

Call for Scientific Session Proposals
EuroScience Open Forum 2016 Manchester (UK), 22 – 27 July 2016

Science as Revolution
from Cottonopolis to Graphene City

Modern science was born in the turmoil of the Renaissance and has produced a succession of revolutions in the ways we understand and shape our world. In 2016 the major event of European science comes to Manchester, the birthplace of the Industrial Revolution, a city whose ideas have always challenged the established order. Our motto ‘Science as Revolution’ is an invitation for breakthrough ideas which could continue those revolutions to be shared and challenged!

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 2016 (22 - 27 July) will take place during the 250th anniversary of the birth of John Dalton, Manchester resident and founder of modern atomic theory. The event will draw upon the scientific heritage of Manchester from Dalton, through Rutherford and Turing to the present day graphene Nobel Prize winners.

In the city where Emmeline Pankhurst, founder of the suffragette movement, was born and where Rolls met Royce and Marx met Engels, ESOF will bring together delegates to reflect on the transformational potential of science in the ‘city of revolutions’. Sessions will focus on current and future path-breaking science. ESOF is inclusive of all disciplines. In this document, and in ESOF, the word “science” is understood to encompass the arts, social sciences and humanities as well as physical and life sciences, engineering and medicine.

ESOF 2016 will comprise a number of distinct programme tracks:

- A **Science** programme of seminars, workshops and debates 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.
- 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 European academic, public and private research.
- A public engagement programme, **Science in the City**.
- A **Forum** to host other meetings, satellite events and networking opportunities (e.g. science policy advisers and science media).

This call seeks session proposals for the Science programme. Instructions for submitting your proposal can be found through the ESOF 2016 website (www.esof.eu). The website also contains information about the other programme tracks.

Guidelines

Please read the following guidelines for participants and information about the scientific themes carefully. **The submission is open from 2 March 2015 at 10:00 am CET and the deadline for session proposals is 1 June 2015 at 10:00 am CET.**

All submitted proposals will be reviewed and assessed by the ESOF 2016 Manchester Programme Committee. **Please note that the Programme Committee reserves the right to request modifications to proposals prior to acceptance and to make minor modifications to titles and abstracts when compiling the programme.**

The ESOF 2016 Manchester Programme Committee will take the following criteria into account when assessing proposals:

1. Content

- Relevance to cross-cutting themes.*
- Relevance to conference 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).

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 2016 has 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 organiser.

ESOF 2016 Manchester Themes

The conference will highlight and interrogate 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.

Sessions are encouraged that focus on past, present and future path-breaking science. The event will also promote public debate about science-related societal change. ESOF 2016 will be an opportunity to discuss the socio-cultural and economic implications and impacts of scientific revolutions 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, cross-cutting and scientific, both of which are reflected in the selection criteria:

Cross-cutting themes

A core question threading throughout the event will be: how do we foster excellence in science as an agent for positive and transformative change? This question may be articulated through the following cross-cutting approaches (although we welcome other interpretations):

- Fostering breakthrough science;
- Ensuring responsible research and innovation, aligned with the values, needs and expectations of society;
- Harnessing science and technology to growth, employment, economic success and personal well-being;
- Radical approaches to *grand societal challenges* – health, food, water, energy, climate, security, and creativity and innovation;
- Engaging the public and inspiring the next generation of researchers.

Sessions that explore the effects of science on human society and culture, and the governance of social, biological, physical and other assets and systems are encouraged, as are sessions that seek to address the facets of science as an international collaborative endeavour, for example funding and governance.

Scientific themes

Healthy populations: Medicine is becoming increasingly targeted, moving away from a 'one-size-fits-all' approach to a stratified approach taking account of personal features, health data and new biomarkers, and extending to a personalised approach focused on patients and their history. Proposals are welcomed which deepen understanding of the trend to precision medicine. From the frontiers of understanding, the role of the microbiome and developments in immunotherapy each have the potential to revolutionise healthcare. Also welcome are sessions on the great challenges in fighting epidemics in the developing world caused by emerging pathogens such as Ebola virus, as well as the broader issue of combating antibiotic resistance. Proactive approaches to health in lifestyle and sport form a further sub-theme – prevention is better than cure. The socio-cultural and scientific challenges at different phases of life from childhood to old age open many questions, including the transformative potentials of online health communication and distance treatment. The biomedical and socio-cultural challenges of ensuring mental health are also on the agenda.

Suggested issues to explore: Personalised medicine, eHealth and data issues; Epidemics; Antimicrobial resistance; Humanitarian medicine; Healthy lifestyles and prevention; Health technologies; Health at different phases of life; Mental health; Microbiomes; Immunotherapy; Open science approaches to cut the cost of healthcare; Contribution of other scientific fields (e.g. computer science, physics, mathematics, welfare technology, sociology, communication, anthropology and others) to understandings of health issues.

Material dimensions: The discovery of two dimensional structures such as graphene has opened up the complete spectrum of materials in a continuum of dimensions. Starting with the four observable space-time dimensions, materials that move or take part in movement such as artificial muscle, smart materials with internal functionality, and some biomimetic materials, form this group. Three dimensions are represented by more conventional materials revolutionised by technology for 3D printing of complex shapes, such as skeletons for the creation of artificial replacement organs, limited only by the imagination of the engineer. Manchester, the home of graphene, opened up a global explosion of interest in two-dimensional materials, with new potential applications being suggested every day. Relatively recently, reports on the properties of single atom transistors have set researchers looking for other one-dimensional devices.

Sessions showing how breakthroughs in materials research can transform technologies, social applications and sectors will be welcomed across the full continuum identified above, ranging from the nano- to macro-scale, encompassing hard, soft and functional materials for all kinds of environment. Sustainability and substitution are horizontal sub-themes.

Suggested issues to explore: Graphene and 2-D materials; Structural materials; Functional materials; Nanomaterials and nanofabrication; Biomaterials, soft materials and coatings; Substitution of critical materials; Design and manufacture including co-creation; Quantum and statistical physics; Crystallography; Disordered systems.

Sustaining the environment: Concerns for the environment permeate almost all aspects of life. Sessions could explore our increasing understanding of environmental systems, their measurement and the ways in which science and technology could help to mitigate or adapt to environmental change. A session might ask what environmental utopias and dystopias, past and present, contribute to our attitudes to sustainability. The role of arts, humanities and social sciences in understanding, or changing, human behaviour will be of particular interest.

Suggested issues to explore: Climate change; Energy; Sustainable resources; Resilience; Strategic resources; Water; Biodiversity and ecosystems; Physics and chemistry of the environment; Mathematical modelling; Clean technologies; Environmental protection and monitoring; Behaviour and public communication; Cultural representations of the environment; Anthropocene epoch; Planetary boundaries; Green economy.

Turing's legacy – data and the human brain: In the city of Alan Turing we put forward a theme which combines his direct legacy in artificial intelligence and the interface of humans with machines, together with the wider issues posed by data, online information exchange and communication in our society. As major projects address the nature of the human brain and our ability to simulate it, we ask where this is taking us? In the world of big data, what is the significance of the new analytics for scientific and citizen activities? What ethical, social and legal challenges are raised? Communication and learning as a sub-theme opens up issues of human development.

Suggested issues to explore: Artificial intelligence; Mapping the brain; Human-computer interface; Mathematical logic and computer science; Visualisation; Big data and behavioural analytics; Privacy, security, ethics and integrity; The future internet; The Internet of Things; Communication and learning.

Far frontiers: The excitement generated when science probes the most remote and hostile environments or embarks upon the most fundamental questions is a major factor in attracting the interest of the public, particularly younger generations. Europe's Rosetta mission is the latest source of inspiration. Sessions that take us to the physical and intellectual frontiers of knowledge are invited.

Suggested issues to explore: Exoplanets and astrobiology; Dark matter; Next generation particle physics; Astrophysics; Next generation astronomy; Oceans science; Extreme environments; Weather and the atmosphere; Space matters; The Micro-world of high resolution microscopy; Geo-engineering.

Living in the Future: The way we live has changed drastically. Over half of the global population live in urban environments, while the nature of rural regions has also been transformed. Migration patterns also change the nature of societies. Global networks of communication generate new means of understanding and misunderstanding. Security is challenging governments around the world in the face of terrorism and crime. Sessions are welcome which explore the implications for governance, systems, equality and more broadly how people live now and will live in the future.

Suggested issues to explore: City-regions and autonomy; Governability of cities; Population change; Liveability and lifestyle; Science and security; Transport; Poverty and inequality; Energy and utilities; Robotics and assisted living; Online communication and interaction; Urbanisation; Rural pressures.

Bio-revolution: Growing populations, degradation of agricultural land and the need for sustainable sources of carbon-based products are some of the factors which demand a bio-revolution. Challenges run from field to fork and from land to the factory. Ethical and safety concerns feature prominently in public debate, stressing the need for responsible approaches.

Suggested issues to explore: Agriculture and climate change; Food security and bio-economy; Agriculture and healthy nutrition; Reducing, refining and replacing animal-based foods; GM challenge and opportunity (e.g. metagenomics); Patents of biological or genetic material; Industrial biotechnology, Synthetic Biology; Biofilms, Supply/value chains; Public engagement with sustainability and climate; Cultural representations of bio-based challenges.

Science for policy and policy for science: What are the conditions for revolution in and through science? ESOF 2016 brings together many of the thought leaders in science policy for Europe and beyond, and provides the opportunity to debate how we should structure, finance, manage, regulate and deliver science and innovation. It also takes us to the role of science in wider policymaking of all kinds – this issue is a feature of all the themes but sessions here could explore issues such as the mechanisms and ethics of advice. Sessions are welcome which provide an original perspective on these issues or give a forum to those engaged in them at all levels.

Suggested issues to explore: Responsible research and innovation; Science and the economy; Science, finance and austerity; Inequality and scientific diversity; Research infrastructure; Innovation policies; Foresight in science; Evaluation and peer review; Science advice; Scientific activism and citizen science; Scientific publishing; Open science; Scientific education; Regulation and integrity in science; Research careers.

Science in our cultures: Science is pervasive in our cultures and in the digital world we inhabit. In this theme we explore the energy it creates at its interfaces with the worlds of arts, leisure and the media. Sessions are welcome both to illustrate these combinations, and to understand their significance.

Suggested issues to explore: Science and media; Science and social media; Science and art; Cultural heritage; Science and histories; Science and democracy; Science writing and communication; Science and sport; Science and recreation; Science and comedy; Technology and culture (e.g. participatory science); Pedagogy of science.

Selection and Submission Guidance

Selection process

- The submission is open from 2 March 2015 at 10:00 am CET and **the deadline for session proposals is 1 June 2015 at 10:00 am CET**.
- Proposals will be evaluated by the Programme Committee (PC), the first stage of which will take place during Summer 2015.
- The PC may request revisions to some proposal(s). In this case, proponents will be advised by mid-September and revised proposals should be resubmitted by 12th October 2015 for a second stage evaluation.
- Proponents whose proposals have been accepted or rejected during the first round of evaluations will be informed during September 2015, and proponents of revised proposals will be informed of the outcome of the second stage evaluation by mid-November 2015.

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. However, it is possible to have two sessions consecutively with a total of 2 hours and 30 minutes if the topic and the format are appropriate. The Programme Committee will need to be persuaded that the Session is of particular value to merit a double slot.

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.

Proposals for sessions with innovative formats (hackathons, Ted-type talks, 3 minute Thesis style sessions) will also be 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. Please note that the session should be chaired by an experienced moderator nominated by the session proposer(s).

Please note that the Programme Committee reserves the right to modify session formats after your session has been accepted.

Submitting a proposal

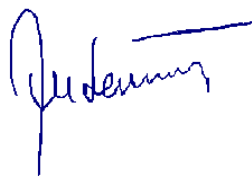
The submission process is managed by ESCMP, accessed through the ESOF website (www.esof.eu) – the system will go live from 2 March 2015. The process for submission of applications is as follows:

1. Visit www.esof.eu homepage. Click on the button “submit a proposal” on the centre of the home page. You will be redirected to the ESCMP login page.
2. You will be asked to create an account if you do not already have one. For existing ESCMP account holders please log on to the system using your username and password.
3. Once you are logged in to ESCMP you will be redirected to the “new proposal” page.
4. Follow the on screen instructions provided to submit your proposal. Please note that you can continue working on your “draft proposal” until you are ready to submit.
5. By clicking on “submit” your proposal will be accepted as final and no further modification is possible. It is not possible to submit a proposal after the given deadline.
6. Following submission, you will receive a confirmation email acknowledging receipt of your proposal.

Thank you for submitting a proposal to ESOF 2016 Manchester.



Dame Nancy Rothwell
Champion ESOF 2016



Prof. Jerzy Langer
Chair of the Programme Committee