a vertical process within companies, a new open innovation paradigm has emerged with a triple-helix model involving interactions between policy-makers, academia and industry and even a quadruple helix with the growing involvement of civil society. In this context, the Horizon2020-funded IPM-4-CITRUS project uses an interdisciplinary, intersectoral and international approach to optimise bioproduction processes and develop new biopesticides in the Mediterranean region. By proposing a feasibility study for future spin-off activities and new production lines, the project is directly confronted with the opportunities & obstacles related to bringing innovative ideas to the market. Through the innovative concept of "Interactive Panel" we propose to stimulate ideas from the audience and create a real-life open innovation platform to build up a SWOT analysis of biopesticide innovation. Upon entering the room, the public will be provided with coloured post-its with

sentences regarding intersectoral interactions in the field of biopesticides. For a few minutes, they will classify the post-its on paper-boards according to the SWOT matrix and a special poster will be devoted to questions. 5-6 panelists from various countries (France, Tunisia, Lebanon, Turkey) and sectors (academia, industry) will then be asked to pick random topics, present their own perspectives and react to the audience's first classification. Examples of questions to be tackled are: how can interdisciplinarity benefit/hinder the development of biopesticides? What role can policy-making play? How can civil society be heard? Which economic model could integrate all stakeholders' expectations? After this discussion, time will be devoted to answering questions. Through interactive exchanges, the participants will learn about the challenges of bringing innovative biopesticides to the market and starting new businesses in this field in various countries.

*Submitted by Luc FILLAUDEAU - INSA Toulouse, LISBP*

*Speakers :*

*AUGIER Laurent - Agri Sud-Ouest Innovation, BEN SAID Nadia - MediS, FILLAUDEAU Luc - INSA Toulouse, LISBP, KALLASSY AWAD Mireille - Université Saint Joseph, ROUIS Souad - Centre Biotechnologie de Sfax (CBS), TOLUNAY Duygu -*

#### 15:15 - 16:30 Parallel sessions

##### **What kind of future do we want for our children?'**

The European Commissions top advisers on ethics and on science will explore how scientific and ethical advice can help to address today's grand challenges and to shape the world of tomorrow. The audience will be invited to ask questions in relation to the overall theme 'What kind of future do we want for our children?'. The moderator will structure the session by addressing several aspects of this question, such as What kind of work do we want our children to do? What kind of food do we want our children to eat? What kind of environment do we want our children to live in?. All of these questions also link to work that the Commission's Ethics and Scientific Advisors have been doing in the recent past, or are currently involved in. This will give the audience insights into the content of the advice that has been provided, but also into the way in which such advice is developed and given. Moreover, it will illustrate the importance of both science and ethics in decision making; and explain the way in which they advise the Commission. The European Commission is convinced that increasingly complex policy challenges require input from scientific evidence for informed decision-making. Recognising that high quality scientific advice improves the quality of EU legislation the European Commission (EC) established a group of Chief Science Advisors in 2015. In addition to scientific evidence, other factors such as ethics and values come into play in policy making. Moreover, as science and technology are developing at unprecedented speed they entail many ethical questions. This is why ethics is incorporated into the EU decision-making process and the European Group on Ethics in Science and New technologies (EGE) provides high quality and independent ethical guidance regarding science and new technologies in connection with EU policies. Taking up suggestions by the audience, the moderator will segue into additional issues, going beyond advice already provided by either group. Questions from the audience will be collected and ranked with the help of suitable software (e.g. Slido). A list of topics will be generated which could serve as inspiration for possible future topics the European Group on Ethics in Science and New Technologies and/ or the European Scientific Advice Mechanism High Level Group.

*Submitted by Sigrid WEILAND - European Commission*

*Speakers :*

*HEUER Rolf - SAM HLG, DYKSTRA Pearl - European Commission Scientific Advice Mechanism, NURSE Paul - Francis Crick Institute, BUJNICKI Janusz - European Commission's Scientific Advice Mechanism, FORTUNATO Elvira - EC HLG, WOOPEN Christiane - EGE, O'SULLIVAN Siobhán - Royal College of Surgeon, KINDERLERER Julian - University of Cape Town, PRAINSACK Barbara - University of Vienna, and King's College London, VAN DEN HOVEN Jeroen - Delft University of Technology*

## **Brexit: opportunities and challenges for European Science**

Scientists have been among the most vocal in worrying about the negative effects of Brexit, predicting detrimental effects on international research collaborations and difficulties in securing the best scientific minds. While the UK were net contributors to the EU budget in 2007-2013, the research sector was a net benefactor (+ 3.4b). UK science benefits hugely from the participation of EU-27 staff and students and from EU funding programmes, whilst EU-27 science benefits enormously from the excellence and impact of the UK science base and the recruitment/training of staff and students. This panel will discuss the science and research landscape post-Brexit, including: a UK view of the UK's position in EU science post-Brexit; opportunities for European science and research post-Brexit; and challenges for European and UK science and research post-Brexit. an informed, diverse discussion on the implications of Brexit from a variety of viewpoints.

*Submitted by Mark FERGUSON - Science Foundation Ireland*

*Speakers :*

*MCINTEE Helen - Irish Government, GLOVER Anne - Strathclyde University, KAILI Eva - European Parliament, MATLOSZ Michael - ANR, France/Science Europe, Brussels, SUCHA Vladimir - DG Joint Research Centre (JRC), WALPORT Mark - United Kingdom Research and Innovation, FERGUSON Mark - Science Foundation Ireland, FREEMAN Ruth - Science Foundation Ireland (SFI), WALPORT Sir Mark - United Kingdom Research and Innovation*

## **Lessons for human collaboration from studying collective intelligence in animal groups**

Many animal species living in groups or in organized societies have developed various forms of collective intelligence. In social insects like ants, termites and some species of bees and wasps, coordination emerges from simple interactions rules that take place among individuals. These interactions permit groups of individuals to achieve collective tasks that are far beyond single individuals capabilities. From the traffic management on a foraging network to the building of efficient nest architectures, along with the dynamic task allocation between workers, the examples of complex and sophisticated collective intelligent behaviours are numerous and diverse among social insects. In recent years, collective human behaviour studies underwent considerable growth due to the development of new digital tracking technologies. These technologies have revolutionized the observation of many facets of human behaviour, such as mobility patterns, social interactions and individual decisions, improving to unprecedented levels the variety and precision of available data. Many companies are currently processing these massively abundant data in the hope to reveal the hidden rules of human behaviour. But can this knowledge be used to improve coordination or collaboration in human information systems? And can we get inspiration from the way animal societies process information and coordinate their actions to develop new information systems and regulate collective dynamics in human systems? Such information systems could provide, in real time, groups of

individuals with the right pieces of information that will enable them to self-organize and improve their mobility or their collective decisions. This workshop will promote an interdisciplinary approach to tackle these challenging questions and to favour cross-disciplinary interactions between various communities.

*Submitted by Bertrand JOUVE - Institut de Recherches sur les Systèmes Complexes de Toulouse*

*Speakers :*

*HELBING Dirk - ETH Zurich, WOOLLEY Anita Williams - Carnegie Mellon University, BLANCHET Adrien - Toulouse School of Economics, SIRE Clément - Centre National de la Recherche Scientifique (CNRS)*

### **Fetal therapy by fetoscopy: new treatment and ethical view**

Fetoscopy is a tool for fetal therapy developed during the 1990s. It is a minimally invasive surgery procedure consisting of introducing a camera into the mothers womb through a tiny pore and observing the fetus in the amniotic pocket. Tools can then be inserted through one or more pores to carry out the surgery. This procedure can take place from 14 to 28 weeks of pregnancy. This panel will illustrate the applications of fetal therapy by fetoscopy. Twin-to-twin transfusion syndrome (TTTS) is a complication, which occurs in 15 to 20% of monozygotic pregnancies. The disease results in late miscarriage, fetal death or neurologic impairment in nearly 99% of cases. Fetoscopy is the gold standard treatment approach for this illness and results in an 85% rate of survival for one fetus and 65% for the both. In the session, we will present a short movie, which demonstrates the equipment used for fetoscopic procedure and then an example of TTTS treatment, followed by a discussion from the panel, which includes experts and a mother who underwent the fetoscopy a few years ago. Finally, an ethical discussion will take place between experts and patients. Since fetoscopy is a new surgery that takes place during pregnancy and inside the mothers womb, there will be diverse ethical questions to discuss.

*Submitted by Marion GROUSSOLLES - Inserm and Université Toulouse III Paul Sabatier, UMR 1027*

*Speakers :*

*SANANES Nicolas - IRCAD, Hopitaux Universitaires de Strasbourg, DEPREST Jan - Katholieke Universiteit Leuven; University Hospitals Leuven, LOPRIORE Enrico - CWTS, Leiden University, GROUSSOLLES Marion - Inserm and Université Toulouse III Paul Sabatier, UMR 1027, VAYSSIERE Christophe - Inserm and Université Toulouse III Paul Sabatier, UMR 1027*

### **Whats at stake in science popularisation? ProustTime as a literature-based experiment in knowledge sharing via trans-disciplinarity**

This session explores the social, political and scientific challenges involved in sharing knowledge. It brings together a dozen researchers and PhD students from a variety of research fields physics, biogeochemistry, neuroscience, history, linguistics, economics, plastic arts etc. around an interdisciplinary investigation of time with reference to Prousts In Search of Lost Time. The panels objective is twofold: to examine how interdisciplinary approaches may be able to enrich basic research and to consider how sharing such transversal research with a larger audience may contribute to promoting informed and active citizenship. For example, is the goal of sharing knowledge to train capable scientists or informed citizens? And what are the respective roles and responsibilities of research scientists and science communicators and how should they overlap? Against the backdrop of post-truth and alternative facts, the panel will discuss ways and means of developing forms of

knowledge-sharing with broader audiences that are strongly rooted in scientific accuracy. Taking images from literature such as Proust as a starting point, the panel will argue that the central role of the social sciences and humanities is to promote a rigorous reflection on the articulation of science and society.

*Submitted by Isabelle SERÇA - University Toulouse-Jean Jaurès*

*Speakers :*

BOUZOU Anaïs - Université Jean Jaurès - Toulouse 2, GINGRAS Yves - Université du Québec à Montréal, KLEIN Etienne - CEA, LEROUX Gaël - CNRS OMP EcoLab, PERY-WOODLEY Marie-Paule - Université Jean Jaurès - Toulouse 2, SERÇA Isabelle - University Toulouse-Jean Jaurès

## Sharing Patient Outcomes for better Healthcare

In the past decade, we have seen revolutions in many professions. The internet and digitalisation have been extraordinary drivers for citizens to raise their voices, change their habits, and seek alternatives for their daily needs. This evolution has been driven largely by American innovators, such as Amazon, Airbnb and Uber. But a revolution in healthcare is coming now and could be driven by European trend-setters. Private and public researchers from Bologna to Stockholm have been striving to expand access to healthcare and to make medicines available to more patients who need them. Innovative European start-ups, such as patient-driven health-app developer Noona of Finland, are growing fast. Hospital groups, such as Santeon in the Netherlands, are systematically gathering patient data on how well their treatments work - and thereby picking out which medical procedures and medicines provide the best outcomes for patients. For governments, reforming health structures towards patient-oriented health systems has become a key priority. All are striving to find low-cost business models, which could offer high quality service and access to everybody without compromising safety and flexibility. With their ambition to improve health, it is a must that they carry out interdisciplinary actions, promote cross-sectoral cooperation and share patient-recorded outcomes and research results. During this session, Science|Business will showcase how collaboration - between large and small companies, research organisations and universities, hospitals and patient associations, social security and policy-makers - over patient outcomes and data sharing will lead to breakthroughs in new models of care, reducing inequalities and preparing the next generation for a better life.

*Submitted by Monica DIETL - Science|Business Publishing Ltd.*

*Speakers :*

BERROUIGUET Olivier - Noona, CABEZÓN RUIZ Soledad - European Parliament, DIETL Monica - Science|Business Publishing Ltd., RAVAUD Philippe - Centre de Recherche en Épidémiologie et Statistique Sorbonne Paris Cité, RIBAND Herb - Amgen

## 15:15 - 16:30 Plenary Panel Discussion: Open Science

Dr. Yuko HARAYAMA - Executive Member, Council for Science, Technology and Innovation (CSTI), former Deputy Director of the Directorate for Science, Technology and Industry at the Organisation for Economic Co-operation and Development (OECD) Robert Jan SMITS - Senior Adviser for Open Access and Innovation, European Commission ; Dr. Kamila MARKRAM - co-founder and CEO of Frontiers, Autism Project Director, Swiss Federal Institute of Technology ; Dr. Koen VERMEIR - co-responsible for SPHERE-INSHS-CNRS, leader of Research Evaluation working group of the Global Young Academy.



Eric MESLIN - President and CEO of the Council of Canadian Academies, member of the ESODF 2018 Steering committee

Place : Palais des Sports

#### 16:30 - 16:45 Flash Presentations

Place : Palais des Sports

#### 17:00 - 18:15 Parallel sessions

##### The role of partnerships in the transition to clean energy

Ambitious climate change targets, set at the European level, will only be achieved through the mobilisation of local stakeholders. However, the transition towards clean energy systems represents one of the main challenges currently faced by urban authorities. Bringing together political leaders, scientists, energy experts and other stakeholders from different European cities, the session will promote collaboration and exchange of best practices, in order to tackle this issue. It will be organised around two main interactive sessions: (1) a partnership approach to influencing EU energy policies; and (2) how cities are major players in tackling the energy transition.

Submitted by Caroline LAPELERIE - Toulouse Métropole

Speakers :

NATTA Nathalie - DALKIA Sud Ouest, BAFLEUR Marise - CNRS, CHAILLOU Arnaud - Toulouse Métropole, CZEPCZYNSKI Mariusz - University of Gdansk, DARDELET Jean-Claude - Toulouse Métropole, STRACHINESCU Andreea - EUROPEAN COMMISSION, ZISSIS Georges - Université Toulouse 3

##### Assessing and optimising the societal value of Research Infrastructures

Research Infrastructures are facilities, resources and related services that are used by the scientific community to conduct top-level research in their respective fields and covers major scientific equipment or sets of instruments; knowledge-based resources such as collections, archives or structures for scientific information. They play an ever growing role in scientific research but require growing shares of public funding and it is hard to evaluate their impacts. Although the most important benefits of research are medium to long-term and often hard to quantify, a number of tools and indicators are readily used to evaluate the direct and indirect economic impact of RIs. The situation is far more challenging for social/societal impact, which is very often qualitative and currently does not lend well to comparability, although this is a developing field of research. This session will investigate and invite discussion on what are the possible tools and methodologies to better assess the societal impact of Research Infrastructures. Going one step further, the session will also discuss interesting policies that have been implemented to effectively develop their societal role.

Submitted by Frédéric SGARD - OECD

Speakers :

ACKERLER Elisabeth - ESA, ANGELIS Jelena - Technopolis Group Baltics, GOVENDER Kevin - International Astronomical Union/National Research Foundation, LASSALE John - Atlas of Living Australia, MANGEMATIN Vincent - Grenoble school of management, SGARD Frédéric - OECD



## Ethics in the age of science, technology and innovation: From AI to the Future of Work

Upon request by the European Commission, the European Group on Ethics in Science and New Technologies (EGE) is currently working on an Opinion on the Future of Work and produced a Statement on artificial intelligence (AI), Robotics and 'Autonomous' Systems. This session aims at showcasing the role of the EGE, namely providing advice to the highest political level of the European Commission (President of the Commission, and the College of Commissioners as a whole), as well as to highlight the work that the EGE is doing in addressing key societal challenges. How we organise the Future of work, and how we regulate and employ AI, will have bearing on virtually any aspect of future societies. The prime goal of this session is to engage the audience in a debate with members of the EGE and gather the views of participants representing academia, industry, NGOs and the public sector as regards the topics currently being tackled within the EGE. We will discuss the role of ethics in scientific research and policy-making, particularly in the context of developments affecting all policy domains, such as automation, digitisation, and globalisation, and we will explore how ethics can help us to use science and technologies to foster health, justice, and solidarity in our societies. In the process we will tackle methodological questions such as how should we do ethics in the 21st century? and how should ethical research be conducted in the age of science, technology and innovation? The discussion, in the format of an interactive roundtable, will consist of a short presentation/introduction by the Chair of the EGE followed by an open debate between some of the EGE members and the audience on topics such as a) the changing nature of work, b) the impact of globalisation, demographics and new technologies on the viability of the European social model, or c) the importance of embedding ethical considerations in the design and utilisation of AI, robotics and 'autonomous' systems, inter alia.

*Submitted by Sigrid WEILAND - European Commission*

*Speakers :*

*WOOPEN Christiane - EGE, NYS Herman - KU Leuven, O'SULLIVAN Siobhán - Royal College of Surgeon, KINDERLERER Julian - University of Cape Town, PRAINSACK Barbara - University of Vienna, and King's College London, VAN DEN HOVEN Jeroen - Delft University of Technology*

## Why should we trust science? Evidence-informed policymaking in a hyper-complex world

The interface between the worlds of science and policy has never been straightforward. The crisis of expertise brings challenge for all of us, not only scientists and experts, but also media and policymakers. With external pressures building up, it is even more urgent to make the case for the evidence-informed policy. How to best transform research knowledge into useful evidence for policy? How can policymakers and scientists overcome their biases in their decision-making? How can we democratise evidence informed policymaking? This workshop will look at how to build better relationships between scientists wishing to influence policies, policymakers operating in a world of hyper-complexity, acceleration and uncertainty and the society as a whole.

*Submitted by Nina KAJANDER - European Commission - Joint Research Centre*

*Speakers :*

*HORST Maja - University of Copenhagen, KAJANDER Nina - European Commission - Joint Research Centre, MAIR David - European Commission - Joint Research Centre, PARKHURST Justin - London School of Economics and Political Science, VOLLBRACHT Ian - European Commission - Joint Research Centre*

## How to give credit to scientists for their involvement in collecting, curating and publishing data & samples

Research funders and policy-makers are united in their stated priorities for research data to be made open as part of the research communication ecosystem, yet the vast majority of scholars have not changed their practices. Mandates at funder level and encouragement by institutions and publishers have not effected the desired transformation. Clearly a deeper understanding of the landscape, its drivers and barriers, supporting mechanisms and opportunities to drive momentum, needs to be acquired. Whilst the macro advantages for data sharing are clear improving reproducibility, providing potential for data-driven research programmes and minimising waste through unnecessary repetitions for individuals and research groups clearly the reasons for not sharing data still outweigh those for taking action. This session examines what transformation in accreditation methods for researchers could mean in terms of growth in innovation, impact and fairness of rewards. It aims to articulate some practical next steps with the potential to boost research capacity. It takes into account a number of recent, ongoing and planned initiatives and invites session participants to interact with and contribute to the roadmap going forward.

*Submitted by Fiona MURPHY - Murphy Mitchell Consulting Ltd*

*Speakers :*

*ALLEN Liz - F1000, BROWN Josh - ORCID, DOLLE Laurent - Biothèque Wallonie Bruxelles, FERGUSON Mark - Science Foundation Ireland, MAYRHOFER Michaela Th - BBMRI-ERIC, MURPHY Fiona - Murphy Mitchell Consulting Ltd*

## Enthuse - Engage - Enlighten: Making facts great again

The world has seen a rise of populist movements in many countries and across continents, which used an anti-establishment discourse to win public votes. These movements appeal to gut feeling and offer simplistic solutions for complex global challenges. They are nurtured by a fear about globalisation and rapid technological change which is seen to be threatening jobs and lifestyles. This can be demonstrated by slogans like "Take back control" or "Make America Great Again", which refer to a past perceived to be better than the present. Science has become an explicit target of populists, discrediting science as being "politicised", "politically correct" or "part of the establishment". In other words, science is seen as part of the problem, not as part of the solution. This session will discuss how science can combat this trend through innovative ways of engaging with the public. At the same time the speakers will call for scientists to be transparent, to show empathy for public concerns, to engage with their critics, and to play their role in societal debate, including about ethical concerns.

*Submitted by Jan Marco MUELLER - International Institute for Applied Systems Analysis (IIASA)*

*Speakers :*

*COSTA FREITAS Ana Maria - University of Evora, MUELLER Jan Marco - International Institute for Applied Systems Analysis (IIASA), HOREL Stéphane - Le Monde, MÜLLER Jan Marco - International Institute for Applied Systems Analysis (IIASA), PIGEON Martin - Corporate Europe Observatory (CEO), SCHMITT Didier - European External Action Service (EEAS), SPEER Suzanne - European Commission, VANTHOURNOUT Sofie - Sense about Science (SAS)*

## Is science a humanism?

With the help of a few gurus planted in the audience, we present a dialogue around the following

theme. We are in a railway carriage on the way to Toulouse. An invited speaker of ESOF2018 is preparing his presentation. He must treat various aspects connected with the general title. He is pretty sure that he will be able to prove the proposition that science is a humanism. Yes, science reached Europe with Humanism and brought with it certainties to replace vague opinions coming from religions. Yes, science is able to answer questions philosophers have been asking themselves since a long time about the place of man in the universe, etc. On the way, the 'invited speaker' also ponders about some burning issues: should science be directed and if so, by who? Does one have to be an able writer in order to become a good scientist? Are scientists allowed to study useless subjects or must there always, at least implicitly, be some kind of application? Must one understand everything completely before publishing? What is the difference between a large collaborative exercise (CERN, for example) and a religious sect? Does science necessarily imply social responsibility? Are there ghost writers in science as there are in literature? etc., etc. To each of these questions, he believes he can provide a valid reply but, every time, somebody else in the train rises to contradict him and destroys his assertions. In the end, the conference speaker no longer knows how to make his presentation. So, he decides to turn to the audience for help. The conclusion is intended to be: yes, science is indeed a humanism, but probably for none of the reasons originally advanced by the 'invited speaker'...

*Submitted by Jean-Patrick CONNERADE - European Academy of Sciences Arts & Letters*

*Speakers :*

*CARDEW Gail - Royal Institution, CAMBON-THOMSEN Anne - Université de Toulouse, CONNERADE Jean-Patrick - European Academy of Sciences Arts & Letters, GORRICHON Liliane - CNRS (based in Toulouse), JURDANT Baudouin - Université de Paris, KITSON-PANTANO Raphaëla - AXA Global Life, MEDINGER Jeannot - Ministère de l'Éducation, ROTHFUSS Uli - Faber-Castell Academy, Nürnberg, SELTZ Raymond - EuroScience*

## **Fact-checking science (stories)**

NOTE: We live in a period sometimes referred to as a post-truth or post-truth era. And at a time when the general public increasingly expresses doubts about scientific findings, it's important both for scientists and science journalists to put a premium on accuracy and integrity of information. Journalists, long criticized on the issue of accuracy, have begun to address this problem by adding a professional level of fact-checking to their work. Although this approach was first tried in political reporting, with organizations like Politifact, similar systems such as Canadas Détecteur de Rumeurs, based in the Quebec province, are now in place. Popular science publications have begun adding full-time fact-checkers to their staffs and one of the leading guides to fact-checking, published last year by the University of Chicago, was written by a science journalist. But all of this raises questions for both journalists and scientists. Is fact-checking catching enough errors? How many facts should be checked in a story and to what depth? What happens if a factchecker questions a scientist quoted in a story or finds problems with a publication? Does story get lost in an over-emphasis on fine details and do important stories fail to get told? And is this a process that will help restore faith in both in the institutions of science and science journalism? The panel will explore these questions and offer insights and practical tips into how fact-checking is transforming the way we tell stories of science.

*Submitted by Deborah BLUM - Knight Science Journalism Program at MIT*

*Speakers :*

*BOREL Brooke - Freelance, KRIEGER Anja - Institute for Advanced Sustainability Studies (IASS), ROBERTS Jane -*

*Undark magazine, MIT, ZELLER Tom - Undark magazine, MIT*

## **The Lost Generation of European scientists: how to make the system more sustainable?**

The 'Lost Generation' refers to the long cohort of senior post-docs and other scientists who, after accumulating short-term contracts and temporary positions, find themselves excluded from the research system due to the lack of opportunities for permanent positions. This cohort is being treated with old rules in a new overcrowded and over-competitive system. Often, they face a vacuum exacerbated by geographical, social and familial constraints, a lack of skills necessary for a career switch, and the absence of real opportunities related to their age and the fact that long stays in the academic system are disregarded by many employers. Their career instability as well as the loss of such highly trained individuals create instability in the academic system itself, leading to loss of vertical knowledge exchange and an inefficient use of human and financial resources. These scientists are part of a widespread, rarely addressed problem in academia. Our aim is to bring attention to this issue and to explore different options. Which actions could address it now and prevent it in the future? Some of these could be:

- Ease the inter-sectorial transition of more experienced researchers, by giving them the support, training and tools adapted to this career stage. Mentoring throughout the researchers' career should be envisaged.
- Make sure that those holding temporary contracts and aiming at permanent positions can experience an academic system that is fair and unbiased. Conceive a department structure with more permanent senior posts other than PIs.
- Foster a change of mentality and increase awareness of the new realities in academia and fluidity between sectors. These and other actions arising from the audience and their possible implementation will be discussed in an interactive session. A policy paper collecting the inputs from the session will be drafted and addressed to the relevant stakeholders at the EU level and to relevant bodies in the EC through the MCAA.

*Submitted by Sara RICARDO - MCAA - Marie Curie Alumni Association/IBMB*

*Speakers :*

*BUCCHERI Maria-Antonietta - Marie Curie ALumni Association (MCAA), GORNA Maria - MCAA - Marie Curie Alumni Association/Organizational University of Warsaw, MIRAMBEAU Gilles - UPMC Sorbonne Universités, Paris, MORO MARTIN Amaya - Space Telescope Science Institute, RICARDO Sara - MCAA - Marie Curie Alumni Association/IBMB, SCHROEDER Renée - University of Vienna, TARRACH Rolf - European University Association, VAN DYCK Luc - Freelance*

## **Responsible Science Communications for better informed citizens**

Making citizens informed about research developments, hence bridging the gap between the Lab and Society, is becoming a prominent goal in science policy as well as for research funders and research organizations. In this context, what is the place of researcher in the process of knowledge dissemination, within education partners and science mediators, science journalists? For researchers the challenge comes with informing such large audiences, and engaging them without losing sight on the need to communicate responsibly and ethically. Whilst recognizing the importance to highlight research as a public good, researchers need to learn how to convey the complexity and nuances of research whilst making it appealing to the general public. To avoid the spread of pseudo-science, based on claims and not factually proven results, the focus should be on Responsible Science Communications and on the need to educate capable scientists - where capable means not only being able to use media, but doing it in a responsible way - who can properly inform the public. In this session experts in the field will share insights on the topic, starting from the "barometer" that regularly

checks the pulse of citizens' engagement. They will briefly present a number of initiatives that show how research organizations, publishers, funders have already developed rich programmes to support researchers doing public engagement. The topic will be at the centre of a lively debate, join us!

*Submitted by Federica ROSETTA - Elsevier*

*Speakers :*

*KETTUNEN Reetta - Committee for Public Information, LANE Sile - Sense About Science, LINDHOLM Maria - VA (Public & Science), LLIGADAS Gloria - CRG-Centre for Genomic Regulation, NILSSON VINDEFJÄRD Anna - Research!Sweden, REHAK Katrine - Robert Bosch Foundation, RICHARDSON Emily - Wellcome Trust, ROSETTA Federica - Elsevier*

## **Caring for diversity does benefit all workers, and is remarkably profitable!**

Organizations used to work with even, predictable employees, easy to recruit and manage. However, diversity of any form is now spreading through organizations, which is a challenge for all and a source of opportunities for those who seize them (hence a threat to their competitors). If atypical people challenge the communication and the ergonomics of the workplace, their needs, sensitivity, systemic view or behaviors may also challenge the organization itself (values, social interactions, management and processes, job definitions and descriptions). Looking at them more closely, they bring in unique abilities, like creativity, intuition, talent and rigor. These abilities can help the organization address major issues, especially in a more complex world. Grethe VAN GEFFEN, an expert in inclusion and exclusion mechanisms, underlines the youth and perspectives of that scientific discipline. She then shows that for organizations to transition from 'general' management to diversity management, they must not run scattered approaches but structural policies. The uneven inclusion of gifted persons is a good example. Noks NAUTA discusses the conditions for them to blossom and stay in the company. Céline TOVAR presents My Gifted Network, an information and support network that employees have created at Airbus. Liliya RESHETNYAK showcases a platform for finding professional assistance to the recruitment and integration of any type of neuro-atypical workers. They all emphasize that caring for atypical workers, of any kind, is beneficial to every other employee: the ergonomics progresses, a deeper listening develops, individual needs are considered, the purpose of each task gets clearer, not to mention the purpose of the company. The philosopher and artist PECUB shares his colorful questions with an exclusive series of unedited drawings and his drawing live. The audience will feed a lively round-table with their thoughts and questions, activating the integration of the content.

*Submitted by Dominique HAMOIR - Aerospace Valley & Dominique Hamoir coaching and strategy*

*Speakers :*

*CHARLIER Christian - Airbus My Gifted Network, HAMOIR Dominique - Aerospace Valley & Dominique Hamoir coaching and strategy, NAUTA Noks - Gifted Adults Foundation, PUGNALE Pierpaolo - PECUB, RESHETNYAK Liliya - Hipip IN, ROBIN Marie - Airbus, TOVAR Céline - Airbus - MyGiftedNetwork, VAN GEFFEN Grethe - Seba Cultuurmanagement bv*

## **More (All) Electric Aircrafts Enabled by Power Electronics Revolution using Disruptive Semiconductor Technology**

The dream of zero-pollution commercial aircrafts may only one day become reality by a massive electrification of such flying vehicles. This is currently being done in concepts such as More Electric Aircraft (MEA), which relies on replacing conventional non-electrical aircraft systems such as pneumatic, hydraulic, and mechanical systems by electrical ones. One of the main challenges

associated to the MEA is to significantly increase power density of electrical power systems, without compromising on reliability. This can only be achieved by the generalization and optimization of power converters in different applications inside an aircraft such as: pumps, fans, actuators, galleys, anti-icing systems, and others. Nevertheless, an All Electric Aircraft (AEA) will be only conceivable if extreme progress is made on power electronic technologies. The most promising technology recently introduced which is producing a real revolution on power converters and devices is the disruptive technology called Wide Bandgap (WBG) semiconductors. These components, which are either made of Silicon Carbide (SiC) or Gallium Nitride (GaN), have theoretically much higher performance than their Silicon counterparts concerning thermal aspects and switching and conduction losses. However, reliability and cost, as well as electromagnetic interference caused by such components are real issues which must be overcome so they can be effectively used in future aircrafts and launch the so-expected green revolution in transportation. The goal of the proposed Panel Discussion is to connect manufacturers of aircraft, equipment and power electronic components as well as researchers in order to discuss the current state-of-art, share new ideas and concepts, and debate about the advantages and bottlenecks of the use of such components applied to electrical aircrafts and related applications.

*Submitted by Bernardo COUGO - IRT Saint-Exupéry*

*Speakers :*

*ASSOUAD Yannick - Latécoère S.A., BHATTACHARYA Subhashish - NCSU/ FREEDM/ Power America, BOROYEVICH Dushan - CPES/ Virginia Tech, COUGO Bernardo - IRT Saint-Exupéry, SUTRA-ORUS Régine - Zodiac Aerospace / IRT Saint-Exupéry*

**18:30 - 19:15 POSTERS VIEWING**

**20:00 - 23:00 Media Party and Speakers reception**



# 12/07/2018

08:30 - 09:45 Plenary Panel Discussion: Research Infrastructures and the making of a European Research Area

Dr. Niklas BLOMBERG - Director of ELIXIR ; Pr. Ulrike FELT - Dean of the Faculty of Social Sciences at the University of Vienna ; Pr. Milena ZIC-FUCHS - Full Professor at the University of Zagreb ; List to be updated

Place : Palais des Sports

08:45 - 10:00 Parallel sessions

## Research integrity & ethics are we getting it right?

Research integrity and ethics are the pillars of effective and innovative research initiatives, cutting across the research work of many institutions in both the public as well as private sector. Questions remain as to which mechanisms need to be put in place to encourage and promote the issue of research integrity. What roles do governments, institutions, academia, the private sector and researchers themselves have to undertake to foster an enabling environment? This panel will discuss the current state-of-play and what more is needed to facilitate this, as well as considering the challenges of publishing in a world of open data. We will highlight some of the principles, codes of conduct, frameworks and research integrity policies countries are adopting, and the need for better integration in various institutional mechanisms. Central to this is the issue of communication and training: are we training the next generation of young and emerging researchers to be able to navigate these issues optimally in the emerging discourse of the digital drivers that influence the fundamentals of science, research and innovation?

Submitted by Vinny PILLAY - South African Department of Science and Technology

Speakers :

DE WAARD Anita - Elsevier and the UN Global Compact, GRAY Glenda - South African Medical Research Council (MRC), IJSSELMUIDEN Carel - COHRED, MAYER Tony - Nanyang Technological University, KUBAYI-NGUBANE Mmamoloko - Minister for Science & Technology of the Government of South Africa; Co-President of the World Science Forum 2021 Cape Town, PILLAY Vinny - South African Department of Science and Technology, SMITS Robert-Jan - European Commission

## The Square Kilometer Array: showing the early stages of our Universe

The dark ages and era of the first stars is one of the last gaps in knowledge of our Universes timeline, but with the construction of the new Square Kilometer Array (SKA) that gap is soon to be filled. This panel will take stock of this journey, unveiling the latest findings. SKA itself is a world-wide effort to build the largest radio telescope and is one of the greatest organisational, scientific and engineering challenges of our time. The data produced by this telescope will be around 10 times that of global internet traffic and finding a place to store this information is another challenge. The subject of the first stars era is extremely relevant specifically because of their imminent detection. It is rich with exotic astrophysics, such as the first black holes and both small and gigantic stars, some of which died in violent, incredibly bright explosions, and some which may still be around for us to observe in the near future. The light from these first stars is still arriving to the Earth and several telescopes around the

world are trying to get a glimpse into that mysterious time. The SKA will allow us to create a video of the first stars as they are born, as they grow and as they light up our Universe before dying and allowing the next generation of stars to form the galaxies we understand today. It will be our very own home video showing the early stages of our Universe.

*Submitted by Terence O'CONNOR - UK Research and Innovation*

*Speakers :*

*CHAPMAN Emma - Imperial College London, KLESSEN Ralf - Heidelberg University, PANESOR Tajinder - The Institute of Physics, SPIRO Michel - Société Française de Physique*

## **OPEN & RESPONSIBLE SCIENCE & TECHNOLOGY FOR THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS**

54 leading doctorate-granting specialised and comprehensive universities of Science and Technology (S&T) from 26 countries united within CESAER acknowledge their crucial role in contributing responsibly to achieving the Sustainable Development Goals (SDGs). Next to the individual contributions, they collectively have embarked on a journey to rethink and optimise their roles, to reshape their organisations and to take their responsibilities further forward. They offer their insights into how they contribute to achieving the SDGs through learning & teaching, S&T and innovation with special attention to ethical issues and values. Importantly, they fully embrace openness, multi-, inter- and transdisciplinarity and intercultural tolerance linking S&T to the social sciences and humanities in general and to ethics in particular. The speakers will outline the benefits for students, scientists and universities when contributing responsibly to achieving the SDGs and present five concrete shapes: government-academia cooperation interuniversity cooperation in local communities university campuses abroad sustainable university (campus) management scholarly contribution to ethics in S&T for SDGs The workshop aims at: raising awareness and share best practices on open and responsible S&T for the UN SDGs, internationalisation and social innovation encouraging universities to adopt a mission-oriented, impact-focused approach to address global challenges and making their contributions more visible encouraging business and industry to innovate responsibly, to invest and to boost corporate social responsibility encouraging funders to offer funding opportunities for cross-sectoral clusters as platforms for development of strategies for transition and as theoretical and practical basis advising the EU on how to realise its ambition to be a frontrunner in implementing the 2030 Agenda through FP9 and the successor of Erasmus+

*Submitted by David BOHMERT - CESAER*

*Speakers :*

*BOHMERT David - CESAER, KEOGH Colin - University College Dublin, MENDES Rui - Instituto Superior Tecnico, RAMESH Maneesha V. - Amrita University, SESTER Monika - Leibniz Universität Hannover, THAMPI Ravindranathan - University College Dublin, VAN DEN HOVEN Jeroen - Delft University of Technology*

## **Gender balance in Science, Technology, Engineering & Maths (STEM): Why do girls ignore computer science?**

This session takes stock of current measures being implemented inside France, across the EU and further afield to improve gender balance at all stages of STEM careers (Science, Technology, Engineering & Maths). It focuses on the gross under-representation of women particularly in the Information, Computer Sciences & Mathematics sectors. Speakers will highlight how the gender gap

widens in most fields right after graduation when women are entering professional life and continues as they progress in their careers. In ICT the gap is evident much earlier in secondary and tertiary education where few role models exist for younger girls. A common cause for concern will be how this unnecessary lack of women and female students poses not only a serious threat to the specific disciplines themselves, but to the economic and social development of society. Evidence shows that a predominantly male or female culture is self-sustaining, like males in Informatics, but on the upside, when this imbalance is reversed, the more mixed culture of male-female can become the new norm. The panel will also critically spotlight the prevailing 30% minimum target for both genders in any STEM field. Their overriding recommendation is to break down the stereotype that gender is a women's only issue. We will advocate for greater engagement by Rectors, Deans, Head of Departments and the Talking-Heads of major research organisations to embrace the inherent opportunity involved in bridging the gender gap. By unlocking social stereotypes in the sciences, we can equally promote new jobs and ways of working and studying that empower women and benefit men.

*Submitted by Florence SÈDES - Université Toulouse 3*

*Speakers :*

*COLLET Isabelle - university of geneva, ILARRI Sergio - Universidad de Zaragoza, RAMOS TERRADES Oriol - Universitat Autònoma de Barcelona -UAB, HILLSTON Jane - The University of Edinburgh, MORLEY Chantal - Telecom Paristech, SÈDES Florence - IRIT - Paul Sabatier Toulouse III University*

## **PERFORM: a case study of public engagement**

The unique training methodology of PERFORM the Participatory Engagement with Scientific and Technological Research through Performance training programme focuses on developing researchers' reflexive capacity to prepare and empower them for sharing their science practice responsibly with the public, and particularly with secondary school students. The organisation works with multi-disciplinary cohorts of researchers in a reflective process, exploring the history of scientific ethics and philosophy, responsible research and innovation, communication and engagement skills. Researchers are taken on a journey from theory to practice, engaging them in continuous reflection on their experience in the context of their lives as scientists. In this panel, we will discuss the PERFORM methodology, which we believe prepares researchers to share their work responsibly with the public especially young people and develops a community of responsible researchers who can continue to offer peer support beyond the project limits. We hope that the experience will inspire researchers to share their new-found perspective, learning and skills with their peers, and develop supportive, reflective peer cultures in their working environments.

*Submitted by Casimiro VIZZINI - UNESCO*

*Speakers :*

*BES Mireia - University of Bristol, GUAL SOLER Marga - American Association for the Advancement of Science, HERAS María - Institute of Environmental Sciences and Technology (ICTA-UAB), NGOME ABIAGA Jean-Paul - UNESCO, VIZZINI Casimiro - UNESCO*

## **Openness about trial results: lessons for companies on the front-line**

Results from around half of all clinical trials remain hidden. The WHO, UN and the global AllTrials campaign of 730 organisations have called on all organisations in all jurisdictions to share results from

clinical trials. Legislation and regulations coming on-stream mean that in the future it will be more difficult to keep results hidden. But data from historical trials is not covered by these laws. We are against the clock as information from old trials is at risk of being lost forever as researchers retire, research groups shut-down and software becomes obsolete. The effective registration and reporting of clinical trials cuts across national boundaries as well as those between researchers, companies and policymakers. Those global bodies who have the resources to progress thinking and to put in place initiatives to share results have a responsibility to share that progress with those who are less able to move forward. A small number of pharmaceutical companies have begun to implement procedures, policies and infrastructures to make this happen. In 2017, the AllTrials campaign published the first ever audit of the 50 largest global companies' policies on sharing clinical trial results. This means we have identified best practice in clinical trial results sharing by industry. The forward thinkers in industry who have adopted this will share what they learnt so others can adapt and adopt these practices. This roundtable session will let industry colleagues share experiences battling inertia to make change happen, and will include discussion of what regulators and legislators can do to encourage reform.

*Submitted by Sofie VANTHOURNOUT - Sense about Science (SAS)*

*Speakers :*

*WATHION Noel - European Medicines Agency, BROWN Tracey - Sense about Science (SAS), ESKOLA Sini - European Federation of Pharmaceutical Industries and Associations, FREEMAN Andrew - GlaxoSmithKline (GSK), KJOELLER Kim - LEO Pharma, LANE Sile - Sense About Science*

### **Science startups: can they make or break a scientists career?**

Is founding or joining a science startup a viable option for a scientist? Does it mean forgoing a career in academia? With access to funding for research spin outs becoming more open, with more training in entrepreneurship and business being available to do in spare time and with the traditionally corporate and academic pathways becoming less and less attractive to young researchers, there is a boom in science startups. From biotech and health, to space applications and clean energy initiatives, many more entrepreneurial opportunities are open to scientists of all levels who want to continue their research topic in a startup environment. Why is this rise happening, is it sustainable, is the support available at universities for this progression and what more can be done to encourage scientists to stay in science - even if it's not in the traditional labs? What skills do scientists need to successfully navigate new opportunities in the startup world? Do investors see scientists as credible startup founders worth funding? And is it possible to return to a career in academia later, or does it have to be one or the other? Our planned speakers are some of the sharpest minds operating at the intersection of science, business, communications and the startup community, but we are also open to speaker suggestions and additions. After this discussion we hope to reach a new, better understanding on what science and startups could get out of each other, and the roadmap that we should create to achieve that.

*Submitted by Liisa MAYOW - Kaskas Media*

*Speakers :*

*BENTINCK Alice - Entrepreneur First, CERULLO Vincenzo - University of Helsinki, MADEJ Ela - Fifty Years Fund, RASSAT Anais - CERN (European Organization for Nuclear Research), HUHTALA Annina - Kaskas Media, MAYOW Liisa - Kaskas Media, MILNE Gemma - Science Disrupt*

**09:45 - 10:00 Flash Presentations***Place : Palais des Sports***10:15 - 11:30 Parallel sessions****Going to extremes: how microbes from extreme environments can aid society**

This session uses storytelling and role-playing to examine the reduced biodiversity of extreme environments such as hot springs, Arctic/Antarctic, salterns, acidic rivers or deserts. Extreme environments are hostile to the majority of life forms on Earth, yet they are far from uninhabited. Certain viruses and bacteria termed extremophiles live and thrive in harsh environments. These microorganisms teach us lessons in the adaptation of biology to the roughest conditions imaginable, which are becoming more and more relevant in light of climate change or life outside Earth. Through evolution, extremophiles have developed unique molecules, biological structures and ecological relationships that are extremely interesting from the point of view of basic research and they have provided mankind with cutting-edge biotechnological tools, such as genome edition. Scientists from industry and academia will present their own real-life tales of the severe conditions they withstood in the name of research. Using original video material from extreme climates or practical demonstrations they will mimic, for example, the effect of hyperosmosis or heat on a living cell. The audience debate will foster forward thinking about how the Earth itself is becoming an extreme ecosystem due to climate change. Will extremophiles become the new normal?

*Submitted by Aurelio HIDALGO - Universidad Autónoma de Madrid*

*Speakers :*

*ÆVARSSON Arnthor - Prokaryome, AMILS Ricardo - Universidad Autónoma de Madrid, ANTÓN Josefa - UNIVERSITY OF ALICANTE, GONZÁLEZ-PASTOR José Eduardo - Center for Astrobiology (CSIC-INTA), HIDALGO Aurelio - Universidad Autonoma de Madrid, LEWIN Anna - SINTEF, SÁNCHEZ Guzmán - Scienseed SL*

**Open science: from concept to implementation**

Much has been discussed about what open science means, how it works, who the beneficiaries are, and what the ultimate goal is. It is now time to start implementing it. The European Commission set a goal for 2020 to make Open Science a reality for all public funded research projects. However, to reach openness in science, a revolution of means and minds is required. This session will identify the most important and immediate steps required to open the way for what is already perceived as the most important revolution in modern science. We will discuss the resources already available and in use, and further improvements that are required to make open science an established part of the research workflow; from sharing data, methodology and interpretation in open peer-review, to open access publishing. We will put special emphasis on the implementation of open science in research and evaluation, and its valorisation as part of the researchers curriculum that will increase researchers visibility. The goal of the session is to propose policy recommendations to the European Commission and University Graduate Schools on how to integrate, implement and eventually evaluate open science as part of tenure.

*Submitted by Maja MISE - University of Split/Marie Curie Alumni Association (MCAA)*



*Speakers :*

BURGELMAN Jean-Claude - DG Research and Innovation, European Commission, GRIGOROV Ivo - National Institute of Aquatic Resources, JONES Sarah - Digital Curation Centre (DCC), HATII, 11 University Gardens, University of Glasgow, MISE Maja - University of Split/Policy Working Group (MCAA), PULVERER Bernd - EMBO; EMBO Press, MUELLER Katharina - Göttingen State and University Library, Electronic Publishing/Eurodoc

**Participatory sciences: science in society or society in science?**

Since 2000 there has been a vast increase in participatory sciences in many areas. This new emerging trend raises a set of key epistemic, social and political challenges that will be discussed in this session. This panel will provide an account of the diversity of approaches related to participatory sciences and discuss to which extent these approaches are new. We will discuss the benefits and limitations of these approaches, as well as the extent to which recent initiatives allow us to reduce the risks and maximise the benefits. Finally, we will discuss the possible futures of participatory sciences.

Submitted by Pierre-Benoit JOLY - INRA

*Speakers :*

TANCOIGNE Elise - Université de Genève, GÖBEL Claudia - European Citizen Science Association/Museum für Naturkunde Berlin, HOULLIER François - Université Sorbonne Paris Cité (COMUE SPC), JOLY Pierre-Benoit - INRA

**Too sceptical or not enough: Cross cultural differences in reporting on emerging technologies**

In the last few decades, technological change from digital to genetic has altered the landscape of human society. One critical question is how such alterations and their potential for change have been explained to the general public and how those explanations have affected acceptance or rejection of new technologies. In general, the approach of European science and technology journalists has been far more sceptical than that of their peers in the United States, who are sometimes criticised for mostly doing simple-minded gadget journalism. But is that still true recent studies in the U.S. suggest no and has a shift in journalistic attitudes altered public acceptance of new technology? Has such enthusiasm for technology been advantageous to U.S. companies? Has European scepticism helped protect EU citizens more than their counterparts across the Atlantic and if so, is that continuing? These questions, especially as we look to the even more complex future, raise extremely timely issues for journalists and scientists and the general public.

Submitted by Deborah BLUM - Knight Science Journalism Program at MIT

*Speakers :*

HECKETSWEILER Chloe - Le Monde, HUDSON Richard - Science|Business, SCIAMA Yves - Free lance, ZELLER Tom - Undark magazine, MIT, GILES Chrissie - Mosaic magazine

**Has digital media changed how people feel about science?**

The media landscape has shifted with the proliferation of new digital technologies and disintegration of mainstream media. The internet has changed the way people look for, find and consume information. Open science is opening up new opportunities and changing the way information is shared and communicated. And citizens are also becoming actively encouraged to participate in and contribute to the research process. But have these trends changed the impact of science communication? Is there evidence that new technologies have resulted in a society that has a different attitude to science? What

are the opportunities to open up science using digital media? What are the barriers and limitations of using digital technologies to communicate science? This session offers everyone involved in science communication the opportunity to share their experiences and views in smaller groups and using a digital voting system. It aims to provide new perspectives and inspiration and a snapshot of the impact that new forms of science communication are having around Europe

*Submitted by Gloria BENEDIKT - International Institute for Applied Systems Analysis (IIASA)*

*Speakers :*

ASKWALL Cissi - VA (Public & Science), BALLI Enrico - Sissa Medialab, BOHM Mikkel - Astra, BURKARD Philipp - Science et Cité, DAVIS Martin - Royal Institution of Great Britain, DRECUN Aleksandra - Intersection - Center for Science and Innovation, DUNCAN Sophie - National co-ordinating centre for public engagement, Garrison Helen - VA (Public & Science), KASK Sander - Science Centre AHHA Foundation, MODÉER Camilla - EuroScience, PELLEGRINI Giuseppe - Observa Science in Society, WEIßKOPF Markus - Wissenschaft im Dialog.gGmbH

### **The case for the science cloud?**

In April 2016 the European Commission laid out a broad vision of how cloud computing can transform science in Europe. The plan, for a European Open Science Cloud, would federate existing online services and stimulate new ones so researchers in any domain, country or discipline can easily share data, tools and knowledge. These are ambitious plans. If successful, the EOSC could make today's science more efficient, and tomorrow's revolutionary. It could lay the groundwork for a new century of European leadership in global science. But there are many obstacles mostly political and economic, rather than technical. Cloud computing is a massive global marketplace, with well-proven technologies. Hundreds of Europe's top laboratories, universities and research organisations already make use of the cloud. But their systems are mostly incompatible; and many scientists remain reluctant to put their precious data online. A maze of EU and national regulations on data protection, privacy and copyright will need to be navigated. Financial concerns abound: Who will pay for these services, and how? And then there are politically thorny issues of trade and industrial policy: How open, to researchers and suppliers internationally, will the EOSC really be? This session will debate the obstacles and ask the audience to vote on whether they want the cloud or not.

*Submitted by Monica DIETL - Science|Business Publishing Ltd.*

*Speakers :*

JONES Bob - CERN, BURGELMAN Jean-Claude - DG Research and Innovation, European Commission, BOUFFLER Brendan - Amazon, PRINGLE David - Science | Business

### **How citizens can participate effectively in environmental stewardship: the Vicenza case study**

Citizen Science represents a new model for decision-making, facilitating connections between environmental governance, global policy objectives and citizens' concerns. It is seen as a promising and cost-effective mechanism for environmental data collection, monitoring and interpretation. Citizens, supported by portable digital devices, are able to collect environmental data on a range of parameters, automatically transmit these data to repositories and exchange their knowledge within a Citizens' Observatory Framework. This approach empowers citizens, who can influence environmental governance processes. A Citizen Science project that allowed citizens and authorities to cooperate in the field of water and flooding has been successfully tested in Vicenza, Italy. The session will trace the story of the Vicenza case, extracting lessons for a further development and implementation of Citizen

Science in support of policy, at local, national or European level.

*Submitted by Jesús ALQUÉZAR SABADIE - European Commission*

*Speakers :*

*CHECCUCCI Gaia - Italian Ministry of Environment : Direzione generale per la salvaguardia del territorio e delle acque (STA), VARIATI Achile - Comune di Vicenza, ALQUÉZAR SABADIE Jesús - European Commission, CIRAVEGNA Fabio - The University of Sheffield, FERRI Michele - Autorità di Bacino dei Fiumi dell'Alto Adriatico, GALIAY Philippe - European Commission, DG Research & Innovation, HECKER Susanne - Helmholtz Centre for Environmental Research and the European Citizen Science Association, RUBIO IGLESIAS José Miguel - European Environment agency, SCHADE Sven - European Commission, DG Joint Research Centre*

## **Big data and the future of democracy: How can people hold analytics and algorithms to account?**

Our smartphones and tablets track our movements. Everything we 'like' or 'follow' on social media is registered and stored, giving more power than ever before to target messages and categorise our behaviour. The use of social media in the Brexit referendum and the American presidential elections raised many questions about the role of big data analysis in shaping public opinion. But big data analysis also promises to help us with social challenges from assessing the path of the next pandemic, to predicting which cars on the road are likely to be uninsured. So how can we maximise the opportunities of big data analytics and avoid their unintended consequences? What can we, as citizens, researchers and organisations do to set and achieve scientific and ethical standards? Do we need rules for political campaigns? And what can we do to push for public benefits from advances in data analytics? This session will begin by presenting some of the science behind targeting, and what's technically possible beyond the hype. The panel will explore the legal and ethical dimensions of the technology and its wider applications in society. It will show how political parties use social media to campaign, and how citizens use social networks to influence political outcomes, especially during elections. We will look more broadly at what people in research, publication and policy are doing to ensure quality in big data analysis across all areas. How do we equip people to hold big data to account? What standards are needed? And what do people decision makers, the public and journalists - need to know in order to interrogate big data and increase confidence in big data research?

*Submitted by Nina KAJANDER - European Commission - Joint Research Centre*

*Speakers :*

*BOSSETTA Michael - University of Copenhagen, BROWN Tracey - Sense about Science (SAS), DE WAARD Anita - Elsevier and the UN Global Compact, FIESCHI Catherine - Counterpoint, KAJANDER Nina - European Commission - Joint Research Centre, VOLLBRACHT Ian - European Commission - Joint Research Centre*

## **Does Open Science Improve Your Career Prospects? Understanding the Challenges and Benefits of Open Science**

Researchers want to enhance their career prospects by publishing in well-regarded journals, building collaborative partnerships, acquiring funding, and creating innovative projects. It is still an ongoing debate, whether aspects of Open Science such as Open Access, Open Data, and Public Engagement can provide this enhancement. The current policy push towards Open Science, such as mandatory publishing in Open Access journals required by growing number of funding agencies, often clashes with the traditional evaluation strategies for academic excellence. As a result, particularly early-career

researchers are left with confusing and sometimes contradictory recommendations for career planning. This workshop will help researchers explore whether Open Science could benefit their careers. In addition, they can raise questions and concerns about the challenges of Open Science, exchange ideas about successful strategies, and get practical, personalised support from the trainers. In practice: after a short round of impulse talks delivered by a panel of experts on different aspects of Open Science, the participants will work on professional dilemmas scenarios in a world café setting. The dilemmas will cover issues such as publishing in Open Access journals, Open Data, alternative metrics and public engagement in the context of career advancement. The results will provide a set of practical approaches for career planning and strategies for obtaining institutional support towards Open Science.

*Submitted by Alexander HASGALL - EUA Council for Doctoral Education*

*Speakers :*

*BENGTTSSON Luiza - Max-Delbrück-Center for Molecular Medicine (MDC), BORRELL-DAMIAN Lidia - European University Association, HALLEUX Isabelle - Université de Liège, HARRIS Emma Anne - Max-Delbrück-Center for Molecular Medicine (MDC), HASGALL Alexander - EUA Council for Doctoral Education, O'NEILL Gareth - EURODOC (European Council of Doctoral Candidates and Junior Researchers)*

### **Life beyond academia: thinking outside the box**

With more PhD and post-doc positions than there are tenured posts, finding a permanent job in academia is increasingly challenging. Conversely, scientific skills and knowledge are becoming progressively more valued in other job sectors. Despite this, there is still insufficient cross-sector communication and information about the career opportunities that exist for scientists outside of academia. It is important for both experienced and early career researchers to realise that there are plenty of opportunities outside of fundamental research, even if this transition may seem tough after years of dedication to a particular research field. This session will focus on the career paths of five different scientists who have explored the role of scientists within different sectors. The remaining time will be allocated to a Q&A with the audience to enable extensive questions and debate. The diversity and expertise of the speakers selected will ensure that the session is high quality while the theme will ensure the session is highly topical. This session is likely to be of particular interest to PhD students, post doc and experienced career researchers who are considering a career outside of academia. Those scientists who are following an alternative career path as a science communicator, policymaker or in industry, may also find the session insightful.

*Submitted by Chloe HILL - European Geosciences Union*

*Speakers :*

*VAN EDIG Xenia - Copernicus, BAMBER Jonathan - University of Bristol, BIETRIX Florence - EATRIS, BROS-FACER Virginie - EURORDIS-Rare Diseases Europe, PENNY Martin - European Research Council (ERC), USSI Anton - EATRIS*

### **When will I get my hybrid-electric flight?**

Substantial decrease of the environmental impact of aviation is possible with accelerated introduction of more/all electric aircraft systems and architectures, combined with electric and hybrid propulsion. This journey is not an easy one but industry believes that it is feasible in the next 30 years. Focused research is necessary for Europe to be in the lead. While More/All-electric aircraft architectures aim to

minimise or replace hydraulic and pneumatic driven systems with electrically powered ones, hybrid-electric and distributed propulsion architectures will lead to much higher energy efficiency.

*Submitted by Michael KYRIAKOPOULOS - DG Research and Innovation, European Commission*

*Speakers :*

*ANTON Frank - Siemens AG, DONATEO Teresa - University of Salento, Italy, ISIKVEREN Askin - SAFRAN, PERKON Igor - Pipistrel*

#### 11:45 - 12:30 Plenary Keynote: Our Cosmic Origins

Pr. Maria Teresa RUIZ – former Director of the Center for Astrophysics Excellence and Related Technologies, former President of the Chilean Academy of sciences, L'Oréal-UNESCO Awards for Women in Science 2017

*Place : Palais des Sports*

#### 12:30 - 13:30 LUNCH BREAK and POSTERS VIEWING

#### 13:30 - 14:45 Parallel sessions

##### **Quantum technologies: a chance for women to take their place in science?**

Quantum technologies have the potential to change the world as we know it and Europe risks lagging behind if all of its best brains do not contribute to this change. In this session, quantum technologies researcher Dr Ruth Oulton will share the latest research results and an outlook on upcoming technologies, and will pinpoint the obstacles that women today still experience in their career in this frontier research area. These can range from the practical - lack of childcare facilities at conferences and lack of maternity leave at the early-career stage, to unconscious bias and lack of mentorship by the leaders in the field. This will be followed by a group discussion in which the panel will explore best practice and strategies to overcome current obstacles to women participating in this fascinating research endeavour.

*Submitted by Ralph STÜBNER - COST (European Cooperation in Science and Technology)*

*Speakers :*

*RASTELLO Maria Luisa - Istituto Nazionale di Ricerca Metrologica, RICE Curt - Oslo and Akershus University College, SAGLAMER Gulsum - Faculty of Architecture, Istanbul Technical University, AGIO Mario - University of Siegen, CARROZZA Maria Chiara - Sant'Anna School of Advanced Studies, OULTON Ruth - School of Physics, University of Bristol, SAKELLARIADOU Mairi - Department of Physics, King's College London, STÜBNER Ralph - COST (European Cooperation in Science and Technology)*

##### **Biobank as a springboard for open science and engagement**

The European biobank landscape is in a permanent state of transformation. Researchers and other stakeholders face ethical and legal challenges that impact established practices related to personal biological specimens and health-related data handling and sharing. They might experience tensions between working situations (legal guidelines, informed consent sheets, cooperation, relation to stakeholders such as publics or patients, etc.) and the need to adapt to new guidelines and legislation



such as the EU General Data Protection Regulation (GDPR). There is also growing demand for engagement with third parties, industry, patients and citizens. The falling cost of genome sequencing is making genetic information more easily accessible to the citizens, and the care system will increasingly be asked to provide interpretation and counselling relating to genetic information that has been generated and to satisfy the legitimate curiosity of participants in large-scale population genetic research. The panel will present the biobank sector as a springboard of open science promoting collaborative knowledge and good governance in the collection, analysis and sharing of data across countries and contexts.

*Submitted by Michaela Th MAYRHOFER - BBMRI-ERIC*

*Speakers :*

*HUYS Isabelle - KU Leuven (Catholic University of Leuven), MURTAGH Madeleine - University of Newcastle*

### **Reproducibility: successes to-date, challenges ahead**

Proving that research results can be produced is increasingly part and parcel of funding. In recent years, much concern has been raised when it became abundantly clear that the results presented in peer reviewed papers were often difficult to reproduce by others using the cited methods, or even totally contradicted the claims made by their authors in some reproduction efforts. If not tackled properly, the science community rightly asserted that confidence would ebb away and research, good and bad, could easily be labelled a fairy tale by its detractors. This panel will take stock of the recent successes and failures to-date of measures enacted to bridge the reproducibility gap in both publicly and privately funded research. For example, funding agencies now routinely require the deposit of research data sets and institutions are improving training on the application of statistical methods. Scientific journals are also beginning to insist on a greater level of detail on the methods and materials used. Among the searching questions to be discussed by the panel and audience will be how to measure the success of these measures to improve reproducibility? How can we encourage third parties to check the claims of others? Who might be the stakeholders and neutral brokers involved given the sensitivities? What does the whole controversy teach us about the ethics and principles underpinning science and its funding and what lessons might be learned in the broader context?

*Submitted by Federica ROSETTA - Elsevier*

*Speakers :*

*IORNS Elizabeth - Science Exchange, AALBERSBERG Ijsbrand Jan - Elsevier, BOUTER Lex - VU University Medical Centre, EMILIE MARCUS Emilie - Cell Press, FÖGER Nicole - European Network of Research Integrity Offices (ENRIO), NOSEK Brian - COS, ROSETTA Federica - Elsevier*

### **Equal access to graphical data and consequences on education, social inclusion and quality of life**

The four STEM disciplines - science, technology, engineering and mathematics - rely on graphical representations and are considered central in technologically advanced societies. Graphs are inherently visual and not accessible for the visually impaired, who make up approx 5% of the world population. This has important consequences on education, social inclusion and quality of life. Raised-lines maps are the most common tool for providing access to tactile graphics but have limitations. Recent research projects aimed to overcome these limitations by designing interactive systems for accessing digital drawings and spatial open data without vision. This panel will address the challenge of equal access to

graphical and spatial data, as well as the impact it may have on education, social inclusion and quality of life.

*Submitted by Christophe JOUFFRAIS - CNRS, IRIT & IPAL*

*Speakers :*

*GENTAZ Edouard - Univ of Geneve, DENIS Gregoire - Institut des Jeunes Aveugles, Toulouse, GENTES Annie - Telecom Paristech, JOUFFRAIS Christophe - CNRS, IRIT & IPAL, OLIVA Jean-Pierre - Makina Corpus*

### **The ethics of science and new technologies: who guides EU decision-making?**

When it comes to making EU laws, the Treaties do not give EU Institutions the right to decide their ethical considerations. This right remains clearly with the Member States. What the Treaties do recognise is the existence of basic European values such as those included in the Charter of Fundamental Rights. A growing number of European Regulations, nevertheless, do include applications of new technologies that greatly impact society. For example, in energy consumption or communications. Modern biology is a clear area where ethical issues arise necessitating informed societal decisions at both individual and collective levels. This panel draws on the experiences of current and former members of the European Group of Ethics and New Technologies (EGE) that has been advising the European Commission since 1991. Similarities and differences in member state approaches to convening reflection groups and advisory bodies will be spotlighted.

*Submitted by Pere PUIGDOMENECH - Centre for Research in Agricultural Genomics*

*Speakers :*

*DRATWA Jim - DG Research, European Commission, CAPURRO Rafael - University of Karlsruhe, DE BEAUFORT Inez - Erasmus University Rotterdam, HERMEREN Göran - Lund University, NIELSEN Linda - University of Copenhagen, PLANA Pepa - University of Barcelona, PUIGDOMENECH Pere - Centre for Research in Agricultural Genomics*

### **Social inequality and health**

People live longer in better health the wealthier they are, and there is evidence for increasing health inequality between socioeconomic groups. While it is well established that social differences in risk behaviour, access to health care services, disadvantageous prenatal and early life conditions as well as differences of conditions at work and at home account for health inequalities, the exact mechanisms are only beginning to shape up. Experience of stress is an important mediator and pathway how social contexts such as violence, environmental adversities, or the world of work directly influence health and human biology. New findings emphasise that by way of epigenetic transmission, chronic stress may accelerate cell aging and lead to earlier onset of decline in physical health. These findings are highly controversial, however. Such insights on intergenerational transmission, biological foundations, and consequences of social status demand a new discussion on the value of interventions. In addition, the reasons for social inequalities within a country on the one hand and between countries, e.g. of the same per capita income, can be elicited only by complex models. This panel will present the state of the art of these trends of collaboration between life, behavioural and social sciences, and discuss how such complex research findings could be best be communicated and used in society.

*Submitted by Katja PATZWALDT - German National Academy of Sciences Leopoldina*

*Speakers :*

RIPHAHN Regina - German National Academy of Sciences Leopoldina, MACKENBACH Johan - Erasmus MC, PATZWALDT Katja - German National Academy of Sciences Leopoldina, SIEGRIST Johannes - German National Academy of Sciences Leopoldina, KELLY Michelle - INSERM

### **Urban diabetes: Towards personalised prevention of globesity**

WHO reports 422 million people worldwide suffer from diabetes. Prevalence is rising in low, middle and high income countries alike. Diabetes is a serious disease that can damage nerves and blood vessels and result in blindness, kidney failure, heart attacks, stroke and lower limb amputation. In 2012, an estimated 1.5 million deaths were directly caused by diabetes and the economic costs of treatment and disability of patients are considerable. 90 to 95% of patients suffer from type 2 diabetes, which is largely the result of excess body weight, physical inactivity and smoking. Healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use are ways to prevent, delay and even reverse the disease. In our urban society, it is a common responsibility of citizens, educators, researchers, physicians, food producers, retailers, policy makers and city planners to develop strategies for personalised prevention, taking in account genetic, environmental and lifestyle factors which are different for each individual. Many cities are developing such interdisciplinary approaches, for example Cities Changing Diabetes and Rotterdam Vital City. This panel session invites stakeholders to discuss strategies, drivers and barriers.

*Submitted by Aart VAN DER LELY - Erasmus University MC*

*Speakers :*

*THOMSEN Ninna - City of Copenhagen, BAAN Rob - Koppert Cress, NICKLAUS Sophie - INRA French National Institute of Agricultural Research, VAN DEN AKKER Erica - Erasmus University MC, VAN DER LELY Aart - Erasmus University MC*

### **Society 5.0: lessons for Europe from Japan on people, jobs and technologies**

Advances in information technologies, artificial intelligence and robotics provide tremendous opportunities for innovation, growth, and prosperity through human-machine collaboration. Asian research is very much leading the field, with noticeable angst in certain European countries about machines. This panel gets to the heart of the matter by exploring how best to grasp the potential of information technologies to assist and improve our daily lives, while equally mitigating its impacts in widening inequality among people, countries or regions. For example, capitalists who can afford to invest in new technology can get rapid benefits with less workload, but those in society who don't have talent or skill for new technologies may lose their jobs. The developing world is particularly impacted. Also, human nature or identity may even change for the worst in this increasingly inter-connected world. With these benefits and risks in mind, the Japanese government has taken the lead in asking its science establishment to build a new Society 5.0 or Super Smart Society. In this session, we aim to engage our European colleagues in this debate while demonstrating the actions being taken across Japan to enrich people's lives and perceptions of self-worth, particularly in the world of work.

*Submitted by Yosuke TAKASHIMA - Japan Science and Technology Agency*

*Speakers :*

*DEWANDRE Nicole - Joint Research Center, KIMURA Yasunori - Japan Science & Technology Agency, MAEDA Akira - Japan Science and Technology Agency, NORDFORS David - i4j, TAKASHIMA Yosuke - Japan Science and Technology Agency*

## Recent Trends in Scientific Mobility? - Shaping a (Continental) European Position

Recent political developments are creating an impact of global magnitude: Policy revisions in the USA, the UK facing "Brexit", the emancipation of regional forces in the EU, the rise of new ambitious research centres. It is obvious that these developments will combine to influence scientists in the mobility choices they make. It remains to be seen whether present prime research regions will remain first choice. Next to the main criterion of research excellence other criteria as freedom of research, transparency, accessibility and openness of society will gain importance for scientists on the move. Europe stands for these virtues. Research marketing on the national and institutional scale will have to address and communicate such issues in a convincing manner. The challenge will be to confine and highlight such traits in a positive and non-discriminatory manner with respect to established international partnerships. The panel aims at initiating a discussion on how Continental Europe should position itself as a research destination using a common approach to communication. Two professionals from the field of international communication and marketing will share their perspectives. Mr. Dries will focus on the question, what role the "European argument" should play in international communication and marketing strategies. Mrs. Susann Rentzow-Vasu will elaborate on Euraxess ASEAN, as a good-practice model. The second part of the section aims to involve young researchers in the discussion. In three round tables the following questions will be addressed: What attracts young researchers to European countries? Are their specific common European unique selling points? What options are there for an international European research marketing? The discussion on junior researcher level will be moderated by experts in the field and will help to reflect on the necessity of a common Continental position and communication in the future.

*Submitted by Katja LASCH - German Academic Exchange Service (DAAD)*

*Speakers :*

*DRIES Jan - University of Antwerp, GAD Gernot - German Research Foundation, KRAAV Kristin - Estonian Research Council, LASCH Katja - German Academic Exchange Service (DAAD), NORMANN Emile - INNOVATION CENTRE DENMARK, RENTZOW-VASU Susanne - EURAXESS LINKS ASEAN*

### "Modern" doctoral training: Is it making researchers employable?

According to an RCUK report on the employability of doctoral researchers, the skills of a doctoral graduate that are most valued by employers are "deep specialist subject knowledge, excellent research and analytical skills, their capacity for critical thinking, as well as their ability to bring fresh perspectives to problems or the organisation." These are skills that are developed as an innate part of the doctoral research training experience. But the "modern" doctorate, according to the European Commission, needs to provide more. As well as producing original research, a doctoral researcher "should acquire a wide range of transferable skills that will make him/her highly employable on the labour market, not only in academia but also in a wide range of other types of organisations." [European Commission, June 2015] But how much time should be spent developing these extra skills? Doctoral candidates, particularly in Europe, are often constricted to 3 years in which to complete their research. The added pressures of developing extra skills make this ever more challenging, especially with the "publish or perish" attitudes that persist in academia to this day: approximately one-third of Ph.D. students are at risk of having or developing a common psychiatric disorder like depression, according to a recent study by Leveque et al. The 2017 Naturejobs Graduate Student Survey also recorded high levels of anxiety about future careers and work/life balance - something they were least satisfied with. Since the last

survey, students are also working longer hours on their PhD. Is all this extra skills training benefitting doctoral students in the long term? Is it making them more employable? This interactive panel discussion, with speakers from across Europe and sectors who have direct influence on policy and careers, will explore these questions in the hope of maybe finding a solution to the question: are "modern" doctoral researchers employable?

Submitted by Julie GOULD - Freelance

Speakers :

BEERNAERTS Sophie - MSCA Unit, Directorate-General for Education, Youth, Sport and Culture, EC, GOULD Julie - Freelance, HASGALL Alexander - EUA Council for Doctoral Education, HETHERINGTON Richy - Newcastle University, PAIN Elisabeth - Science Careers, PERSSON Tina - Passage2Pro AB, HERZIG Michaela - Max Delbrück Center for Molecular Medicine in the Helmholtz Association

### **Bio-kerosene and solar-kerosene are promising intermediate fuel options**

Greening of aviation requires direct emissions reduction as it cannot be accomplished solely with improvements to engine performance and air traffic management. Advanced biofuels are long-term drop-in solutions that can reduce direct emissions and their production technologies are readily available. The challenge is a scale-up and market creation. Bio-kerosene was shown to be technically suitable and even qualitatively superior to conventional kerosene but large scale deployment is still to happen. As the European aviation sector is exposed to global competition, fuel cost remains an important parameter. Therefore, advanced aviation biofuel research is needed to reduce costs and increase availability of both, advanced biofuel drop-ins for the current fleet and next generation renewable aviation fuels for future plane designs. Beyond bio-kerosene, researchers have made a glassful of jet fuel by combining carbon dioxide and water in a reactor powered by concentrated sunlight. At the moment the technology is still at the experimental stage, but researchers at the EU-funded SOLAR-JET project have proven for the first time that it works, and they now investigate whether it can be scaled-up commercially. If they are successful, the breakthrough could mean that carbon dioxide, a greenhouse gas, could become the raw material for petrol, diesel and the jet fuel kerosene.

Submitted by Michael KYRIAKOPOULOS - DG Research and Innovation, European Commission

Speakers :

HORNUNG Mirko - Bauhaus Luftfahrt, MATTHES Sigrun - DLR, STEINFELD Aldo - ETH Zurich

#### **15:15 - 16:30 Parallel sessions**

### **Get out of the bubble: increasing scientific literacy amongst the underprivileged**

Science and fact-based arguments play an essential role in all parts of society and our daily lives as a basis for democracy and open societies. In the face of rising populist movements in Europe and the world, democratic values are being put to the test. Research and evidence-based policy are being questioned. Examples include the Trump administrations science budget cuts, Hungary's threat to academic freedom and the imprisonment of scientists in Turkey. This session explores how scientists and science communicators can best engage citizens in real dialogue via examples of successful projects with underprivileged youth in Germany, Israel and Switzerland. Delegates will hear how



students with low motivation but huge potential experience satisfaction and a sense of success when studying together in a science lab or in a casual setting outside of school. Another case study is fostering the scientific interests and language skills of refugee kids. A key argument is that there is a strong need for greater scientific literacy and a new dialogue between researchers and citizens. A dialogue with all parts of society. Especially for those left behind parts of society susceptible to propaganda and fake news, scientific knowledge and basic understanding of how science works, are crucial.

*Submitted by Isabella KESSEL - ROBERT BOSCH STIFTUNG*

*Speakers :*

*Lück Gisela - Universität Bielefeld, BURKARD Philipp - Science et Cité, MUELLER Jan Marco - International Institute for Applied Systems Analysis (IIASA), SMALLMAN Melanie - University College London, TAMAR Levy - Davidson Institute of Science Education, KUPFERSCHMIDT Kai - at Contributing Correspondent for ?Science? and Science Writer at ? Süddeutsche Zeitung.*

### **Transforming CO2 into sustainable chemicals using catalysis**

Chemistry is particularly crucial for the design of eco-friendly processes and transformation of waste or biomass into green products. Catalysis leads to faster and highly atom-efficient reactions, decreasing energy consumption, by-product generation and risks, and globally enabling low-cost processes. The nature of catalysts is wide-ranging: from enzymes to metallic surfaces, to molecular entities such as organocatalysts and coordination complexes, and more recently developed, nano-scale catalysts, permitting a large spectrum of applications. This panel will focus on carbon dioxide (CO<sub>2</sub>) transformation by catalytic methods with the aim of controlling the greenhouse effect. This effect can be reduced by capture, storage, and transformation of the surplus of CO<sub>2</sub> into valuable products. Because CO<sub>2</sub> is a highly unreactive molecule, new methodologies need to be developed for this. This panel will highlight current innovations and challenges to be overcome.

*Submitted by Montserrat GOMEZ - University of Toulouse 3 - Paul Sabatier*

*Speakers :*

*CANTAT Thibault - Commissariat à l'Energie Atomique et aux Energies Alternatives, CEA, DESMONS Sarah - LCC-CNRS and LISBP-INSa, DUARTE Tiago - IST, GUERRÉ Vincent - ENOSIS, MARBAIX Julien - LPCNO-INSa, RAMIREZ DE LA PISCINA Pilar - University of Barcelona, RIGOLET Mathilde - CNRS LHFA UMR5069/Université Paul Sabatier*

### **Big science and local impact: the astronomy approach**

With increasing investments in complex, multi-national large-scale research infrastructures comes an increased responsibility to address their local impact, and growing expectations from local communities for the infrastructures to contribute to the local economy. From access to quality education to skills development, tourism opportunities, cultural heritage preservation and addressing gender and diversity issues, fundamental research is now integral with societal issues. Can it address those issues? Are expectations too high? Is it the role of big science to support development and if so, how and at which level? Astronomy has had a long history of engagement with local communities due to its infrastructures often being located in remote and sometimes disenfranchised communities. Using astronomy as a case study, the panel will discuss the importance of local engagement support of development and discuss initiatives, expectations and their vision for the future.

Submitted by William GARNIER - SKA Organisation

Speakers :

BO Peng - National Astronomical Observatories, Chinese Academy of Sciences, DAWSON Sandra - TMT International Observatory, FONCEA Valeria - Joint ALMA Observatory, GOVENDER Kevin - International Astronomical Union/National Research Foundation, GREEN Charmaine - Yamaji Art Centre

### **One Health, for systems-based, integrative approach to sustainable public health**

The health challenges of the 21th Century are related to global changes involving the ecological and social dimensions of human life. Better, more equitable and sustainable health for humans, animals, and the environment can be achieved by integrating sciences, sectors, and society. One Health provides an operational area of knowledge and action. Integrative approaches to health join and boost the public health systems capacities for addressing the environmental and socio-economic drivers of current changes. This panel will use examples of systems-based integrative One Health initiatives to explore the claim Changing public health in an equitable and sustainable manner needs a systems-based, integrative approach. They will stimulate a discussion on the ways of thinking, planning, and working that distinguish the operative approaches of One Health initiatives in different socio-economic and ecological contexts of both developing and developed countries. The aim is to shed light on how One Health may reposition existing public health systems and their governance towards a more effective and sustainable stewardship of available resources based on equity, inclusiveness, transparency, and democracy.

Submitted by Ioanna STAVRIDOU - COST Association

Speakers :

CANALI Massimo - University of Bologna, GABRIËL Sara - Ghent University, GAVIER-WIDÉN Dolores - National Veterinary Institute (SVA), Sweden, GROSCH Rita - IGZEV, Grossbeeren, HAESLER Barbara - Royal Veterinary College, J. ROBERTSON Lucy - Norwegian University of Life Sciences, SPARAGANO Olivier - Coventry University, TREVISI Paolo - University of Bologna

### **Meaningful collaboration for RRI in industry: how to balance cooperation, competition and citizen involvement**

Many businesses have experimented with user-oriented approaches to innovation, such as open innovation, lead-user innovation, or citizen science, in the past years. These approaches are not always successful because they require a careful balancing of stakeholder expectations and competitive pressures. User-oriented innovation approaches are not just about enabling participation and collaboration. Rather their success depends on making these experiences MEANINGFUL to all parties involved. We propose a session that specifically deals with challenges and success factors for making collaboration and participation more meaningful for both industry and non-industry stakeholders. Three industry case studies will be introduced to workshop participants through pecha-kucha pitches. Case study representatives will introduce their human-centered approach to innovation, the specific challenges they faced and identify a number of core success factors for meaningful participation and engagement. 1) Industry collaboration in telemedicine for diabetes care - the case of GlucoTel? (Karsten Bolz) 2) Yoti's Inaugural Hack Week - solving identity verification challenges (Julie Dawson) 3) Organic Solar Cell Development - retaining talent (Emad Yaghmaei) Following the pecha-kucha pitches, participants will be invited to discuss what makes collaboration and participation in science and

innovation meaningful to them, share their own experiences and develop new ideas for more meaningful engagement. We will employ rapid ideation techniques inspired by design thinking to animate the session. Results will be summarised and visualised with all participants in the last part of the session. The session is supported by representatives of the three case studies, the European Business Innovation Centre Network, Stichting Smart Homes, ISINNOVA, Centre for Computing and Social Responsibility (DMU), La Caixa Foundation, Strategic Design Scenarios, and Centre for Professional Ethics (UCLAN).

*Submitted by Norma SCHÖNHERR - WU Vienna*

*Speakers :*

*BOLZ Karsten - Karlsruhe Institute of Technology (KIT), DAWSON Julie - Yoti Ltd, YAGHMAEI Emad - Delft University of Technology, JARMAI Katharina - WU Vienna, MARTINUZZI Andre - WU Wien*

#### 15:15 - 16:30 Plenary Panel Discussion: Space research perspectives

Jean Yves LEGALL - President of the CNES, Chair of the Council of the ESA, President of the International Astronautical Federation ; List to be updated

*Place : Palais des Sports*

#### 16:30 - 16:45 Flash Presentations

*Place : Palais des Sports*

#### 17:00 - 18:15 Parallel sessions

##### Whats next for particle physics?

A decade ago, the Large Hadron Collider (LHC), was started with the mission of exploring the universe of particles with unprecedented energy. In 2012, the announcement of the discovery of the Higgs boson crowned the effort of the particle physics community in its search for the last missing link of the Standard Model. However, the theory remains incomplete, as it incorporates only three out of the four fundamental forces. Fundamental questions remain and physicists are convinced that there is new physics beyond the Standard Model and are looking for new phenomena that would open up new perspectives and provide answers to these fundamental mysteries. From the discovery of new particles to precision measurements, the session will discuss the status of research at the LHC and its future. By 2025, the LHC will become the high-luminosity LHC, allowing the exploration of the subatomic world in even more detail: what are the technological and scientific challenges ahead? The panel will also look at the longer-term future: what could be the new machines and experiments for tomorrow, which would further push the limits of our knowledge? This session will be illustrated live by French cartoonist Lison Bernet.

*Submitted by Arnaud MARSOLLIER - CERN*

*Speakers :*

*BÉJAR ALONSO Isabel - CERN - European Organization for Nuclear Research, BERNET Lison - Independent, GIBNEY Elizabeth - Nature, IPEK Seyda - Fermilab, LAPLACE Sandrine - CNRS, MARSOLLIER Arnaud - CERN*

## **The Magic of Memory: Can brain training techniques help boost memory and improve mental health in later life?**

This interactive workshop will give participants the chance to experience some of the brain training techniques being trialled in the EU-funded Silver Santé Study. This Horizon 2020 project, coordinated by INSERM in France, is investigating whether mental training techniques, such as mediation and language learning, can help improve mental health and wellbeing in the ageing population which could in turn help reduce the cost/care burden on public health services of age-associated diseases and help overcome health inequalities. The workshop includes a short magic show with a focus on memory-related tricks and delegates will be split into groups, each with the opportunity to take part in a memory test/quiz, a health education session, and meditation.

Submitted by Charlotte REID - Minerva Communications

Speakers :

SMITH Rhonda - Minerva Communications United Kingdom Ltd, POISNEL Géraldine - Inserm, HEIDMANN Marc - Lyon Neuroscience Research Centre, PARSONS Elizabeth - UCL, UK, COROMINAS David - Magician

## **Science and innovation policymaking in an era of digital government**

As science and research management become increasingly digitalised, new opportunities arise for linking datasets covering diverse areas of activity and impact, including research funding, equipment inventories, research data, publications and citations, researcher profiles and social media presence. These datasets can be analysed using, for example, big data analytics to complement traditional sources of policy information. Many countries are already implementing data infrastructures to support more evidence-based science and innovation policy making. Such systems can be used by governments to better design, implement, monitor and evaluate policies; and they can be used by funding agencies to better plan, coordinate, monitor and evaluate their activities. But data infrastructures also face several challenges and risks. Among these are a lack of interoperability standards and a shortage of skills needed to implement a digital data-driven public sector. This session will build on current international work examining the transformative potential and pitfalls of an increasingly digitalised science and innovation policy and governance. We will explore the potential roles of digital information-based content and processes in future science and innovation policy, and the challenges and risks these pose.

Submitted by Michael KEENAN - Organisation for Economic Co-operation and Development (OECD)

Speakers :

GALINDO RUEDA Fernando - OECD, KEENAN Michael - Organisation for Economic Co-operation and Development (OECD), LARÉDO Philippe - Université de Paris-Est, MAYNARD Diana - University of Sheffield, SACHWALD Frédérique - Observatoire des Sciences et Techniques (OST)

## **Scicomm researchers and science communicators bridging the divide**

Researchers are increasingly realising the importance and benefit of communicating their findings. At the same time, the credibility of research results and the relevance of the scientific method are being questioned in several parts of the world. In light of these contrary trends, it is becoming even more vital that research is communicated. In an open democratic society, various societal actors and citizens need to have easy access to scientific conclusions and findings and to know how research is being

conducted. Science communication as a scientific discipline has important findings to draw upon. However, collaborations between researchers and practitioners in science communication are limited. Recent studies suggest that there is a 'double-disconnect' between scholarship and practice and between the different disciplines in the social sciences and humanities. Empirical studies support this. How can researchers and science communication practitioners work together to improve and increase the impact of science communication and public engagement? How can they better acknowledge each others experiences and skills? And how is digitalisation changing the way they work and how research is communicated to the public? This session will explore ways to improve knowledge sharing between the two groups.

*Submitted by Anna Maria FLEETWOOD - Swedsh Research Council*

*Speakers :*

*ASKWALL Cissi - VA (Public & Science), BUCCHI Massimiano - University of Trento, Italy., DRECUN Aleksandra - Intersection - Center for Science and Innovation, FLEETWOOD Anna Maria - Swedsh Research Council, GERBER Alexander - Rhine-Waal university, SMALLMAN Melanie - University College London*

### **Homeopathy: the need for robust evidence to inform consumer choice**

With an estimated market for homeopathic products in the EU at over 1 billion, accounting for around 7% of the total EU market for non-prescription medicine, it may surprise many consumers to know that there is no scientific proof that homeopathy actually works. Yet the proportion of the population using it ranges from 1% to 13% across Europe and the market is growing annually by 6%. EASAC, the European Academies Science Advisory Council, will publish a statement in autumn 2017 showing the therapeutic effect of homeopathic preparations, as perceived by the patient, is due to the placebo effect. It is hoped that this work will help ensure appropriately informed patient choice and effect a standardised, knowledge-based, robust regulatory framework, supported by honest advertising practices across the EU, that is applied equitably to all medicinal products. This session will explore how the EASAC statement has been received by the EU, governments, industry and consumers; how European academies are engaging the public on this issue; and the impact on policy inconsistencies that continue to fuel this industry.

*Submitted by Tracey ELLIOTT - EASAC (European Academies Science Advisory Council)*

*Speakers :*

*BACH Jean-François - Necker Hospital, Paris, LARHAMMAR Dan - Royal Swedish Academy of Sciences + Uppsala University, Medical Faculty, SYCHROVA Hana - Czech Academy of Sciences, FEARS Robin - EASAC, GLOVER Anne - Strathclyde University*

### **Big data: uncovering new mobility patterns and redefining planning practices**

Using representations and data that are digital, we can create images about what happens where and when in cities, including mobility patterns that remained unaccounted until now. If properly analysed, big data for mobility can radically improve the socioeconomic and environmental analysis of public and sustainable transport. This session will discuss how big data is affecting mobility in terms of new travel behaviour and transport planning. At the user level, the relations between social networks, social media usage and travel behaviour in EU countries will be discussed. Scientific insight on the social media usage of millennial students in EU countries to understand their impact on social activities and mobility



in urban areas will be presented. At the planer level, responses to changes in mobility patterns or unaccounted needs given by the analysis of public transport smart data will be presented. Advances on an integrated accessibility index will be discussed as a way for policy makers to improve current transport planning practices. Yet, big data in transport is not immune from some problems, especially those relating to statistical validity, bias and incorrectly imputed causality. This point will be discussed alongside liability, since Big data is gathered and manipulated by many different stakeholders. The proposed panel discussion therefore aims to provide to the audience a clear understanding on ways in which big data affects travel behaviour and transport planning, while accounting for data quality and pan European standardisation aspects.

*Submitted by Mickael PERO - COST*

*Speakers :*

*ARORA Payal - Erasmus University Rotterdam, COSTANTINI Federico - University of Udine, DI CIOMMO Floridea - cambiaMO | changing MObility Cooperative Innovative Company, KOVACIKOVA Tatiana - Zilina University, PERO Mickael - COST, PLAUT Pnina - Technion ? Israel Institute of Technology, THOMOPOULOS Nikolas - university of greenwich*

## **How higher education in Africa articulates with labor markets**

Africa is affected by an exceptional population growth. It is the region of the world where the young population will be the most important in the coming decades. This massive increase in youth poses many challenges, primarily in education. Higher education and research know a massive and rapid expansion, but very uneven and of disparate quality across the continent. The main objective of this session is first to evaluate this massification of higher education, in terms of numbers, growth curve, built infrastructure, trained and equipped staff, organization. The questions of quality and teaching will then be examined. Finally, the articulation of training with labor markets and, more broadly, socio-economic and cultural integration conditions deserves a lot of attention. These aspects will be observed from several sites and over several countries. A keynote talk based on recent sociological results will be discussed by experts with different kind of field experience.

*Submitted by Luc ALLEMAND - Afriscitech*

*Speakers :*

*DIA Hamidou - IRD, MEYER Jean-Baptiste - IRD, NAFA Aziz - CREAD, NSHEMERIRWE Connie - Cavendish University in Uganda, OMUNGO Rosalia - KENYA BROADCASTING CORPORATION, WELDEMARIAM Komminist - IBM Research Africa*

## **European Grants for brilliant minds from across the world**

Under the EU's H2020, three funding programmes offer funding to researchers from all walks of life to advance their ideas, showing that Europe supports the best minds all over their careers. The specialised speakers will take you on a journey through the exciting opportunities offered by the European Research Council (ERC), Marie Skłodowska-Curie Actions (MSCA) and Erasmus+. The ERC funds "frontier" research together with the MSCA focus on advancing "excellent" science, whereas Erasmus + presents study exploration opportunities. The following questions will steer the interactive, open-to-questions debate: What concrete support are the ERC, MSCA and Erasmus+ providing to researchers? How does the Erasmus+ application process work? How is funding made available to ensure that women and men have equal opportunities to carry out excellent research? Do applicants from so-called "low performing countries" have the same likelihood of receiving ERC and MSCA

grants? And finally, where can one find the necessary information? The ERC and MSCA are at the forefront of best practice with regard to gender balance and "Widening" participation. Both strive to ensure that women and men are equally able to perform excellent research by identifying and removing any gender bias in the granting process. "Widening" (Central and Eastern Europe) countries tend to apply less and coordinate fewer projects. To tackle this issue, in 2018 the MSCA for the first time, allows specific support by an earmarked budget, to undertake fellowships in a "widening" country. From its side, the ERC has a dedicated Working Group to encourage "low performing countries" to nurture scientific talent more effectively. A testimonial of a current ERC grantee, former MSCA fellow and an Erasmus student will be given by Prof. Eva Hevia. The EURAXESS joint initiative of the European Commission, a gateway bridging the gap between the research community and the job market, will also be presented.

*Submitted by Gabriela CHIRA - REA*

*Speakers :*

*BEERNAERTS Sophie - MSCA Unit, Directorate-General for Education, Youth, Sport and Culture, EC, HEVIA Eva - University of Strathclyde, Glasgow, LIBERATORE Angela - European Research Council, WILKIE Graham - Directorate-General for Education, Youth, Sport and Culture*

### **The case for blue skies research through its (little-known) real-world applications**

Blue skies research has long suffered from a reputation of having no direct, "real-life" applications. And while it has traditionally been curiosity-driven, by pushing our capabilities ever further, research has increasingly resulted in successful spinoffs, from the world wide web developed at CERN to WiFi partly developed at the Australian CSIRO and many other examples with applications in medical imaging, security, geolocalisation, weather forecast, food safety, etc. Contribution of these spin-offs to the worldwide macro economy amounts to trillions of dollars over time and yet the blue skies origin of most of these is little-known by the public, and perhaps more importantly, by policy-makers and governments. In this panel session we will set up the scene by presenting some concrete examples of successful past spinoffs today embedded in our lives and will open the floor to well-established innovation-driven businesses and promising entrepreneurs coming from the astronomy world, who will present their new developments and potential future business applications. The questions are numerous, including - can we better predict what spinoffs might come from big science? How can science institutions better shape their business models to leverage the broader applications and potential impact of technological developments? How can we make sure that our facilities and projects are well equipped to deliver such spinoffs and finally, how can we collectively be better at communicating successful spinoffs and details of their inception to the tax-payer?

*Submitted by William GARNIER - SKA Organisation*

*Speakers :*

*FARAGHER Ramsey - Focal Point Positioning Ltd, PEARCE Sarah - CSIRO, BERRY Simon - SKA Organisation, GARNIER William - SKA Organisation, ROY Suzanne - Air Liquide, SCAIFE Anna - University of Manchester, SCHLEEHL Joel - Low Noise Factory, VAN HAARLEM Michiel - ASTRON*

**18:30 - 19:15 POSTERS VIEWING**

20:00 - 23:00 ESOE party, City of Space

# 13/07/2018

## 08:30 - 09:45 Plenary Panel Discussion: Inequalities in European Science

Dr. Carmen VELA - Spanish State Secretary for Research, Development and Innovation ; Dr. Elin ORG - Senior Scientist Estonian Genome Centre, Institute of Genomics University of Tartu ; Pr. Jean-Pierre BOURGUIGNON - President of the European Research Council, Former Director of IHES ; Pr. Martin ANDLER - Emeritus Professor of Mathematics Versailles St Quentin University, Vice-President of EuroScience, Vice-Chair of the ESOF 2018 Programme Committee

*Place : Palais des Sports*

## 08:45 - 10:00 Parallel sessions

### Deaf people sciences education with innovative numerical tools including Sign Language

This session demonstrates the urgent need to adapt numerical teaching methods as a powerful tool for the education of deaf people across Europe regardless of their age or status. European universities are failing to properly fund even the basic interpretation of lessons with Sign Language. The net result is a barrier to access for deaf students who may quickly drop out of the education system, giving up their studies altogether. The panel will propose concrete recommendations such as adapting teaching methods and providing massive open on-line courses (MOOC) for deaf student. The production of new numerical tools implies an interdisciplinary approach bringing together sign language expertise, translation, computer graphics design, video edition and, of course, sciences. Speakers will argue that these new methods could improve traditional teaching methods and be used by everyone. MOOC is also a tool that can help popularise science while raising awareness among deaf people for sciences and helping young deaf people in high school to choose their favourite university course.

*Submitted by Laure LAFFONT - UPS-GET*

*Speakers :*

QUER Josep - Universitat Pompeu Fabra, CAMERON Audrey - Institute for Education, Teaching and Leadership (IETL)

Moray House School of Education University of Edinburgh, LAFFONT Laure - UPS-GET, PAPE Siglinde - Laboratoire de Recherche sur le Langage

### Food and nutrition security and agriculture

A global growing population is producing many complex global issues. More people are moving to live in cities that are expanding to encroach on arable land. Urban populations, industry and agriculture are competing for available water supplies. Climate change threatens to affect food production and supply chains, further exacerbating malnutrition. How do we ensure that all people, everywhere, have access to an adequate diet that fulfils all their nutrition requirements, while promoting sustainable agriculture and minimising impacts on the environment? These challenging questions require fresh engagement by science to tackle the complexity and interdependencies of competing pressures on our food systems. The InterAcademy Partnership has initiated a major project on Food and Nutrition Security and Agriculture that engages regional academy networks in Africa, Asia, the Americas and Europe. Its objective is to identify scientific opportunities and how to use these opportunities to support a more holistic approach to managing food systems, making a critical contribution to the Sustainable

Development Goals. This session will discuss lessons learned from this project, focusing on the EU dimensions, key findings for the region and their implications in the global context.

*Submitted by Tracey ELLIOTT - EASAC (European Academies Science Advisory Council)*

*Speakers :*

*BENTON Tim - University of Leeds, CANALES Claudia - European Academies Science Advisory Council (EASAC),*

*O'SULLIVAN Aifric - University College Dublin, FEARS Robin - EASAC, TER MEULEN Volker - InterAcademy Partnership*

## **The search for dark matter and its implications for our understanding of the Universe**

Confirmation of the existence of dark matter is one of the most pressing issues in modern science. Its existence is inferred from numerous astrophysical observations, taken over a vast range of distance (and time!) scales, and which consistently lead to the same conclusion. Dark matter has become a pillar of modern cosmology but what exactly is it? There is no known fundamental particle that has the required properties, but remarkably, many advanced theoretical models that try to explain the diversity and properties of fundamental particles we do know of, also predict new particles that perfectly fit the bill. Is this the right direction for particle physics? Are the inferences of observation correct? Or are the data pointing at a completely different understanding of fundamental particles, gravity, and our cosmic history? Confirmation of the existence of dark matter will have a profound impact on research at the very smallest and largest scales. This session will answer these questions by providing the latest updates on dark matter research, including the latest cosmological evidence, as well as an overview of the forefront experimental methods being used.

*Submitted by Terry O'CONNOR - Science and Technology Facilities Council*

*Speakers :*

*APRILE Elena - Columbia University, FUNK Stefan - FAU Erlangen-Nürnberg, GHAG Chamkaur - Dark Matter United*

*Kingdom Consortium, O'CONNOR Terry - Science and Technology Facilities Council*

## **Perspective of Humanities and Social Sciences Researchers. Challenges, Prosperity and Guidance.**

Across creative and service industries, public policy and civil society, the impacts of the social sciences and humanities (SSH) are felt in diverse - and often unpredictable - ways. Universities and researchers are now more sophisticated in the ways that they support and track these impacts. Governments and funders increasingly recognize and reward them, alongside more traditional measures of excellence. A few institutions, including the Marie Curie Alumni Association (MCAA) fully recognize and are actively trying to relieve or, at least, to promote active discussion about some of the endemic problems that still plague the researchers in this field, such as the chronic lack of funding, under-promotion of their research achievements, and the absence of opportunities outside the academia. Under this spirit, the MCAA has teamed up with high-profile representatives of like-minded institutions, in order to propose a roundtable discussion about the current state of this research field, its possibilities, future, problems, alternative career pathways and interdisciplinary collaborations. Some of the questions explored will be: are the SSH researchers forced to deepen their collaboration with the natural sciences and engineering, or is there an alternative for them? Are the lack of promotion and funding related? Is there a pathway for the SSH researchers in the industry? The goal of this session is to bring together leading thinkers, practitioners, users and policymakers to define, debate and co-design the next chapter of our shared impact agenda, and to propose policies, pathways and programs on how to better integrate the



SSH fields into a global world that seems to be driven by patents and constant innovation, but forgets that without a detailed study of the past such as that which the SSH fields bring, there is no future that can be built.

*Submitted by Nina Díaz FERNÁNDEZ - Marie Curie ALumni Association (MCAA)/University of Ljubljana, University of Split*

*Speakers :*

*COLELLA Silvana - European Consortium for Humanities Institutes and Centres/University of Macerata, Department of Humanities, DÍAZ FERÁNDEZ Nina - Marie Curie ALumni Association (MCAA)/University of Ljubljana, University of Split, LOMBARDO Gabriella - European Alliance for Social Sciences and Humanities, PELLIZZON Dario - Ca' Foscari University of Venice, SAROYAN Susanna - University of Zurich, Department of Banking and Finance*

#### 09:45 - 10:00 Flash Presentations

*Place : Palais des Sports*

#### 10:15 - 11:30 Parallel sessions

### The impact of atmospheric particles on climate and health

Our atmosphere is composed of gases, mainly nitrogen (N<sub>2</sub>) and oxygen (O<sub>2</sub>), and in lesser quantities argon (Ar), carbon dioxide (CO<sub>2</sub>) and many others. The atmosphere also frequently contains water (H<sub>2</sub>O) in its gaseous form. In addition to gases, the atmosphere consists of a mixture of solid and liquid particles suspended in the air, so-called aerosols. Aerosols are of central importance to atmospheric chemistry and physics, as they interact with the biosphere and climate. In polluted atmospheres, they contain toxic components with profound impacts on public health, since exposure to such particles causes stress that affects our lungs, heart and potentially every system in our bodies. It is estimated that air pollution in cities and rural areas causes more than 3 million premature deaths worldwide. The panel will showcase innovative approaches - from laboratory experiments, ground-based, airborne and satellite observations to numerical modelling - in order to better understand the drivers, mechanisms and impact of the atmospheric constituents on the Earth's climate and on human health. This research sheds light on interactions at different physical scales (from molecules and tiny particles to clouds and large-scale weather systems), and at human scales covering the urban environment up to remote ecosystems and global biosphere-atmosphere interactions.

*Submitted by Nicolas SIFAKIS - European Research Council Executive Agency*

*Speakers :*

*JESUS-RYDIN Claudia - European Research Council, KALBERER Markus - The Chancellor, Masters and Scholars of the University of Cambridge, NENES Athanasios - Georgia Tech, RIIPINEN Ilona - Stockholms Universitet, SIFAKIS Nicolas - European Research Council Executive Agency, WEINZIERL Bernadett - Vienna University*

### The politics of science: funding Social Sciences & Humanities around the world?

OECD figures show that global investment in R&D has grown by 30% over 30 years. Most funding still happens through national science programmes, but these show a convergence across borders around shared challenges. But why do governments or global institutions fund science? Is it to promote

societal values or political aims or simply to access technology for power? This session will explore how new trans-national institutions like the Global Research Council or the European Framework Programme are setting, if not dictating, global best practices collectively rather than in isolation at a fragmented, national level. They are opening up science funding to greater global competition. A science and technology narrative has created the framework for this international research. Until recently, social sciences and the humanities had to take a back seat to the business of science. The social dimension of many challenges has roots in both local socio-political contexts and culturally diverse conditions, as well as aspects common across borders. This panel will examine the growing importance for social narratives in defining science policy for future generations. Should we fund science to protect human values or to retain political influence? Does science need to be protected and ring-fenced? If so, what is the role of scientists and how should they, in turn, interact with politics?

*Submitted by Gabi LOMBARDO PHD - European Alliance for SSH (EASSH)*

*Speakers :*

*ANZAI Yuichiro - Japan Society for the Promotion of Science, CHAPLIN Simon - Wellcome Trust, OOSTERBEEK, Luiz - The International Council for Philosophy and Human Sciences, SOUDIEN Crain - Human Science Research Council, South Africa, TSIKATA Dzodzi - CODERSIA, HOLM Poul - Trinity College Dublin, LEVINE Felice - American Educational Research Association and Consortium of Social Sciences Association, LOMBARDO Gabi - European Alliance for SSH (EASSH), SEQUEIRA Kieth - European Commission, Moedas cabinet, CROWLEY John - UNESCO*

### **Building large-scale research infrastructures: social and economic considerations**

Large-scale research infrastructures telescopes, synchrotrons, research vessels, colliders play a unique role in research practices across the world. The building of today's large-scale research infrastructures requires consideration of factors other than the discovery of new knowledge. They are often expected to produce impacts such as science diplomacy, youth engagement, technological innovation, regional development, environmental protection, science-society interaction and the inclusion of marginalised communities. These expectations are transforming both the way such research facilities are selected, financed and constructed, and the way that research is practiced. The panel will discuss the challenges in managing research infrastructures that are highly visible, require significant public resources and are increasingly expected to produce social and economic benefits, improve scientific literacy and engagement, and address social inequalities.

*Submitted by David MOORMAN - Canada Foundation for Innovation*

*Speakers :*

*HARRISON Andrew - Diamond Light Source, MOORMAN David - Canada Foundation for Innovation, O'REILLY RUNTE Roseann - Canada Foundation for Innovation, RAY LEWIS Marlon - Dalhousie University*

### **Sharing science through comics**

If comics are useful tools of science popularisation, their design and creation must be done with a scientific approach. How do comics help popularise science? Do they faithfully transpose science? What ethics need to be applied to respect the scientific method? Is there a more appropriate format? This panel will address a range of subtopics, using concrete examples of the use of comics in science popularization projects.

*Submitted by Julie ADAM - Université de Lorraine*

*Speakers :*

ADAM Julie - Université de Lorraine, ARREGI Amaia - Donostia International Physics Center (DIPC), BECK Nicolas - University of Lorraine, BORDENAVE Laurence - Association Stimuli, FALGAS Julien - Université de Lorraine, CREM, OTEGUI Itziar - CIC nanoGUNE, TATALOVIC Mico - MIT Knight Science Journalism Programme

**Technological innovation and community-based mental health care**

Mobile health as a tool for evidence-based intervention and monitoring in the framework of mental health care is still in its infancy. Questions arise regarding the actual feasibility and challenges of mobile health approaches in real-time and real-life facilitating mental support. For example, how can we incorporate the data delivered using mobile technology in the treatment programme of an individual patient? How might it alter patient-empowerment and regarding the monitoring of a patients wellbeing, does it affect the relationship between the patient and the care-giver? The goal of this workshop is to stimulate critical reflection on the implementation of mobile technology-based Ecological Momentary Interventions (EMI) in health behaviour and psychological care within the European context. Medical caregivers, researchers and policymakers are intrigued by the potential of modern technologies. Developments in the EMI field can act as a gateway to integrate (self-)monitoring in the daily praxis and natural settings of patients with (severe) mental illness. Speakers will examine the considerable practical and ethical concerns raised around the idea of a widespread incorporation of EMI as a technological tool for ambulatory intervention, amongst others.

*Submitted by Ellen DECRAENE - ucsia*

*Speakers :*

MYIN-GERMEZ Inez - KU Leuven (Catholic University of Leuven), SHARON Tamara - University of Maastricht, DECRAENE Ellen - ucsia, DELESPAUL Philippe - University of Maastricht, MELS Sara - UCSIA

**Climate change does not exist telling facts from fiction in climate reporting**

With the rise of populism and fake news, the great challenge of our era will be to separate facts from deliberate fiction. Some say that fake news started with climate change denial: the goal of professional climate change deniers is to plant the seed of doubt about facts that have been established through decades of research, thus hoping to erode evidence-based public debate. How did science reporting get so detached from the underlying science? Who orchestrates and benefits from the rejection of the scientific consensus on climate change and what happens when people start doubting the concepts where scientific consensus was already largely reached? In this session, scientists and science communicators discuss scientific consensus linked to climate change and discusses the role of scientists and climate reporters in the shaping of the public debate.

*Submitted by Nina KAJANDER - European Commission - Joint Research Centre*

*Speakers :*

BELWARD Alan - European Commission - Joint Research Centre, HAJDU Marton - European Commission - Joint Research Centre, HORST Maja - University of Copenhagen, JACKSON Ben - Freuds, KAJANDER Nina - European Commission - Joint Research Centre, MAENHOUT Greet - European Commission - Joint Research Centre

**The science of city planning: what information do we need?**

City officials are facing numerous climate-change-related challenges, while having to manage and plan

their city development in a sustainable way. In such a complex environment, clear information is indispensable for urban planners. However, climate information is mostly provided by climate models at spatial scales much larger than the (sub)urban scales at which mitigation and adaptation measures are to be realised. Just over 50% of the world's population already lives in cities, and it is expected that practically all population growth up to 2050 will be in cities. Cities are vulnerable to climate change because of the concentration of population, goods, capital stock, and infrastructures. For example, heat waves, enhanced locally by the so-called 'Urban Heat Island' are particularly deadly in cities. Intense precipitation creates floods with dire consequences because of the impermeability of urban surfaces. Air-quality conditions in cities often exceed health limits. Furthermore, cities are a major emitter of greenhouse-gases. This panel will present urban climate issues and impacts in relation to both city expansion and global climate warming. How can such impacts be estimated, what are the levers for future city adaptation strategies, and, finally, how can scientific knowledge be transformed into pertinent information, to build the cities of tomorrow?

*Submitted by Valéry MASSON - Centre National de Recherches Météorologiques*

*Speakers :*

*ATHANASIOS Votsis - Finnish Meteorological Institute, BRETAGNE Geneviève - Toulouse urban planning agency, MASSON Valéry - Centre National de Recherches Météorologiques, REN Chao - The Chinese University of Hong Kong, HIDALGO Julia - CNRS, interdisciplinary laboratory on societies and laboratories*

### **Increasing scientific productivity through artificial intelligence?**

Science is awash with information. The amount of research being published grows roughly 8% per year. Many assets within the scientific process (e.g. data & code) are being made available for reuse, new data sources are driving science, and the capability of artificial intelligence to understand text, images, answer questions and perform analytics is increasing. Given these trends, there's increasing thought of applying artificial intelligence to the scientific process itself, e.g. to support the peer review process, help biologists synthesise data, and even hypothesise and perform experiments. This panel will discuss the potential for artificial intelligence in science, where we are at today, and the challenges of incorporating it in the research process.

*Submitted by Iris KISJES - Elsevier*

*Speakers :*

*COHEN-BOULAKIA Sarah - Université Paris Sud (Paris XI), WELLING Max - University of Amsterdam, DAVIES Mark - Benevolent AI, GROTH Paul - Elsevier, HARDMAN Lynda - Informatics Europe, HARTUNG Thomas - Johns Hopkins University, Bloomberg School of Public Health, Dept. of Environmental Health & Engineering, ZAVERI Amrapali - University of Maastricht*

### **Harness the power of collaboration and be amazed at what you can achieve together**

What are the obstacles and opportunities for young researchers working in interdisciplinary fields ? Significant challenges exist in bringing together researchers from different research communities, especially when STEM (Science, technology, engineering and mathematics) disciplines have to talk with SSH (Social Sciences and Humanities), due to fundamental differences in research ontologies (what exists), epistemologies (what we can know about what exists), and methodologies (how enquirers can study what can be known). Additional challenges can be experienced when academics attempt to work with non-academics. However, barriers have to be overcome to achieve a solution and progress

knowledge. This is particularly true in the field of energy transition of cities and communities, where problems are generally "wicked" and a specific effort in the dialogue among SSH and STEM as well as among experts and non-experts is needed. In developing the analysis of these challenges, a panel of successful interdisciplinary cases is proposed: An EU project on energy transition research, to find and expose commonly shared 'reference problems' (SHAPE ENERGY, <https://shapeenergy.eu/>); A sustainable campus management initiative (Innovation and Community Bureau of the Universitat Politècnica de Catalunya, Barcelona); An international think-tank experience, funded on principles of knowledge exchange rather than knowledge transfer (Ecologic Institute, Washington); A methodologically innovative private sector initiative to support territorial sustainable development ("Compagnia di San Paolo", Turin). This panel discussion will be introduced by a keynote speech about how the STEM-SSH dialogue can be a success factor in enhancing the societal impact of research. A young researcher working in a highly interdisciplinary environment in the Green Team of Politecnico di Torino will facilitate the dialogue and identify common criteria/indicators of interdisciplinarity's efficacy.

*Submitted by Isabella SUSA - Politecnico di Torino*

*Speakers :*

*BONACCORSI Andrea - Università di Pisa, FERRER BALAS Didac - Universitat Politècnica de Catalunya, GRUENING Max - Ecologic Institute, LOMBARDI Patrizia - Politecnico di Torino, PROFUMO Francesco - Compagnia San Paolo, ROBINSON Rosie - Anglia University, Cambridge, United Kingdom, SONETTI Giulia - Politecnico di Torino*

### **Family Friendly Research to boost Womens Research Career - How to address Work Life Conflicts and balance Professional and Personal Life in Career Development in Research**

A key element for a successful career of European researchers is played by Work Family Conflict (WFC), an open issue of inquiry in human resource management research, and Work Life Balance (WLB) between professional and personal life, actually very relevant especially for women scientists. As far as employment and reconciliation of WFC are concerned, we can underline how female employment rates remain low or difficult especially in Southern Europe and East Europe and in general even more for women with low education. Antidiscrimination laws have been adopted, but gender gaps are still large. Lack of services for children and above all for the elderly combined with rigid work arrangements make it hard to reconcile work and family life. Since 2016, Europe has intensified the elaboration of several acts - resolutions, recommendations, and directives - to improve the conditions for women employment and career through Work Life Balance (WLB) measures. The same European Pillar of social rights (March 2017) is acting as a compass for a new convergence process towards better life and work conditions in Europe: Gender Equality and access to the Labor Market are at the first place among the principles of the Pillar. Moreover, it is very important the proposal of a new directive of the European Parliament on Balancing Professional and Personal Life, which encompasses maternity leave, paternity leave, parental leave, leave for caregivers and flexible working modes. Further, young early-career researchers need role models of women scientists who succeeded with their WLB to boost their careers in Science: our session discuss both the opportunities and the obstacles appearing over the course of European researchers' career taking into account their scientific mobility by presenting a portal on Role Models founded by Humboldt and MCAA. We aim to share our personal experiences in WLB to boost a research career, and underline the current State-of-the-Art of WLB in Europe.

*Submitted by Giovanna AVELLIS - MCAA*



*Speakers :*

AVELLIS Giovanna - MCAA, CAHILL Brian - Marie Curie Alumni Association, DALTON Gordon - University College of Cork, DOBRINSKI Claudia - eurodoc, MOLENDINI Serenella - CREIS (Centro Ricerca Europea per l'Innovazione Sostenibile), SALENIUS Sirpa - University of Eastern Finland, TURCK-CHIEZE Sylvaine - Association Femmes & Sciences, WHEAT Katie - Vitae

**From an academic hunch to a commercial success the Guardtime story**

The Estonian company Guardtime, born in 2007 and based on a decade of fundamental research around hash-linking cryptography - is today the biggest commercial blockchain technology vendor in the world. By its nature Guardtime embodies a perfect example of how to spot-light and use research for the benefit of a safer society. The suite of technologies in the Guardtime's Keyless Signature Infrastructure (KSI) Blockchain Stack are fundamental for assuring trust, transparency and accountability in the systems, processes and at the data level. Guardtime also influences at the EU level, being one of the four founders of the European Cybersecurity Organization (ECISO). The blockchain concept assures that no party is able to manipulate with the digital assets without it being evident. The KSI architecture provides scalability, privacy and security for the customer implementations in government and defence. It is useful also in life sciences, financial services, telecommunications, and elsewhere. Hence, these technologies touch hundreds of millions of people, even if they are not directly aware of it. It makes governments accountable, IoT secure, Big Data Analytics accurate and Supply Chains traceable. For the first time ever, we propose to tell Guardtime's unlikely story in the public. The story starts with academic research in core cryptography and takes us through a thorny pathway of failed assumptions and customer disinterest. Nevertheless, our story culminates victoriously with Guardtime being the leading commercial vendor in its field in the world. Obviously, we'll also touch upon how we see the blockchain technologies are already changing the ways we work, play and conduct business, and what we believe the future holds. The session provides inspiration for getting the academic research out of the labs and into the real world. It might be a scary, but it is also the only place where this research is ultimately meaningful, and the society is able to reap its benefits.

*Submitted by Liis LIVIN - Estonian Research Council*

*Speakers :*

KENYON Tony - Guardtime, KRISHNAMURTHY Hema - GuardTime Pte Ltd, PRIISALU Jaan - Tallinn University of Technology, THÉVOZ Philippe - SIPCA, TRUU Ahto - Tallinn University of Technology, Guardtime, KAEVATS Marten - Republic of Estonia Government Office, KIVIMÄE Karin - Guardtime, RUUBEL Martin - Guardtime

**11:45 - 12:30 Plenary Keynote:**

*Place : Palais des Sports*

**12:30 - 13:30 LUNCH BREAK and POSTERS VIEWING**

**13:30 - 14:45 Parallel sessions**

**Challenges and promise of synthetic biology**

Synthetic biology is an emerging and highly interdisciplinary field of frontier research, which employs tools from mathematics, computer science, chemistry, and engineering. It seeks to rework the fundamental building blocks of life in order to construct artificial biological systems that will engender new applications. It is hoped that synthetic biology will help create cheaper drugs, clean fuels, and new organisms that will help reduce climate change, via carbon dioxide sequestration from the atmosphere. As with any other technological and scientific development, transparent interactive discussion is needed in order to ensure that synthetic biology will address societal needs in accordance with societal values and ethics principles. This panel will explore multiple applications of synthetic biology, including biosynthesis of natural products, vaccine drug development, and bioinspired light-gathering and energy-trapping systems. The aim of the session is to provide insight into the broad field of synthetic biology and its complexity, as well as describe the challenges ahead.

*Submitted by Alessandra FERRARI - European Research Council Executive Agency-ERCEA*

*Speakers :*

*DAVID Bikard - Institut Pasteur, FERRARI Alessandra - European Research Council (ERC) Executive Agency, O'CONNOR Sarah - John Innes Centre, SERRANO Luis - ICREA/Universitat de Barcelona, WINDBICHLER Nikolai - Imperial College London*

## **Social inclusion in a globalised world**

The 21st century is an unprecedented era in terms of migration flows and cultural exchange which has rendered many societies more diverse than ever before. This can be a major challenge for social cohesion since it is in human nature to categorise people into 'us' versus 'them' which can lead to prejudice and discrimination. But how can we prevent this from happening or intervene when social divisions lead to unequal treatment of different social groups and in some cases even result in hatred? This panel will discuss what drives some of the existing socio-cultural divisions, how prevalent discrimination is in the European Union, how prejudice develops and manifests in children and how radicalisation can occur and can be counteracted in adolescents and adults. The role of education throughout life-span in promoting intercultural dialogue and social inclusion will be addressed, and more specifically the need to empower citizens in particularly vulnerable situations and to raise awareness about human rights in societies. We argue that research in the field of Social and Cultural Psychology -- together with a multidisciplinary perspective -- can make a crucial contribution in reducing social inequalities and attaining social inclusion in society.

*Submitted by Christin-Melanie VAUCLAIR - ISCTE-IUL, CIS*

*Speakers :*

*BORGES RODRIGUES Ricardo - Instituto Universitário de Lisboa (ISCTE-IUL), CIS-IUL, FEDDES Allard - University of Amsterdam, PODSIADLOWSKI Astrid - European Union Agency of Fundamental Rights, VAUCLAIR Christin-Melanie - ISCTE-IUL, CIS*

## **Can public opinion shape the future of genome editing?**

Genome editing has the potential to revolutionise the treatment and prevention of diseases. But, this technology also raises a range of ethical, scientific and social issues. What responsibilities do scientific stakeholders have in consulting the public, and how can public opinion influence the future of genome editing research? How and when should the public be engaged? How do opinions, attitudes and

experiences vary across society, and are they influenced by factors such as, country, socio-economic status and gender? In this dilemma café, international representatives of four stakeholder groups; researchers, policymakers, patients and the general public with expertise in engagement/genome editing will propose key dilemmas that we may face as we seek to engage the public as this technology progresses. Participants will have the opportunity to explore these questions and dilemmas from the four perspectives and to contribute their own ideas and opinions.

*Submitted by Tacita CROUCHER - The Babraham Institute*

*Speakers :*

*BALE Mark - Genomics Science & Emerging Technologies, Science Research & Evidence Directorate, Department of Health, BENGTSOON Luiza - Max-Delbrück-Center for Molecular Medicine (MDC), BERTERO Michela - Centre for Genomic Regulation (CRG), CAROLIS Carlo - Centre for Genomic Regulation (CRG), CROUCHER Tacita - The Babraham Institute, Garrison Helen - VA (Public & Science), VARANI Silvia - ANT Foundation, WHITNEY Tony - Public Engagement with Science at the Department of Business Engery and Industrial Strategy (BEIS)*

### **Policy Development: Indicators for researchers' engagement with open science and its impacts**

What is happening in Europe to advance policies for researchers' engagement with open science and its societal impacts? This panel will provide insight on the policy debate to support researchers' engagement with open science and its societal impacts. We will discuss how to reward and foster open science practices, research careers societal impacts, and focus on on the use of indicators for researchers' engagement with open science New approaches mean it is possible to assess to what extent openness will improve the quality and impact of science by delivering a science which is more reliable, efficient and more responsive to societal demands. The discussion will be informed by the outcomes of a mutual learning exercise among practices of 13 EU member states on altmetrics and rewards for open science including incentives for researchers' careers.

*Submitted by rene von schomberg - european commission*

*Speakers :*

*BURGELMAN Jean-Claude - DG Research and Innovation, European Commission, HOLMBERG Kim - University of turku, LAWRENCE Rebecca - F1000, LEONELLI Sabine - University of Exeter, MIEDEMA Frank - Utrecht medical centre, VIGNOLI Michela - Austrian Institute of Technology, von schomberg rene - european commission, WOUTERS Paul - Centre for Science and Technology Studies (CWTS), Leiden University*

### **The science programme at SESAME the light source for the Middle East and neighbouring regions**

SESAME Synchrotron-light for Experimental Science and Applications in the Middle East is a new third-generation light source situated near Amman, Jordan, whose research programme is scheduled to begin in Summer 2017. SESAME is an intergovernmental organization that promotes scientific excellence and collaboration in the region, with members from Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, the Palestinian Authority, and Turkey. SESAMEs experimental programme is getting underway using the first two of the facilitys seven phase 1 beamlines. This session will give a brief introduction to SESAME and its mission to develop scientific excellence in the region, along with an overview of SESAMEs initial scientific program. It will present results from some of the first experiments to be carried out at the laboratory, and give a forward look to what to expect as more of the phase 1 beamlines come on stream

*Submitted by James GILLIES - CERN*

*Speakers :*

*HARFOUCHE Messaoud - Synchrotron-light for Experimental Science and Applications in the Middle East (SESAME), HASNAIN Samar - University of Liverpool, SAYERS Zehra - Sabanci University, GOLAN Yuval - Ben Gurion University of the Negev*

## **Unveiling the worlds first surface water map**

When and where you find water on our planets surface is hugely important. But where is the Earth's water? Can we trust maps to accurately pinpoint the position and volume of lakes and rivers? Scientists will demonstrate how some of our traditional maps are wrong half of the time, but some of them are wrong all of the time. They will present the first global map that accurately shows the distribution of surface water resources around the planet and highlights the changes in them over the past 32 years. These maps reveal that over 162 000 km<sup>2</sup> of water bodies previously thought of as permanent have undergone substantial changes; almost 90 000 km<sup>2</sup> an area corresponding to the size of Portugal have vanished altogether, and over 72 000 km<sup>2</sup> have gone from being present all year round to being present for only a few months of the year. These changes can have dramatic consequences for populations, and lead to conflicts between countries or groups over access to water resources. This panel presents beautiful images some of the incredible findings that scientists have made about the changing resource that is water. It will discuss social implications, and conflict linked to water scarcity, the effects that the changing water resources can have on populations, the pros and cons of the bottling water industry, and the competition on water among water bottling companies and the footprints that they leave on the water resources.

*Submitted by Nina KAJANDER - European Commission - Joint Research Centre*

*Speakers :*

*BALSAMO Gianpaolo - European Centre for Medium-Range Weather Forecasts, BELWARD Alan - European Commission - Joint Research Centre, ELELMAN Richard - EURECAT-CTM, GAWLIK Bernd - European Commission - Joint Research Centre, KAJANDER Nina - European Commission - Joint Research Centre, MCGARRY Darren - European Commission Joint Research Centre, MOORE Rebecca - Google Inc*

## **Can FP9 deliver the bioeconomy to European citizens ?**

To achieve sustainable development, it is widely recognized that there is a need to replace the current petroleum-based economic paradigm, by an alternative one that uses biological resources resulting from photosynthesis as raw material for food, energy and non-food biobased products. The name coined for this new paradigm, which englobes agriculture, forestry, and a wide range of manufacturing activities and involves ensuring food security and managing natural resources while sustaining economic growth and the well-being of populations, is the Bioeconomy. The preparation FP9 is a great opportunity to explore where the focus needs to be placed. For example, the most recent developments in bioeconomy thinking have identified the essential role of territories. This is the source of new questions related to the organization of local economies, the interaction between local and global scales and the development of non-linear value chains. Typically, the issue of identifying efficient energy and/or food systems based on an optimal use of biomass resources is simultaneously addressed by several fields (system modeling and applied maths, food processing, economics). These

will not only act as testbeds for technology, but also provide real cases that will assess social acceptability and promote citizen buy-in. An other example : to create a 'sustainable by design' bioeconomy, resource-efficient approaches must be developed, promoting for example the conservation of water and energy, and the smart use of organic carbon. These necessarily imply the modification of current bioresource production practices and the removal of the frontiers that exist between conventional food and non-food value chains. These impacts will in turn create new technical and socioeconomic challenges that must be addressed.... This session is dedicated to explore these new challenges and to figure out how FP 9 can be used to deliver the bioeconomy to European citizens.

*Submitted by Isabelle ALBOUY - INRA French National Institute of Agricultural Research*

*Speakers :*

*CARREZ Dirk - BIC, MCGUINNESS Mairead - European Parliament, ANTI Vsara - VTT, LOUISE Fresco - Wageningen UR, CHERBUT Christine - INRA, PAQUET Jean-Eric - European Commission*

## **CARE for Skills beyond Research**

During their PhD and Postdoc time, researchers develop their skills. Careers Advisers supporting Researchers in Europe (CARE, established at ESOF2014) often support transitions and notice the challenge of a) being aware of skills beyond research and b) proving these skills when transitioning to a new position. In this session participants will be challenged to think of their skills and prepare to present these for three possible career goals: Academic leadership, Project Management in industry and Entrepreneurship. For Academia an experienced trainer will use a card game "PhD Skills" based on the Thiagi concept [www.thiagi.com](http://www.thiagi.com) especially developed for this ESOF session, "industry" participants will have the opportunity to try out the ABG Platform [www.mydocpro.org/en](http://www.mydocpro.org/en) and "entrepreneurship" adepts will practice their personal pitch, based on training for scientists interested in start-ups (for example [www.eithealth.eu/campus](http://www.eithealth.eu/campus)). At the end one of each group will conduct a live 3' interview and the audience will vote for the most convincing approach. As an add-on, the organizers of this session will interview the "public on the street" in Toulouse during the week before ESOF, and ask them (in French and English) which skills they associate with a scientist with a PhD degree and what they think scientists contribute to positions outside of academia. A summary of this feedback and some short movies will be shown at the beginning of the session.

*Submitted by Barbara JANSSENS - DKFZ*

*Speakers :*

*BERGHMANS Stephane - Elsevier, Blackford Sarah - Independent/Lancaster University, KASTELIC Damjana - Centre for Genomic Regulation Barcelona (CRG), MANSEN Anethe - Karolinska Institutet, MIGNOTTE Vincent - ABG - Association Bernard Gregory, O'CONNOR Naoimh - University College Dublin, SCHOLZ Beate - Scholz CTC GmbH, THEUNIS Laurence - ?doctorat.be? and Prodoc ? Enhancement of doctoral skills, TIDONA Christian - BioMed X Innovation Center, VENTURA Ruben - Fundación FERO*

## **Get your voice heard on public policy: how early career researchers can engage with policymakers**

All researchers - not just those at the top of their careers - should have the opportunity to engage with policymakers about their work, whether raising awareness of their research among politicians and civil



servants or collaborating with think tanks. It is a direct way to increase the impact of research, not to mention that most of us would like to see more policy based in evidence. So what are the challenges to making it happen? This session will explore the practical considerations, such as the support and preparation early career researchers (ECRs) get from research institutions to reach out to policymakers, the various types of policy makers that ECRs should target and the routes into making contact with them. The session will also address the political considerations: how should ECRs understand and respond to the legitimate policy balance between facts and values? How can ECRs responsibly communicate the status of findings where there is scientific uncertainty? And how can ECRs respond to the need for policy decisions in areas where there is a lack of good evidence? Through a combination of short presentations by experts with on the ground experience of the policy world plus lively Q&A and discussion, attendees will come away with a nuanced understanding of how effectively to spread science knowledge among policy makers, to encourage evidenced-based policy and to use these insights as they develop their careers.

*Submitted by Sofie VANTHOURNOUT - Sense about Science (SAS)*

*Speakers :*

*KÜPPERS Juliane - Freie Universitat Berlin, MCGUINNESS Mairead - European Parliament, DYKSTRA Pearl - European Commission Scientific Advice Mechanism, MAIR David - European Commission - Joint Research Centre, SIEGEL Claudia - EU Liaison Office of Freie Universität Berlin in Brussels, VANTHOURNOUT Sofie - Sense about Science (SAS)*

### **When will transport aircraft fly all-electric ?**

More Electrical Aircraft received substantial funding in the past decade for simplifying the ancillary power chains in commercial aircraft and results in reducing maintenance costs and fuel consumption for present generation. Hybrid or even full electric propulsion is now receiving much attention from research centers as well as airframers and equipment manufacturers and should be a major breakthrough towards green aviation, but the constraints which are currently solved for automotive are still very challenging for aeronautics. Confrontation of points of view from European researchers and industrials on technical bottlenecks and roadmaps associated to hybrid and full electric propulsion should clarify the perspective.

*Submitted by Florent CHRISTOPHE - SEE*

*Speakers :*

*HERMETZ Jean - ONERA*

### **Thinking outside of the box - how can industry best engage in fundamental research?**

Unconstrained curiosity-driven research has significantly contributed to remarkable scientific breakthroughs, and unpredictably impacted our everyday lives. This type of research is not necessarily driven by a specific goal, but is simply exploratory: scientists aim to understand the world around them, and create technologies to better operate within it. For businesses, this longer term, out-of-the-box research is attractive, but at times hard to achieve, with primary focus set on specialized R&D for near-term products. This panel discussion will explore ways to optimally connect businesses to longer term research, particularly in today's world of disruptive innovations. Representatives from large and medium enterprises, as well as from public and private funding organizations will share their view on how the future of Business-to-Science should be shaped.

Submitted by Thierry BOTTER - Airbus

Speakers :

BEYLAT Jean-Luc - Nokia Bell Labs France, FEBVRE Paul - Satellite Applications Catapult, BOTTER Thierry - Airbus,  
PÖTTER Björn - ESG Elektroniksystem- und Logistik, RICHDALE Kelly - ID Quantique, CURIONI Alessandro - IBM,  
HARRIS Margaret - Physics World, IOP Publishing, BOURGUIGNON Jean-Pierre - European Commission

15:15 - 16:30 Parallel sessions

## Responsible research and innovation in transformative technologies

The European Commission Responsible Research and Innovation (RRI) principles together with the UN Sustainable Development Goals provide global targets to address our most pressing societal and environmental challenges. They constitute an unambiguous framework for Europe to generate a sustainable and responsible impact through research and innovation and towards a prosperous and inclusive society. To realise all this, we will need to change and re-imagine not only how we do research, but also the way we do business. We cannot solve today's challenges with the same mind-set that created them. Businesses need to transform from the inside out and extensive collaboration at local, national, European and global levels is vital to this. This panel will discuss a RRI roadmap for action and a common language to set a direction, communicate and measure impact that is understood by business, policy makers, citizens, NGOs and other societal actors. We will look at policies and tools that take account of relevant stakeholders and values, and ethical and regulatory standards in industry.

Submitted by Emad YAGHMAEI - Delft University of Technology

Speakers :

GALIAY Philippe - European Commission, DG Research & Innovation, JIROTKA Marina - Oxford University, MANTOVANI Elvio - Italian Association for Industrial Research (Airi), VAN DE POEL Ibo - Delft University of Technology, YAGHMAEI Emad - Delft University of Technology

## Wine and global change: the challenge of economic globalization and new wine cultures

Across the globe, wine culture is undergoing a profound change for consumers, a change that could be summarized as "less but better". The new wine culture, led in particular by the "New World" producers, also targets the supposed hedonism of contemporary consumers by accentuating the sensory characteristics of world-renowned grape varieties, technologically crafted to obtain an amplification of the levels of aromas, tannins and other anthocyanins (Morel-Salmi et al., 2006). France is more exposed to this evolution than all the other producing countries of the "Old Continent" because of an image of elitist wines grounded in tradition, conveyed by the world fame of the great wines of Burgundy and Bordeaux. The interaction between culture and economy, which concerns the entire European wine-growing regions, will be addressed.

In this prospective study, we will review the actions taken by the various stakeholders in the wine sector in order to respond to the changing and diverse demand of consumers worldwide, focusing on successes and failures and their determinants. We will analyze more closely the tension between the growing consumer demand for "naturalness" (organic, natural, biodynamic wines ...) (G. Teil et al., 2011) worldwide and the promotion of technological wines first promoted by the competition of the countries of the so-called "New World" imposing a certain standardization of the

typicity of the wines.

In addition, we will be interested in the concepts of "Heritage, Innovation, and Métissage" by considering the articulation between continuity/inheritance and change/innovation, in the representations and practices of the stakeholders.

*Submitted by Michaël POUZENC - LISST University of Toulouse*

*Speakers :*

*BEEZLEY William - University of Arizona, CORNOT Danielle - Université Toulouse - Jean Jaurès, HAYES Peter - International Organization of Vine and Wine (OIV), Charles Sturt University, OLIVIER Valerie - INP ENSAT - IN VINO VARIETAS, POUZENC Michaël - LISST University of Toulouse, BEEZLEY William - University of Arizona*

## **When science meets history and philosophy of science**

History and philosophy of science (HPS) and science are traditionally isolated from each other, in practice as well as in teaching curricula. This situation is evolving with increasing interdisciplinary research and collaborations between scientists and HPSers. This session shows how collaborations between scientists and HPSers are beneficial to both disciplines. From stem cells to marine biology, each talk presents a research example to highlight concretely the fruitfulness of HPS for biology and the speakers will explain how the projects they have developed have increased and facilitated interdisciplinary research.

*Submitted by Lucie LAPLANE - CNRS, IHPST, Université Paris I Panthéon-Sorbonne*

*Speakers :*

*GRIFFITHS Paul - University of Sydney, GRIFFITHS Paul - University of Sydney, LAPLANE Lucie - CNRS, IHPST, Université Paris I Panthéon-Sorbonne, MACCORD Kate - Marine Biological Laboratory, MACCORD Kate - Marine Biological Laboratory, PRADEU Thomas - CNRS, University of Bordeaux, PRADEU Thomas - CNRS, University of Bordeaux*

## **International sharing and protection of medical and associated data**

Sharing medical data within and beyond national borders creates concerns about data security and privacy. Legislators are revising personal data protection regulations in many parts of the world. The EU adopted the General Data Protection Regulation which will apply from May 2018 to all member states. In Asia, Japan has amended its legislation concerning personal data protection, which is enforceable in May 2017. South Korea is also revising its legislation on data protection. Additionally, existing legal frameworks for international data sharing have been recently revised such as the EU-US Privacy Shield. Professional organisations such as the Global Alliance for Genomics and Health or BBMRI-ERIC are developing frameworks for international data sharing. It seems that there will be patchwork of rules and guidance. While some wish for a one-size-fits-all approach, differences in national law and culture must be respected. This diversity of regulations and various approaches to what data needs to be protected and what can be shared can lead to varying interpretation. This can hinder the work of global initiatives combating diseases whose success depends on the rapid sharing of vast amounts of genomic, clinical, and other data, e.g. the International Cancer Genome Consortium. It is now necessary for relevant stakeholders to share information about the current landscape concerning data protection and seek practical policies. In this panel discussion, we will first hear short talks by the international experts and then identify the common challenges and necessary tasks to facilitate effective global collaboration in

medical research.

Submitted by Kazuto KATO - Graduate School of Medicine, Osaka University

Speakers :

CHALMERS Donald - University of Tasmania, CHANG Yoon-Jung - Hospice & Palliative care branch, National Cancer Center, KATO Kazuto - Graduate School of Medicine, Osaka University, MESLIN Eric - Council of Canadian Academies, MOLNÁR-GÁBOR Fruzsina - Heidelberg Academy of Sciences and Humanities, RIAL-SEBBAG Emmanuelle - Inserm and Université Toulouse III Paul Sabatier, UMR 1027, WALLACE Susan - University of Leicester, United Kingdom

## Exoplanets: the search for planets beyond our solar system

One of the most exciting and controversial areas of modern astrophysics is the search for and characterisation of extra-solar (exo) planets. This session introduces the main methods of exoplanet detection and our current state of knowledge of these enigmatic objects. Different methods allow us not only to infer an exoplanets existence, but its internal and atmospheric composition, pressure and temperature. The question of what we can learn from exoplanet systems will be explored, with separate talks focusing on planetary system formation and the search for biological markers (i.e. the signs of life). While it is now some 25 years since the first exoplanet orbiting a sun-like star has been discovered, advances in instrumentation are providing growing evidence that our home galaxy the Milky Way is rich with a diverse population of planets. We have found planets of Jupiter mass that are twice as large while others that are barely half its size, rocky planets that could have ten times the mass of the earth (Super-Earths) and small balls of gas only a little larger than the earth. For most of these exoplanets we have no local representative in our solar system to study in detail. Studying this diverse population of exoplanets allows us a unique opportunity to determine if our solar system is unique or just an average example, and also to re-examine some of our theories on the formation of planetary systems.

Submitted by Terence O'CONNOR - UK Research and Innovation

Speakers :

BILLER Beth - University of Edinburgh, HENG Kevin - University of Bern, PANESOR Tajinder - The Institute of Physics, POLLACO Don - University of Warwick, RACHLEW Elisabeth - Royal Institute of Technology (KTH)

### 15:15 - 16:30 Plenary Panel Discussion: Science Diplomacy

Dr. Vaughan TUREKIAN – Executive Director Policy & Global Affairs at The National Academies of Sciences, Engineering, and Medicine, Former Chief International Officer for AAAS, Former Director of AAAS's Center for Science Diplomacy ; Rush HOLT – Chief Executive Officer of AAAS, Executive Publisher of Science List to be updated

Place : Palais des Sports

### 16:30 - 16:45 Flash Presentations

Place : Palais des Sports

### 17:00 - 18:15 Parallel sessions

## Tiny but mighty: neutrinos and the new frontiers of science

Neutrinos are one of the hottest topics in particle physics today. Many scientists believe that these tiny particles may hold the key to one of the biggest questions in physics: why do we live in a universe made of matter? The revolutionary discovery that neutrinos have mass and can change from one type to another has led to an explosion of extreme experiments to measure their properties. To trap these elusive particles, scientists have built huge arrays of detectors deep under Antarctic ice, deep under water, and deep within mines in North America and Asia. By measuring neutrinos created by powerful accelerators, in nuclear reactors, and by astrophysical processes in the cosmos, physicists are piecing together the puzzle of these particles, pinning down their masses and determining exactly what role they played in the evolution of the early universe. This panel will introduce the tiny but mighty neutrino and the extreme environments necessary to create and capture them, survey recent and upcoming results, and look ahead to the future of neutrino physics.

Submitted by Katie YURKEWICZ - Fermilab

Speakers :

GRANT Darren - University of Alberta, KITANO Ryuichiro - Institute of Particle and Nuclear Physics, KEK, KOUCHNER Antoine - Astroparticle and Cosmologie - University Paris Diderot - CNRS, SUTER Louise - Fermi National Accelerator Laboratory, YURKEWICZ Katie - Fermilab

## New approaches to tracking climate change

Climate change is already having a profound effect on the animal and plant life of the planet and this will have dire consequences for human societies. In an effort to understand and mitigate these changes at local and global scales, there is an urgent need to develop and implement new approaches and scientific technologies. We can gain valuable insights from studying past climates, and the flora and fauna that thrived (or otherwise) within them. Similarly, there are many ways to explore climate change impacts by studying the animals and micro-organisms that exist today in extreme or rapidly changing environments. This panel discussion will bring together experts from various fields to give an insight into cutting-edge approaches from the study of palaeoclimates, to new models for ocean acidification using volcanic CO<sub>2</sub> vents, and the use of satellites to track animal migration. It will include renowned geologist and broadcaster Iain Stewart who will challenge the audience to consider what more they can do in their professional or personal lives to ensure a sustainable future for People and Planet.

Submitted by Claire MCNULTY - National Geographic Society

Speakers :

FANTI Federico - University of Bologna, JUNGBLUT Anne - Natural History Museum, London, MCNULTY Claire - National Geographic Society, STEWART Iain - University of Plymouth, TEIXIDO Nuria - Stazione Zoologica Anton Dohrn, Naples, Italy

## Supporting long-term research in a world of sudden change: The evolution of research funding in current financial and political contexts

Around the world, governments are challenged in sustaining support for scientific research because of shifting political and financial conditions. This session will share the insights of a working group that has been examining competitive research funding mechanisms around the world and how these mechanisms are adapting to a world in flux. We will discuss how nations are adapting science policies

to competitively fund research geared to societal and global challenges. We will address how they balance cutbacks in institutional funding with the proliferation of competitive funding schemes in ongoing funding reform, support new modes of collaboration through innovative competitive funding mechanisms, and experiment with policy innovations. The session will present potential future-oriented solutions for policy makers.

*Submitted by Frédéric SGARD - OECD*

*Speakers :*

*RIGTERINK Mirjam - Netherlands Organisation for Scientific Research, SANTOS PEREIRA Tiago - Foundation for Science and Technology, Portugal (FCT), KOIZUMI Kei - AAAS, MATSUO Keiko - Center for Research and Development Strategy of the Japan Science and Technology Agency, SGARD Frédéric - OECD*

### **Wine and global change: climate change opportunities**

Since the late 1970s, international trade has expanded at an unprecedented rate, leading to the term, the "Second Globalization" (e.g. Aglietta and Le Cacheux, 2007). New wine producing countries have emerged in the so-called "New World" and then in the Asian continent, especially China (Giroir, 2015), while in the European producing countries, the consumption of wine has declined steadily (OIV, 2015). Today, paradoxically in a context of increasing globalization, international wine trade seems to be stabilizing. In this workshop, we will organize a debate based on two short presentations. On the one hand, we will review the most recent trends. On the other hand, we will discuss the impact of global changes on stakeholders and analyze two hypotheses: - the possible need for increasingly diversified strategies.

- a possible recomposition of the convergences and divergences between the different categories of stakeholders. If the first hypothesis is confirmed, another question will be raised: is this diversification of strategies due to a different perception/representation of global changes? or is it only due to the particular profiles and professional trajectories of the stakeholders? If the second hypothesis holds, it will be necessary to identify the new balances that will emerge between individual strategies, small collectives (small groups of independent wine growers, for example) and collectives (cooperative cellars, for example).

*Submitted by Danielle CORNOT - Université Toulouse - Jean Jaurès*

*Speakers :*

*GAJA Gaia - Gaja winery, COURJAULT- RADÉ Pierre - GET Université Paul Sabatier, POUZENC Michaël - LISST University of Toulouse, STREHAIANO Pierre - INPT-ENSIACET, YOBREGAT Olivier - Institut Français de la Vigne et du Vin*

### **Integrity in scientific research**

Research is usually considered as a public good which cannot tolerate breaches. The objective of the session is to raise awareness of the importance of research integrity in the practice of science, irrespective of discipline, level of responsibility or whether it is funded by the public or private sector. This panel will use an international case study to discuss the principles and attitudes of the many actors involved when facing such cases. It will take an interactive step by step approach.

*Submitted by Jean-Pierre ALIX - Euroscience governing board and MURS*



*Speakers :*

JEAN-PIERRE Alix - Mouvement Universel de la Responsabilité Scientifique (MURS) / EuroScience, MICHELE Leduc - CNRS, FÖGER Nicole - European Network of Research Integrity Offices (ENRIO)

**NextGen SciComm digital tales from the Nordics**

Digital technologies are increasingly being used for science communication and engagement. But what makes a good digital science communication initiative? Can successful campaigns be achieved on small budgets? How do you engage, educate and entertain all at the same time? This session will explore the secrets of a number of successful Nordic science communication initiatives that utilise digital tools. It will look at and discuss factors such as the importance of cross-media approaches, partnerships, gender awareness and sustainability.

*Submitted by Helen Garrison - VA (Public & Science)*

*Speakers :*

BACKMANN Guðrún - University of Iceland, BOHM Mikkel - Astra, EVENSEN Thomas - Research Council of Norway, Garrison Helen - VA (Public & Science), JUUROLA Leenu - Heureka Science Centre, TUIISK Terje - Estonian Research Council

**Increasing Awareness of Researcher Mental Health**

The European Research Area currently faces a massive challenge in the form of the psychological distress of researchers at all levels of research. The number of reported cases of stress, isolation, burn-out, depression and other mental disorders are exponentially growing. These symptoms may be exacerbated by increasingly high levels of researcher mobility due to the lower degree of emotional maintenance. Very little has been done to address this issue at local, national and European levels. Currently small, often localized attempts have been taken to aid researchers in distress. The UK-based Vitae network, the work of Trinity College Dublin and small bottom-up European researcher initiatives, such as, the Rumo Platform or TranSkills, are relevant examples of ways to address this challenge. On a global level, the WHO has been advocating for the promotion of good practices within organisations which universities should adopt. In 2016, the Bratislava Declaration of Young Researchers proposed that implementing sustainable career trajectories and flexible research environments would support a healthy work-life balance and reduce stress for Europe's researchers. Most importantly, the implementation of family-friendly policies that encourage a positive work-life balance can improve female participation in research. The organisers of this workshop want to stress the timeliness of this issue, as this psychological epidemic will have a significant effect on the output of European research, risking the European Commission's objective of putting Europe into a leading position in global research publications. This workshop aims to engage researchers, service providers, policy makers and researcher community representatives affected by and working on the phenomenon of the high levels of mental stress experienced by researchers.

*Submitted by Brian CAHILL - Marie Curie Alumni Association*

*Speakers :*

CAMERON Sara - University of Strathclyde, LEVECQUE Katia - University of Ghent, CAHILL Brian - Marie Curie Alumni Association, GONÇALVES Francisco - University of Leicester / rumo platform / CIS-IUL/ISCTE, GUTHRIE Susan - RAND Europe, KISMIHÓK Gábor - University of Amsterdam, ROBINSON Mark - Student Counselling Service, Trinity College

Dublin**Technologies of the future in aerospace**

The skies and space environments might very well look different in 15 years. New capabilities and new flying platforms will be common features overhead. These future realities are likely today nascent in various research setting. In this session, we have asked research leaders from different promising scientific areas to present some of the current state-of-the-art activities in their field and offer their vision on how these emerging technologies might one day find themselves in flight.

Submitted by Thierry BOTTER - Airbus

Speakers :

SHRISHOVA Natasha - Durham University, BONG Kai - University of Birmingham, BOTTER Thierry - Airbus, DESCHEEMAER Denis - Airbus, PASTRONE Claudio - Istituto Superiore Mario Boella Sulle Tecnologie Dell'informazione E Delle Telecomunicazioni Associazione

**Can organizations continue to communicate without love? Getting off to a good start with lolistics.**

The session presents Lolistics, i.e. the science and measure of the level of love (lol) in organizations in relation to their empowerment. It will begin by lectures of Diotime and Socrate dialogue about Love in Platon's Symposium (Virginie Bosc & Mathis Pénard) followed by an energetic stand-up about where and when the idea of lolistics came out and why organizations cannot continue to communicate without love (Rémi Ségura). After the presentation of the concepts and methods of lolistics by a duo of junior-senior researchers (Aurélien Deville & Bertrand Fauré), a keynote speaker (Jo Katambwe, Canada) will explain why this theory could pave the road for a new entrepreneurial paradigm. The session will end by a round table with professional in various domains: corporate social responsibility (Daniel Luciani), information system (Dominique Pon), special education (Beth Bowes, USA). Opening lectures (5 Min): Love in Platon's Symposium, Diotime explains to Socrate why Love is the greatest God and what his way is. First talk (10 min): The incredible story of Arthur and the Round Table, by Rémi Segura How to explain the blindness of professors to the necessity of love in education while it is so obvious for students? Second Talk (20 min): Getting off to a good start with lolistics, by Aurelien Deville & Bertrand Fauré Presentation of lolistics tools and methods for the measure of the level of love (lol) in organizations. Third Talk (10 min): Lolistics as a new entrepreneurial paradigm, by Joe Katambwe Why, as a researcher, does he believe in the lolistic theory while most of other researchers are not comfortable with the idea of love as a science? Round Table (30 minutes): How Lolistics can help to make the shift from the art of war to the art of love? Discussion between professionals in various domains: corporate social responsibility (Daniel Luciani), health care centers (Beth Bowes), information system (Dominique Pon)

Submitted by Bertrand FAURÉ - Université Toulouse (LERASS)

Speakers :

BOSC Virginie - La compagnie du rendez-vous, BOWES Beth - Goodhue School, DEVILLE Aurélien - University of Toulouse, FAURÉ Bertrand - Université Toulouse (LERASS), KATAMBWE Jo Mulamba - Université du Québec à Trois Rivières, LUCIANI Daniel - Agence ICOM Toulouse, PÉNARD Mathis - Ecole Emile Zola, PON Dominique - Eternesia, SÉGURA Rémi - Université de Toulouse



# 14/07/2018

## 08:30 - 10:00 Plenary Panel Discussion: Citizen science

Pr. Madeleine MURTAGH - Professor of Sociology and Bioethics in PEALS, Newcastle University ; Dr. Lucia MONACO - Chief Scientific Officer at Fondazione Telethon; EURORDIS Scientific Award 2017; member of RD-Connect ; Dr. Pierre-Benoit JOLY - Director of the IFRIS, Director of Labex SITES, INRA  
List to be updated

*Place : Palais des Sports*

## 08:45 - 10:00 Parallel sessions

### Are FabLabs the tip of a 5th industrial revolution (from a hierarchical to a meshed society) ?

FabLabs offer new exciting perspectives in terms of open innovation, business models and societal inclusion. They are also a natural playground where novel management approaches are daily developed and experimented. FabLabs are indeed by essence very open, flexible, organic structures, where everyone has an equal access opportunity based only on their desire to contribute, make, experiment, play, connect, share... FabLabs are thus interrelated and ever changing soft structures that dynamically help talents and desires gather around projects. Makers understand that there is far more value in the giving and sharing than in the taking and retaining. They also feel that following the free flow of life and their sense of purpose is more powerful than working according to rules and instructions. Nevertheless, FabLabs are not mere collections of individuals with good intentions: they explore new approaches for maximizing their individual and collective impact to their members and to the society as a whole. They capitalize and share openly the best practices they develop, in particular their management practices. While preparing Fab14, the World FabLab Congress (July 16-20, 2018, Toulouse), Neil GERSHENFELD, father of the field FabLab concept, witnessed that "the social engineering is much more important than the machines" and that "isolated FabLabs fail: the power comes from the network." Hence, FabLabs are far more than workshops or digital platforms, far more than ultimate open innovation hubs. FabLabs reveal to be trial fields for society-models, business-models and managerial innovation. It is known that FabLabs are the tip of a 3rd digital revolution (from the digital back to the physical world). Are they also at the tip of a 5th industrial revolution (from a hierarchical to a meshed society), beyond "Industry 4.0"? After a keynote talk by Neil GERSHENFELD, the participants will experiment and bring their views on sub-topics through a workshop, and share conclusions.

*Submitted by Dominique HAMOIR - Aerospace Valley & Dominique Hamoir coaching and strategy*

*Speakers :*

*BARRAU Anne-Sophie - Anne-Sophie BARRAU Consulting, GERSHENFELD Neil - FAB Foundation, HAMOIR*

*Dominique - Aerospace Valley & Dominique Hamoir coaching and strategy, LASSITER Sherry - FAB Foundation, ROBIN*

*Marie - Airbus*

## 10:00 - 10:15 Flash Presentations

*Place : Palais des Sports*

**11:45 - 12:30 Plenary Keynote: The Third Digital Revolution: Fabrication**

Pr. Neil GERSHENFELD - Director of MIT's Center for Bits and Atoms, originator of the growing global network of field fab labs, Director of Fab Academy

*Place : Palais des Sports*

**12:30 - 13:30 LUNCH BREAK and POSTERS VIEWING****15:00 - 17:00 CLOSING CEREMONY**

*Place : Palais des Sports*

**17:00 - 20:00 Convivial Farewell**

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