



## CALL FOR SCIENTIFIC SESSION PROPOSALS

### EuroScience Open Forum 2018

Toulouse (France), 9 – 14 July 2018

#### – SHARING SCIENCE: TOWARDS NEW HORIZONS –

Sharing is at the root of science and society relations, and heading towards new horizons is an essence of humanity and an inspiration for innovation. ESOF 2018 is constructed around the motto “Sharing science: towards new horizons”. Sharing science means bridging barriers between disciplines, communities and countries, making a link between generations, encouraging and welcoming citizen aspirations and initiatives, and being the anchor of a knowledge based society. Sharing science is an active endeavour that needs tools, methods, political will, imagination, curiosity, evaluation and reward. In the country of Jean-Jacques Rousseau, it is timely to re-analyse the social contract between science and society that is undergoing profound reshaping, broadening the scope of science-society interactions. New ways of practising science and conveying to the public values of science, research and innovation throughout society are rising. Europe has been and is still being constructed by sharing its diversity in an open-minded way. In difficult periods, sharing is what allows a new take off.

A forum on all these aspects, with a European dimension and widely open beyond Europe, is important at the very moment when the successor programme of Horizon 2020 - the current European Union research and innovation framework programme - is being discussed.

The EuroScience Open Forum (ESOF) is a biennial, interdisciplinary, pan-European, general science meeting, which aims to:

- showcase the latest advances in science,
- promote dialogue on the role of science and technology in society and public policy.
- stimulate and provoke public interest and engagement, excitement and debate about science and technology.
- engage the European science community with global partners and perspectives.

ESOF 2018 (9 – 14 July) will take place in Toulouse, a genuine city of science and innovation, in 2018, the year that has been proposed as the European Year of Cultural Heritage. Appropriately, Toulouse has ancient roots, not only as a historical Roman city, but as a pioneer in academic tradition and innovative practices. Examples are the creation of the first academy in Europe, the “Académie des jeux floraux”, and remarkable persons and achievements in science and technology across centuries, such as the mathematician Pierre de Fermat who, in the middle of the 17th century, posed a problem which challenged mathematicians of the world until the very end of the 20th century, or renowned Nobel award winners in chemistry, physiology and medicine, and economy, born or established in Toulouse. The Occitanie-Pyrénées-Méditerranée

Region, whose capital is Toulouse, is ranked first in France for the ratio of R&D per capita, with a large part of its budget coming from the Regional Government. Toulouse and its region have a leading position in aeronautics, space industry, biotechnology, health and cancer research, agro-industry, among other domains. All these domains require interdisciplinary and innovative approaches as well as a dialogue between very different stakeholders. Progress in these fields is facilitated by the sharing of enormous amounts of data, materials, methods and experience. They constitute models for the promotion of open innovation and knowledge sharing between public research organisations and industry. Silos are counter-productive. To flourish, such domains require new technological and communication tools and new models of collaboration. Research infrastructures are essential in all scientific domains and need often to be shared across countries. However, the organisation of research and education and their evaluation, reward systems and career paths have not necessarily incorporated these changes, creating gaps, incoherence and tensions.

ESOF 2018 sessions will focus on current and future path-breaking science and its ways of producing and sharing knowledge and innovation. ESOF includes *all disciplines*. In this document, and in ESOF, the word “science” is understood as encompassing the arts, social sciences and humanities as well as physical and life sciences, engineering and medicine. Science and technology are now embedded in a myriad of contexts, greatly affecting the everyday life of people across virtually every corner of the globe. Many of the universal challenges of all societies are now pervaded by science and technology. We take into consideration transversal themes such as risk, inequalities, gender and ethics in the proposal for sessions, inviting in particular interdisciplinary or transdisciplinary approaches from the social sciences and the humanities.

#### **ESOF 2018 will comprise a number of distinct programme tracks:**

- a **Science** programme of seminars, workshops and debates of various formats on the latest research and related policy issues, structured around a programme of keynote speakers and the latest scientific issues.
- a **Science-to-Business** programme to explore the major issues for research within business and industry and the role of universities for business as well as public-private partnerships endeavours.
- a **Career** programme showcasing career opportunities across Europe and beyond for researchers at all stages of their careers.
- an **Exhibition** that showcases the best of academic, public and private research and innovative approaches in Europe and beyond.
- a **Public engagement** programme, Science in the City.
- a **Forum** to host other meetings, satellite events and networking opportunities (e.g. science policy advisers, young researchers’ associations, student parliament and science media).

**This call seeks session proposals for the Science programme. We encourage proposals from the Science community at large, within the academic sector and outside: corporate R&D, science media and communication, and also various social actors whose voice must be heard within the science debate.**

## ESOF 2018 SCIENCE PROGRAMME MAIN THEMES

The conference will highlight and question the interplay between science and society, the conditions that foster scientific and technological breakthroughs, processes of expected and unexpected discovery and application and the wider socio-cultural environment - including the contribution of education, innovation policy, investment, and funding mechanisms and the popular communication of scientific advances, as well as the way various stakeholders are getting involved.

Sessions that focus on past, present and future path-breaking science are encouraged. The event will also promote public debate about science-related societal change. ESOF 2018 will be an opportunity to discuss the socio-cultural and economic implications and impacts of scientific advances from regional, national, European and global perspectives. This international perspective is particularly significant since, in the face of global challenges and the internationalisation of trade and political governance, science is increasingly considered an international collaborative endeavour; a feature that the sessions should seek to address.

There are two categories of themes, scientific and cross-cutting, both of which are taken into account in the selection criteria.

### **1. Sustainable cities, sustainable living**

More than 70% of the European population lives in urban and peri-urban areas, and this is also the case for more than half of the world's population. However, cities and rural areas are undergoing a series of profound social, economic and environmental changes.

*Some of the questions which could be addressed in this theme:* How will cities and rural areas face their major challenges, including spatial planning, transportation, energy transition, data management and information flow, food and water management, consumption and waste, air and ground pollution, social and cultural ties and health?

*Keywords:* Land Use & Planning; Buildings & Energy; Transportation; Water & Green Infrastructure; Climate Adaptation & Resilience; Materials Management; Food Systems; Environment, Socio-cultural and Economic issues; Noise Disturbance; Communication infrastructures; Ecological continuity; Soil impermeability; Sustainable cities; Smart cities; Living in an ageing society.

### **2. Global change: challenges and opportunities**

Humans are major agents of planetary change. Recent and foreseen climate changes, coupled with altering population dynamics and natural resources use, threaten human societies and the environment. This theme will bring together those working on all aspects of these questions, from the quantification of global change, through human agency in changes to the biosphere and the climatic system, to the advent of sustainable sources of energy, innovative agriculture and resource management, and the perception by and implications for our societies, including in terms of global governance.

*Some of the questions which could be addressed in this theme:* What are the causes of these changes, what are the consequences and are there opportunities to be exploited? What role does human agency play in processes of planetary change? Can changes be mitigated to reduce effects on our environment and our societies? Can we foresee climate-induced migrations? How

will climate change our oceans and seas? How can we adapt and innovate to sustain an increasing population in a changing world with limited resources? Is the current global institutional architecture adequate to deal with emerging changes?

*Keywords: Climate change; Environment; Energy transition; Geoengineering; Biodiversity evolution of species; Agriculture; Food security; Land use; Resource management; Recycling; Modelling; Demographic growth; Migration; Sustaining human societies; Complex behavior; Environmentally induced migrations; Marine environment; Management of natural resources; Soil; Eco tourism; Technology; New business models.*

### **3. Science policy and transformation of research practice**

In the last thirty years, research has been deemed an essential asset in achieving the goal of a knowledge economy and addressing the grand challenges facing our societies. This has come with a much closer scrutiny by policy makers, shrinking budgets, increased precariousness for researchers, the importance given to project-oriented research, the focus on short-term performance measured by metrics, the development of public/private partnerships. Simultaneously, many fields of research tend to be increasingly relying on large and diverse — and often costly — research infrastructures. Other major paradigm changes have also appeared: data deluge, open science, responsible research and innovation, citizen science...

*Some of the questions which could be addressed in this theme:* How do these changes affect research practices? How do they affect research funding, research evaluation? Are research careers still attractive? How do we find a good balance between responsibility and freedom of research? Is blue sky research under threat? Are we addressing the needs of society? What are the mechanisms to support innovation and are they efficient? Can one compare the advantages of disciplinary and inter/transdisciplinary practices in research? And are inter/transdisciplinary practices competitive? What will be the effect on research and on the research community of political changes (Brexit, the new US administration...)?

*Keywords: Research as a calling and as a profession; Responsible research and innovation (RRI); Research values; Research and Societal Challenges; the Anthropocene as an agent of change; Science, finance and austerity; Inequality; Research infrastructures; Innovation policies; Foresight in science; Evaluation; Research integrity; Evolving structuration of research organisations; Uberisation of Research; Science policy in Europe beyond H2020; New modes of collaboration; Large international projects; Data sharing; Open access to big data; Research through citizen science; Corporate R&D; Research careers; Mobility of scientists; Diasporas; Brain drain; Science Diplomacy.*

### **4. Frontier research and exploring extremes**

Humankind's thirst for knowledge has led to the exploration of evermore extreme environments in the world around us, from the far-flung edges of the universe to the infinitely small, from the exploration of mechanisms of life to the abstract world that our minds have discovered (or created). The importance of knowledge motivated research, so called "blue sky research" cannot be underestimated, whether because of the proven efficiency of such research to open the road to technological breakthroughs, or because the will to understand the world we live in is at the heart of humankind.

*Some of the aspects and questions which could be addressed in this theme:* Recent advances in basic research (in all fields of science: the natural sciences, mathematics, physics and

informatics, humanities and social sciences)? What is the role of basic research? What does the history of science and technology and science studies tell us about the impact of basic research (“useless” research) on innovation?

*Keywords: Basic sciences (Biology, Chemistry, Computer Science, Mathematics, Physics, Social and Human Sciences...); Infinitely large; Infinitely small; Nanophysics; Inaccessible Earth; Planets and exoplanets; Gravitational radiations; Space colonisation; Early universe; Astrobiology; Synthetic biology; Biomolecular mechanisms; Origin of life; Ocean depth; Data science; History of science and technology; Science studies.*

## **5. Health in our societies**

The progress in medical research and the development of new technologies have made cures for many diseases possible, improved the understanding of disease mechanisms and the wellbeing of many patients with chronic diseases. But many of the new technologies such as imaging, genome based approaches, and innovative medicines are costly and there are big differences between health care systems in different countries, including within Europe.

*Some of the questions which could be addressed in this theme:* How can we make better health care available for everybody in the EU and in other countries in the world? How is precision medicine reshaping health care organisation? What is its cost's impact? Is there a role for traditional medicine? How are patients, patient organisations and other actors influencing health care planning and research priorities? How is the ageing population impacting health in society? What role for Europe in global health? What are the implications for improvement in population health? How does digital health communication impact doctor-patient relations? What is the potential for “telemedicine” or digital medicine to bridge the health gap between nations? Which ethical dilemmas are appearing with the new health technologies, the risk of private appropriation of health related data, the role of pharmaceutical companies? The role of insurance companies?

*Keywords: Epidemiology; Public health; Health inequalities; Access to health care; Pandemics; Lifestyle and health; Health risks in our societies; Precision Medicine; P4 Medicine (Predictive; Preventive; Personalized and Participatory); Ageing; Nutrition; Neurosciences; Epigenetics; Microbiote; Stem cell therapy; Transplantation; Gene Therapy and gene editing perspectives; E-health; Health databases; Biobanks and cohorts; Bioinformatics; Health technology assessment; Cancer; Chronic diseases; Sports and health; Translational research; Patient protection and autonomy; Patient outcomes, Population Management.*

## **6. Understanding divided societies**

Cultural exchange and circulation of philosophical and scientific ideas are a catalyst for humans to cross material and symbolic boundaries and find common ground. But they also lead to the raising of new barriers of demarcation, and as the speed and intensity of communication increase, so do the barriers. A global acceleration of exchange serves to foster new flows of migration, dialogue and understanding, just as it orchestrates new forms of exile, miscommunication and conflict. The implications of tackling these human-centred processes are at the core of securing future societal and natural sustainability.

*Some of the questions which could be addressed in this theme:* What are the relations between knowledge exchange based on truth claims and belief claims? How can science retain its universality in a fractured world? How can social media simultaneously promote a homogeneous world culture and produce fractured communities? What are the mechanisms of manipulation of

media? How does interdisciplinary research advance our understanding of migration flows? Do we need new mechanisms for the preservation and appropriation of cultural and natural heritage? How does research impact societal opportunities for action on cultural exchange?

*Keywords: Political and cultural identity; Citizenship and diversity; Communication and mis-communication; Trans-Mediterranean cultural exchanges; Migration; Science and its values as a common heritage of diverse cultures; Tangible, intangible and digital heritage; Science and arts.*

## **7. New trends and technologies in transport**

Our societies are more and more dependent on technologies of transportation: on land, water, air or in space, using technologies ranging from skate-rollers to rockets. Everything moves: people, goods and data. The understanding of our world is dependent on space technologies. This increasing mobility and more generally nomadism becomes a marker of future years. Transport technology is constantly enhanced in order to give people all the tools they need: safe, sustainable, silent, fast and practical.

*Some of the questions which could be addressed in this theme:* Which innovations will there be in the field of transport to face this massive demand, especially in avionics? Will the airplane of the future be an electric aircraft without any carbon footprint? What impact will smart and autonomous vehicles have? How does digitisation, including artificial intelligence, impact human movement? Is travel in space a utopia within our time scale? Will we see enhanced humans with improved walking or running capabilities? Can collective transport be re-invented to meet the need of a 9-billion human lives planet?

*Keywords: Transport; Aeronautics; Communication satellites; New vehicles; Moving within territories; AI; Transport of goods; Drones; Space; Autonomous surface and aerial vehicles; Navigation (GPS, Galileo, and beyond); Liability issues; Privacy; Enhanced mobility capacities of humans.*

## **8. The use/mis-use of research and scientific advice**

The contribution of research to policy making is increasingly ambivalent. On the one hand, in the past 40 years, scientific advice has acquired a role in most policy areas. On the other hand, especially in the past 10 years, the credibility of science has been increasingly challenged, because of ethical malpractice, lobbying by “merchants of doubts”, but also profound changes in society that are summed up under the labels of post-truth, or post-factual, societies.

*Some of the aspects which could be addressed in this theme:* Under this theme, we aim to promote discussions between researchers from all fields, policy makers, and societal actors, on several questions as the credibility of knowledge used for public decisions, evidence-based policy, construction of ignorance, post-truth societies both from political and epistemic perspectives, the contribution of lay expertise to scientific expertise, the role of whistle-blowers.

*Keywords: Science advice; Science diplomacy; Lay expertise; Uncertainty; Scientific controversies; Research expertise; Scientific education; Research credibility, Ignorance; Big data and post statistic society.*

## 9. Sharing knowledge

Two very important aspects of the science and society dialogue are science education and science popularisation. Interesting initiatives have flourished, whether traditional public lectures, modern variations thereof, or digital means of communication (social networks, websites, apps...) Also, many researchers and research institutions have become involved in education, in particular STEM (science, technology, engineering, and mathematics) education, either in the informal context of science clubs, science fairs, competitions, bringing students to science museums and to research laboratories, or in the formal context of the classroom, where “hands on” investigation based teaching is promoted. Media play a large role in the communication of research-based knowledge. Now comes the time to assess the effects of this changed landscape on education.

*Some of the questions which could be addressed in this theme:* Should the ideas underlying the notion of public engagement with science become a paradigm in education as is the case with science communication? Is the goal to train capable scientists, or informed citizens? How do digital media impact the way research is communicated to the public? Are these changes impacting the professions in science journalism, science writing and research communication, as well as blurring the distinction between research scientist and science communicator?

*Keywords:* Education; Science education; Public debate; Shared knowledge; Public engagement; Mediated research communication; Informed citizens; Young people and research, young people and science; Cognitive science; Informal and semi-formal science education; Lifelong learning; Active learning; Science Museums as venues of learning. Scientific journalism; Science writing; Science communication.

## 10. A digital world

In the past few years, the evolution towards a digital world has dramatically increased in speed and depth. Today society seems to be dominated by digital infrastructures and modes of communication based on algorithms and data crunching, and impacted by the so-called bio-digital convergence, as two recent landmark events have exemplified: self-driven cars, and the victory of a computer against the best Go player. More generally, Internet of Things (IoT), Embedded Systems and Data Sciences are disrupting many industrial and human activities. The science behind the scene is new and exciting, bringing together physical sciences, human, social and life sciences, mathematics and informatics, and the social impact is likely to be tremendous.

*Some of the questions which could be addressed in this theme:* What is the contribution of basic science to the digital world? Has the digital agenda triggered new interdisciplinarity? Is “uberisation” going to disrupt labour relations? How do digital modes of interaction impact human agency and decision-making? What is the impact of automation for blue and white collar workers? Will complete sectors of the economy be transformed? How is the digital cloud politically regulated? Who controls data banks?

*Keywords:* Big data; Data analytics; Smart systems; Post-human societies; Cloud; Open science; Robotics; Smart grids; Internet of Things; AI; Machine learning; Embedded Systems; Data protection and data privacy; Social and political impact of social networks ; Digital transformation; Systems liability; Legal aspects; Governance in the digital world.

## CROSSCUTTING THEMES

### 1. Risk and safety

The notion of risk is omnipresent in modern-day society, covering a huge range of sources from devastating earthquakes and hazards, through issues related to the climate environment, polluted and degraded environments, food and public health, biological manipulation, pandemics, to economic and political stability. Risk is also intimately related to the notion of safety, the question of cyber-security becoming ever more important as the world becomes increasingly interconnected, concerning also the means of transportation. Under this general theme, a wide variety of sessions related to the study and perception of risk and safety can be proposed, including the question of the place of education systems, decision makers and the general public.

### 2. Inequalities

Far from promoting more just societies, it seems technological innovation is, on the contrary, yielding greater inequalities. Is robotisation threatening the jobs not only for blue-collar workers but also for white-collar workers? At the same time, the divide between the rich world and low income countries is greater than ever. Stark inequalities can be observed not only in the wealth distribution, but also across continents, gender, ethnic groups in relation to access to healthcare, energy, science and education, or political participation. How can science and technology be mobilised to support marginalised populations? How will ageing populations deal with new technologies? What forms of innovation can foster more equal societies?

### 3. Gender issues

Gender/sex differences have been a topic of relevance for a long time in social aspects of science, science policy and biological and health sciences. The many dimensions of this very transversal domain are to be questioned in the context of new or renewed research topics and practices, from biology, medicine, neurological and cognition studies, cultural contexts, to policy and many aspects of human and social sciences. For example, genetic, sex hormones and environmental factors, including cultural habits, interact in complex ways. The critical need to incorporate sex and gender in pre-clinical and clinical research, but more generally in biology is now acknowledged; but life styles and culture are closely co-transmitted in families and communities, representing an aspect that requires transversal approaches including Humanities and Social Sciences.

### 4. Ethics

Ethical aspects of research are far from being restricted to specific fields. There are the limits posed by society to the development of certain scientific approaches and to their applications. There is the issue of translation into good practices in research and to their deontological aspects. Science, research and innovation are not value free and the advancements of science are questioning the core values our societies are based on. Transferring technology also transfers values; choosing a topic in research or constructing a collaborative consortium or advising policy in science are activities full of values that need to be made explicit. It is in this broad sense that ethics is a cross-cutting theme for ESOF 2018.



## SELECTION AND SUBMISSION GUIDANCE

### Selection process

- The submission is open from 10 February 2017 at 10:00 am CET and the deadline for session proposals is 1 June 2017 at 10:00 am CET. The submission process will be accessed through the ESOF website.
- Proposals will be evaluated by the International Programme Committee (PC), the first stage of which will take place during summer 2017.
- The PC may request revisions to some proposal(s). In this case, proponents will be advised by the 1st of October and revised proposals should be resubmitted by 30th October 2017 for a second stage evaluation.
- Proponents whose proposals have been accepted or rejected during the first round of evaluations will be informed at the end of September 2017, and proponents of revised proposals will be informed of the outcome of the second stage evaluation by the end of November 2017.

### Session duration and format

Prior to submitting a proposal, applicants are advised to consider the duration and format of their session. Each standard session will last for 1 hour and 15 minutes.

You are encouraged to make your session(s) as interactive as possible. Different formats are possible and you are encouraged to develop your own innovative and creative formats:

Examples of formats are:

- Traditional panel discussion: maximum 3-4 speakers (maximum 15 minutes each) followed by extended discussion with audience.
- Interactive round table(s): a flexible format with brief presentation and space for questions, answers and reactions.
- Workshop: a flexible format, led by a speaker experienced in stimulating exchanges of views and using practical exercises.
- Pro and con debate on a controversial topic.
- Innovative formats (hackathons, Ted-type talks, "My Thesis in 180 seconds" are most welcome.

Please remember that this is not a conventional scientific conference and that your audience may be diverse (Scientists, Policy makers, Students, General public, etc.) and interested, but not necessarily knowledgeable, in your field. It is recommended that you pay attention to the communication style and the ability of your suggested speakers to address an ESOF audience. Please target your proposals at a scientifically literate but non-specialist audience. Be prepared to be flexible and patient, and be sure to leave sufficient time for wide ranging questions and debate. We encourage co-chaired/co-moderated sessions between senior and junior persons in order to foster various styles of managing sessions and to facilitate participation of all generations in the audience. However, it is important that moderators should have the required experience for the role.

## Guidelines (please read carefully)

Instructions for submitting your proposal can be found through the ESOF 2018 website ([www.esof.eu](http://www.esof.eu)). The website also contains information about the other programme tracks.

The ESOF 2018 International Programme Committee will take the following criteria into account when assessing proposals:

### 1. Content

- Relevance to conference themes\*.
- Relevance to cross-cutting themes\*.
- Quality, originality and topicality in order to attract delegates and ensure they benefit from new insights and discussion\*.
- Interdisciplinary approach and, where relevant, policy perspectives.
- Potential to attract media interest.

### 2. Participants

- International perspective (the proposed speakers/participants within sessions should come from multiple countries and overall geographical balance will be sought in the programme)\*
- Diversity (panels will be expected to aim for an appropriate balance of gender and maximise inclusivity, sessions organized by senior-junior tandems will be appreciated)
- Participation by companies and NGO's is welcome.

### 3. Format


- Interactive sessions are required that maximise opportunities for discussion and dialogue. Proposals for innovative formats will be welcomed.

*\* Essential criteria: Proposals must meet these criteria to proceed to evaluation but where possible proposers must address all of the criteria listed. At its discretion, the Programme Committee may accept sessions which vary from the criteria if there is a strong rationale.*

Participants are responsible for the organisation of their sessions and speakers. To facilitate interactivity, proposed sessions are expected to balance the number of speakers per session and the time available for discussion. The full range of conference facilities will be available.

**Neither EuroScience nor ESOF 2018 have supporting funds available to facilitate conference attendance.** Participants' involvement in the event must be completely self-financed: this includes contributors' travel, accommodation and any organisational expenses. However, no registration fee will be charged to the session organizer.

We welcome your submission of a proposal to ESOF 2018.

  
Dr Anne Cambon-Thomsen  
ESOF 2018 Champion

  
Prof. Andres Metspalu  
Chair of the ESOF 2018 Programme  
Committee