Scientific Sessions will take the format of presentations and debates, usually with a number of featured panellists. Nobel Prize winners and trend-setting innovators will also participate as keynotes speakers in the Scientific Programme (not listed here).

The ESOF2008 scientific themes are:

The human mind and behaviour
The very big and the very small
Open society, open science
Engineering the body
What should we eat and how should we look?
Enhancing energy security, fighting global warming
Science and innovation policy
Science and art
Screening: burdens and benefits
Communicating Science

Plenary sessions

Plenary Speaker
Aaron Ciechanover, Nobel Prize in Chemistry 2004**,** Technion-Israel Institute of Technology, Israel

Title: Why our proteins have to die so we shall live

Abstract: Between the sixties and eighties, most life scientists focused their attention on studies of nucleic acids and the translation of the coded information. Protein degradation was a neglected area, considered to be a non-specific, dead-end process. While it was known that proteins do turn over, the large extent and high specificity of the process - whereby distinct proteins have half-lives that range from a few minutes to several days - was not appreciated. The discovery of the lysosome by Christian de Duve did not significantly change this view, as it was clear that this organelle is involved mostly in the degradation of extracellular proteins, and their proteases cannot be substrate-specific. The discovery of the complex cascade of the ubiquitin pathway revolutionized the field. It is clear now that degradation of cellular proteins is a highly complex, temporally controlled, and tightly regulated process that plays major roles in a variety of basic pathways during cell life and death, and in health and disease. With the multitude of substrates targeted, and the myriad processes involved, it is not surprising that aberrations in the pathway are implicated in the pathogenesis of many diseases, certain malignancies and neurodegeneration among them. As a result, one drug has already been developed and is used successfully for the treatment of cancer, and many more are in the pipeline.

Plenary Speaker
Marcus Du Sautoy, Berwick Prize of the London Mathematical Society 2001**,** University of Oxford, United Kingdom

Title: Mathematics: creative art or useful science?

Abstract: Galileo once wrote: "The universe cannot be read until we have learnt the language in which it is written. It is written in mathematical language and the letters are triangles, circles and other geometric figures without which means it is humanly impossible to comprehend a single word." Mathematics is the key to many of the greatest scientific and technological advances made throughout

the ages. For artists too, mathematics underpins many steps in the creative process. From the tiles in the Alhambra to Bach's Goldberg Variations, there are mathematical structures hiding behind these great works of art. In this lecture, we explore the power of this mathematical language to help navigate the world around us and to take us into new world's we could hardly hope to conceive of.

Plenary Speaker
Richard J Roberts, Nobel Prize in Physiology or Medicine 1993**,** New England Biolabs, United States

Title: A rebel with a cause

Abstract: Dr. Roberts will present an autobiographical account of his life as a scientist before the Nobel Prize and describe how the celebrity associated with the Prize has enhanced his ability and effectiveness in supporting good causes. This will include an account of his role in supporting Open Access publication as well as the promotion of open access databases in general. He will also mention briefly his role in obtaining the release of the Bulgarian nurses held in Libya on a charge of deliberately spreading AIDS to children in the Benghazi Children's hospital. This will include the follow-up to that incident after the nurses release.

Plenary Speaker
Eva Bayer-Fluckiger**,** Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Title: The science of Communications – number theory and coding

Abstract: Communication is one of the basic needs of humanity. The mathematical theory of communication was born in 1948, in a foundational paper of Claude Shannon. He wrote "The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point". The science of communications has grown tremendously since then. The aim of this talk is to present some applications of number theory to this topic.

The Human Mind and Behaviour

Theme description: We can now look at the brain non-invasively and watch people think. Should we? Are we allowed hidden thoughts? Can we be sure what we are seeing? How can brain imaging techniques be used in cognitive science? Will we categorise people on the basis of these data? What about vetting employees or using the techniques forensically? Are hidden memories best forgotten? How do we organise our thoughts and use language? How does the brain organise our day?

Keynote Speaker
Pierre Magistretti**,** Brain-Mind Institute, Switzerland

Title: Looking Inside Your Brain

Abstract: Prof. Magistretti will outline current brain-imaging technology and explore the ethical and societal implications of how, in addition to conventional medical diagnostic applications, it might be used. He is professor of Neuroenergetics and Cellular Dynamics at the Brain Mind Institute.

Session: Looking inside your brain

Organisers: *Elaine Snell*, European Dana Alliance for the Brain (EDAB), United Kingdom

Abstract: Brain imaging is one of the most impressive new technologies of the last 50 years, but is it really advanced enough for mind reading? Doctors and researchers can certainly glean valuable information about the damaged brain from imaging techniques, and knowing which areas of the brain are active during certain behaviours is invaluable for medicine and science. Could the final frontier for brain imaging be to work out what people are really thinking? Will it be possible to predict someone's behaviour? Lie detectors are one thing, but could it one day be permissible to submit a brain scan as evidence in a court case? Would this make trials fairer or could we end up with George Orwell's thought police? Already some big corporations are trying to chart the sequence of events within the brain that leads us to choose a certain brand. Is this an acceptable way to improve products in response to customer feedback? So will advances in brain imaging herald an exciting new era of understanding the brain, or will it be the beginning of a frightening world that intrudes into our most private thoughts?

Session: Babies in the making: why and when should we intervene?

Organiser: *Teodora Gliga*, University of London, Birkbeck College, United Kingdom

Abstract: With or without extra attention, by the age of three, the vast majority of babies surprise us by how fast they learn new words and acquire new skills. Yet, there has recently been a surge in parental effort to join different educational programmes that claim to make children brighter or help their development. In cases of developmental disorders, parents turn to such programmes to help improve quality of life. Many of these interventions claim to have solid scientific bases. This session will draw on research in the area of developmental cognitive neuroscience to debate whether intervention is necessary or even helpful.

Session: Can developments in social cognition help?

Organiser: *Mark Schmidt*, Johnson & Johnson Pharmaceutical R&D, Belgium

Abstract: Drug development for psychiatric disorders, for example schizophrenia manic depression and autism, continues to rely heavily on known neuronal pathways for new target discovery. This session discusses the recent fundamental discoveries have been made in the neuronal basis of social cognition. These include behavioural observations in non-human primates, functional imaging studies of moral decision making and the identification of mirror neurons: groups of neurons that are activated in response to actions by other individuals. Could these recent findings in social cognition provide a new framework for the discovery of treatments?

Session: Drug addiction: from mice to mind to society

Organiser: *Miquel-Àngel Serra*, Pompeu Fabra University (UPF), Spain

Abstract: The proposal is framed within the scientific programme under the format “Seminar” and “Theme 1”. The aim is to bring together international experts in drug addiction and neurosciences coming from several fields and expertises to communicate the state-of-the-art to, but not only, a young audience, raise problems to and promote discussion with the attendants, and encourage the involvement of all actors and stakeholders to propose preventive and therapeutic strategies, both at scientific and policy levels. The session will be composed of two round-tables, one with researchers working in basic science and in human studies, and another one with policy experts holding posts of responsibility in different institutions. A particular attention will be given to address the subject in an educational-friendly fashion and to promote the participation of the public in the discussion. The final goal is to understand how drug addiction affects human cognition and behaviour, and how can deleterious effects be prevented or cured.

Session: Consciousness in context

Organiser: *Eva Hoogland*, European Science Foundation (ESF), France

Abstract: Even though we know more than ever about the function and anatomy of neural systems underlying human experience, no one has come close to explaining consciousness. Have cognitive scientists focused too narrowly on the neural basis of consciousness and failed to consider perspectives from philosophy and other humanities disciplines? Perhaps the source of our inability to bridge the gap between neural systems and consciousness is our neglect to consider that consciousness only arises in the context of experience? This session presents two cutting edge research projects on one of the most intriguing scientific questions facing us today.

Session: Mind, human perception and social evolution

Organiser: *Christine Heller del Riego*, Universidad Pontificia Comillas of Madrid, Spain

Abstract: The human mind creates an inner world parallel to the outer reality but with an existence of its own that causes an individual or a society to act upon the world. This inner world, involves a number of phenomena that are characteristic of human nature. They include conscious experience, self-awareness, a sense of values, conceptual thought, symbolic language, art, culture, interest in the past, and concern for the future. Most of these characteristics exist in elementary form in different animal species, but what is unique about human nature is a combination of in lower form characteristics integrated and developed to a high level of sophistication.

Session: Brain-Computer-Interfaces: end of the privacy of thoughts?

Organiser: ***Niels Birbaumer***, University of Tuebingen, Germany

Abstract: A review of invasive and non-invasive brain-computer interfaces (BCI) in animals and human patients: BCI in complete paralysis and restoration of movement is described. Direct verbal brain communication in patients with complete paralysis proved the principle, particularly for locked-in patients with intact cognition. Detection of cognition in people without any motor output using event-related brain potentials demonstrate the feasibility of a "cognition" or lie detection system with invasive and non-invasive brain measures. Ethical implications are widespread, ranging from prolongation of life in paralysis, assisted suicide, artificial respiration and patient's declarations. Quality of life was found surprisingly high in complete paralysis. Restoration of movement with implanted electrodes allows execution of complex movement patterns with "pure thinking". Simple algorithms of neuronal cell population firing resulted in astonishingly high accuracy of direct brain-guided movement in monkeys. First data on human chronic stroke patients with positive results for hand movement restoration will be discussed. BCI-research, although in its infancy has produced excellent results in the laboratory and high hopes in the clinic.

The Very Big and the Very Small

Theme description: Using the Large Hadron Collider, an example of scientific and political European collaboration, we hope to learn more about the very small. How will that inform us about the very big and the Universe as a whole? How do you do this kind of science and how will we exploit the results? Why does it matter? Will the information inform us about the nature of matter? Can we link conventional smallness and quantum behaviour? What are the latest technologies deriving from this research?

Keynote Speakers
Gerry Gilmore, Cambridge University, United Kingdom

Title: The Universe and Reality

Abstract: Cosmologists can now say with some confidence that our Universe consists of 5 percent of matter like that of which we are made, 25 percent some other, still unknown, form of transparent matter, and 70 percent of a still mysterious form of dark energy, which is controlling the fate of the Universe. Our importance in this list is the natural extension of the "Copernican principle", which notes that any explanation for an observation or event which requires a special role for Man is inevitably wrong. Astrophysics has extended this Copernican concept so far that we know that almost everything that we see in the Universe, and the very type of matter of which we are made, is an almost insignificant perturbation on a deeper and very different reality. It may be that the reality we have discovered on the largest scales is the same as that now being approached from the smallest scales, in particle physics. Or it may not. Yet we are able to describe much of the past history of the Universe, from its origin as an imperfect fluctuation in nothing, to the present when gravity has lost control of the fate of the Universe, and to consider possible far futures.

Tejinder Virdee, European Organisation for Nuclear Research (CERN), Switzerland

Title: Discovering the Quantum Universe: The Large Hadron Collider Project at CERN

Abstract: Results from the forthcoming experiments on the Large Hadron Collider (LHC) accelerator at CERN have the potential to alter our perception of how Nature operates. These experiments, due to start collecting data in 2008, will be the most important ones in elementary particle physics for the foreseeable future. The aim is to tackle some of the most fundamental questions about the origin, evolution and composition of our universe. Potential discoveries include new forms of matter, new forces of nature, new dimensions of space and time. Particular questions to be addressed include: what is the origin of mass, what constitutes dark matter, why is the universe composed of matter, not antimatter, and more. For these experiments, protons will be collided at unprecedented high energies to recreate and study states of matter believed to have been present a fraction of a nanosecond after the Big Bang.

Session: An organic revolution

Organiser: *Karl Ziemelis*, Nature, United Kingdom

Abstract: Electronically active organic materials are starting to emerge as viable alternatives to conventional inorganic materials in a range of important technologies. The extent to which these organic materials will displace well-established materials is still uncertain, as with any potentially disruptive technology. But the practical progress that has been made to date is noteworthy. And the organics, by nature of their chemistry, have some distinct advantages in terms of cost, functional flexibility and processability that, for certain applications, could give them a decisive edge. This session

will survey the main technology-driven strands of current research (in both academia and industry), before concluding with a realistic overview of the progress made to date, the main outstanding problems, and the other possible applications that might fruitfully be explored with electronically active organic materials.

Session: Why the vacuum is not empty, or the frontiers of physics

Organiser: *Lyn Evans*, European Organization for Nuclear Research (CERN), Switzerland

Abstract: The Large Hadron Collider at CERN near Geneva is now in its final phase of commissioning. This giant particle accelerator will collide two beams of protons at the unprecedented energy of 14 Tera electron Volts, more than a factor of 7 higher than presently achieved. The machine consists of two superconducting rings of magnets, 27 km in circumference, cooled to only two degrees above the absolute zero of temperature. Particle beams will circulate in these rings for many hours, colliding head-on in four large detectors which record the debris of the collisions. The first experimental results from the machine are expected for the summer of 2008.

Session: Crisis in cosmology?

Organiser: *Enrique Gaztanaga*, Spanish National Research Council (CSIC), Spain

Abstract: According to the standard Big Bang theory, the Universe began in a hot dense fireball about 13 billion years ago and has been expanding ever since. However, after decades of efforts cosmologists still struggle to explain the existence of dark matter, and even more to understand the nature of dark energy, which together are believed to account for 95% of Universe. This crisis threatens to extend beyond cosmology, and to engulf our fundamental understanding of the laws of nature. Astronomers and physicists have now come together to propose a new generation of experiments and observations that could help us resolve the crisis.

Session: The LHC computing challenge: how to deal with the data avalanche

Organiser: *Gonzalo Merino*, Port d'Informació Científica (PIC), Spain

Abstract: The Large Hadron Collider, the most powerful particle accelerator in the world, begins operating in 2008 at CERN. Its four detectors recording the collision products generate an unprecedented avalanche of data, accumulating over ten million Gigabytes every year. This can be managed by Grid technology connecting computing resources distributed all around the world. This session will discuss how the raw data will be acquired, stored, distributed via regional centres including one in Barcelona and then accessed by scientists worldwide.

Session: Low-energy antiprotons: understanding nature in all its facets

Organiser: *Carsten Welsch*, Max-Planck Institute for Nuclear Physics, Germany

Abstract: Antimatter features frequently in science fiction- from *Star Trek* to *Angels and Demons*. In reality, antiprotons are also an ideal tool to address some of the most fundamental unanswered questions in science, both on atomic and cosmic scales. Why is there a matter/antimatter asymmetry in the universe? Do antimatter atoms fall under the effect of gravity? This session will discuss the challenges of studying these exotic particles and will clear up with long-standing myths in this exciting field.

Session: Science at the centre of the earth: matter at extreme pressure and temperature

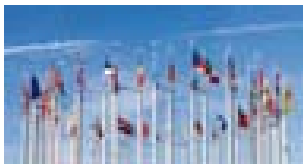
Organiser: ***Bjoern Winkler***, Johann Wolfgang Goethe Frankfurt University, Germany and ***Leonid Dubrovinsky,*** University of Bayreuth, Germany

Abstract: Recent developments in the field of condensed matter research at extreme conditions, i.e, at pressures in the Mbar range and simultaneously at temperatures of a few thousand K, mainly performed at synchrotron radiation facilities, in conjunction with state-of-the-art modelling, now allow to deepen our understanding of the interior of the Earth by studying the properties of minerals at geologically relevant conditions.

Session: The amazing quantum world of ultra cold matter

Organiser: *Jürgen Eschner*, The Institute of Photonic Sciences (ICFO), Spain

Abstract: Many of us have been fascinated by the concept of absolute zero the temperature at which everything comes to a complete stop. But physics tells us otherwise: absolute zero cannot be reached but only approached, and the closer you get, the more interesting phenomena you find! Nowadays, temperatures of less than a millionth of a degree above absolute zero can be produced in the laboratories. Quantum mechanics rules at such temperatures. Since the first production in 1995 of the Bose-Einstein condensate, there have been enormous advances in producing and manipulating quantum matter, and exciting applications have been proposed in diverse areas ranging from ultra-high precision metrology to quantum information technology.



Open Society, Open Science

Theme description: An open society has been one of the main achievements of European intellectual development. What role did the sciences and the humanities play in establishing an open society? Can they guarantee its survival today? How can sciences and the humanities help the public in evaluating risk, in coping with the problems posed by terrorism and in preserving our freedoms in the face of close scrutiny? Will open access to scientific information benefit society in the long run?

Keynote Speaker
Sir Richard Mottram, Former Permanent Secretary, Intelligence, Security and Resilience in the Cabinet Office, United Kingdom

Title: Science and the terrorist challenge - options for policy and their implications

Abstract: Europe faces potential terrorist threats of different character in terms of likelihood and impact related to their scientific and technological content. They range from suicide bombers with simple devices, through "cyber-terrorism", to Chemical, Biological, Radiological, and Nuclear risks. Evaluating these threats is difficult. Science and technology offers new potential for countering these threats, including through enhanced surveillance and screening.
But there are potentially substantial implications for the nature of our open societies. And how do we balance the prevention of terrorism with traditional ideas of openness in science? Do Governments have the capability to develop appropriate Science and Technology strategies in these and other areas of public policy, in countering terrorism in a proportionate way?

Session: Bridging the digital divide by 2015: partnering to provide the developing world with critical research

Organiser: *Ylann Schemm*, Elsevier, The Netherlands

Abstract: HINARI, AGORA and OARE are public-private partnerships working in line with the UN's millennium goals to provide the developing world with access to critical research. Over the past 5 years, 6000 journals with a subscription value of £3m per year have been made available to researchers in 4,000 developing world institutions, via three routes: (1) HINARI Health InterNetwork Access to Research Initiative launched in 2002; 2) AGORA Access to Global Online Research in Agriculture launched in 2003, (3) OARE Online Access to Research in the Environment established in 2006. On 10 July 2007, the WHO, FAO, UNEP, Cornell and Yale Universities, and more than 130 science and technology publishers announced their renewed commitment to reduce the scientific knowledge gap between industrialized countries and the developing world by 2015. Together with technology partner Microsoft, the coalition has set its sights on helping attain 6 of the UN's 8 Millennium Development Goals. Yet questions remain: how is this public-private partnership tackling technical issues such as low bandwidth access or rolling out online training to researchers and librarians unfamiliar with online programmes? How can we garner full support from local governments in developing countries to maximise the availability of these resources? And how can NGO's and corporations work successfully together, despite varied objectives and working styles?

Session: Sharing scientific data: who benefits?

Organiser: *Alma Swan*, Key Perspectives Ltd, United Kingdom

Abstract: Digital datasets—text-based, numeric, audio, video or image-based—form the output of all scientific disciplines. How are these data being made available for sharing? What quality control mechanisms are in place? What kinds of naming conventions, tags, and metadata are in use and how effective are they at helping to manage open data? Who is storing, archiving and curating open data and at which levels? And how is the production and sharing of open data assessed: what processes are in place for crediting scientists for making their raw data openly accessible for sharing and use? How much can and should data publication replace traditional forms of publication of research findings?

Session: Politics and science: how can we bridge the gap?

Organiser: *Camilla Modéer*, Vetenskap & Allmänhet, VA (Public & Science), Sweden, ***Carl Johan Sundberg,*** Karolinska Institute, Sweden, ***Karin Hermansson*** Vetenskap & Allmänhet, VA (Public & Science), Sweden and ***David Cope,*** Houses of Parliament, United Kindgom

Abstract: Politicians need scientifically based knowledge when dealing with policy issues and political decisions in an increasing number of areas. Politicians are very rarely scientists, so how do they obtain the knowledge they need - from the Internet, through the mass media, or by sounding out public opinion? All these sources are used, but far too seldom do politicians take the obvious approach to talk directly to a researcher. Why? What are the factors preventing them? International research into this issue concludes that there are too few meetings and too little communication between politicians and scientists. An open society needs more dialogue to ensure the well-being of political processes. It requires politicians to ask for and use scientifically based knowledge as well as for scientists to provide such knowledge in a usable format. How can we ensure this happens? This is the theme of this interactive seminar where speakers and participants will be engaged in innovative and informative dialogue.

Session: One step further: from free software to free knowledge

Organiser: *Wouter Tebbens*, Free Knowledge Institute (FKI), The Netherlands and ***David Jacovkis***, Free Knowledge Institute (FKI), The Netherlands

Abstract: Communication networks, and especially the Internet, have become the driving force of a revolution only comparable to the one that followed the invention of the printing press. In its short years of existence, the Internet has given wings to our natural tendency to share information. However, still a dominant sector of society thinks that knowledge should be protected by several legal regimes commonly referred to with the term 'intellectual property'. A countermovement started in the 1980s with the rise of the Free Software movement and open standards, which have produced a tremendous wealth of free software applications and form the basis of the current Internet. The principles behind Free Software have inspired the unrestricted sharing and reusing of artistic and cultural works in the free content movement (including Creative Commons) and the creation and use of free educational materials in the educational sector. In a similar way, the open access movement promotes the sharing and open publication of research for advancing scientific knowledge.

Session: Atomic detectives: nuclear forensics and illicit trafficking

Organiser: *Gabriele Tamborini*, European Commission, Joint Research Centre (JRC), Germany

Abstract: Nuclear and radiological terrorism are major security challenges for the 21st century. But are citizens fully aware of what is going on behind the scenes and how science is playing a key role? This session will reveal the forensic science, tools and tactics developed by international teams of atomic detectives. It will focus on examples to show how environmental sampling techniques work in practice and how seized nuclear material is analysed. Participating scientists will show how nuclear materials from the smallest pellet or even dust samples can be fingerprinted to identify their place of origin. The session will also detail current challenges and the extent of ongoing international cooperation.

Session: The Open Society and its Sciences

Organisers: ***Wim Blockmans***, Netherlands Institute for Advanced Study (NIAS), The Netherlands and ***Sandra Richter***, University of Stuttgart, Germany

Abstract: The Open Society allows for freedom of thought, speech and press. It has promoted science and, in turn, science has built and shaped the Open Society itself. The session aims at exploring these processes. Taking into account the history of science from 1600 onwards, we shall focus on factors which helped to establish science as a superior and independent form of knowledge, e.g. the printing press and the growth of an educated public, interested in science and consuming its outcomes. In turn, the scientific contribution to the Open Society should be examined: To what extent did the "res publica litteraria", the "Scientific Revolution", the habits, activities (critique, experiment, correspondence) and institutions of scholarship (academies, learned societies, prices, journals) enhance openness? Taking into account current threats to the Open Society we shall pay attention to those factors which have hindered science to develop or to communicate its questions and results, e.g. censorship or religious restrictions on the search for scientific knowledge. Finally, the session should not only provide a fully-fledged picture of the role of sciences in the Open Society but also inform about strategies how to maintain the Open Society through science.

Session: Building Networks: How to Support Science Journalists in Developing Countries

Organiser: ***Lynda Lich-Knight***, German Science Journalists' Association (WPK), Germany

Abstract: Developing countries need science journalism just as much as developed countries. In order to reach the UN millennium development goals and to build open societies, they must be able to rely on independent sources of scientific information. The classic approach of European development aid in this sector is to support journalists from developing countries by training actions in health, ecology or science reporting. In the past years, however, new projects have been developed which also support science journalists in their daily work on the ground. The reporters are integrated into professional networks that help them improve their skills, propel their careers and develop science journalism worldwide in a sustainable way.

Engineering the Body

Theme description: The quest to fix worn out or diseased body parts spans many scientific disciplines, including mathematics. Much of the media focus has been on work with stem cells. What is a stem cell, where can we get them and what can we do with them? Are they useful now? Will they replace body tissues? What are the technological, economic, political and ethical obstacles preventing their use? Nanotechnology and bioengineering may offer alternative or complementary approaches to stem cells.

Session: Stem cell debate: UK position versus German position

Organiser: ***Urban Wiesing***, University of Tübingen, Germany and ***Stephan Minger,*** King's College London, United Kingdom

Abstract: The German Stem cell debate: In April 2008 the German parliament, the „Bundestag", has decided about a revision of the law on import of embryonic stem cells. This law is restrictive and in its compromise unique in the world. The decision was accompanied by a vivid public discussion in Germany about embryonic stem cell research. In this discussion several characteristic features of modern liberal societies were questioned, in particular the plurality. The presentation will analyse the German debate about embryonic stem cell research and its political and philosophical background.

There has been significant interest in the therapeutic and scientific potential of human embryonic stem (ES) cells since they were first isolated in 1998. If human ES cells could be differentiated into suitable cell types, stem cells might be used in cell replacement therapies for degenerative diseases such as Type I diabetes and Parkinson's disease, or to repopulate the heart following myocardial damage. We are addressing this important issue using the combined expertise of the Stem Cell Biology Laboratory and the Assisted Conception Unit at King's College London. With local ethical approval and under licence from the Human Fertilisation and Embryology Authority (HFEA), we have been establishing high quality human ES cell lines from a novel source of human embryos. In addition, we have recently been licensed by the HFEA to initiate a programme in Somatic Cell Nuclear Transfer (SCNT) to derive disease-specific cell lines from individuals with genetic forms of neurodegenerative disorders, including Alzheimer's and Parkinson's diseases, Motor Neurone Disease, and Spinal Muscular Atrophy, amongst others.

Session: Stem Cells- From Bench to Bedside

Organiser: ***Fiona Kernan***, European Science Foundation (ESF), France

Abstract: Stem cells have the remarkable potential to develop into any of the more than 200 types of cell the adult human body holds. This potential may be harnessed to induce the stem cells to differentiate into specific cell types required to repair damaged or destroyed cell populations or tissues; otherwise known as regenerative medicine. Diseases that could be treated in this manner include Parkinson's and Alzheimer's diseases, spinal cord injury, stroke and diabetes. In this session a researcher will speak on the potential therapeutic application of stem cells for regenerating diseased cells, followed by a bioethicist and patients' organisation representative addressing the significant ethical, legal and societal issues that must also be overcome before the potential of stem cells is realised.

Session: Frontiers in Stem Cell Research

Organiser: *Bernat Soria*, Health Minister, Spain

Abstract: Stem cells are a unique type of cells that retain the ability to self-renew and to differentiate into new cell types. These properties allow to suggest that stem cells may be instrumental to regenerate tissues. Mammalian stem cells may be obtained from the inner cell mass of the blastocyst (embryonic stem cells) or from adult tissues (adult stem cells. Umbilical cord blood, bone marrow, etc). Recent results have shown that pluripotent stem cells may be induced from somatic cells (iPS cells). Active fields of research include among others cell culture, basic differentiation mechanisms, control of the process and potential clinical applications.

Session: What can Nanotechnology do for Healthcare?

Organiser: *Amílcar Labarta*, Institute of Nanoscience and Nanotechnology (IN2UB- University of Barcelona, UB), Spain

Abstract: Nanotechnology is an emerging field of research which tries to exploit the properties of material systems when their size is reduced to nanoscale values, that is, the range between 100 and 1 nanometer, at least in one dimension. Nanoscale–sized systems offer properties which differ from the ones that are observable in macroscopic systems. Moreover, nanostructured materials are not ruled by the laws by which our macroscopic world is ruled; neither do they follow completely the laws of Quantum Mechanics, valid for atoms and molecules. A wide range of properties having their origins in the processes which take place in such scale lengths can be modified just by controlling the structure of systems at nanometric scale. This circumstance offers an opportunity to develop new uses for nanomaterials or nanodevices, potentially appliable to almost every field of research nowadays and which hint, in particular, at new promising solutions for health care. The manufacturing and the study of nanosystems which may offer alternative functional properties are therefore the biggest challenges which nanotechnology sets before us today. In fact, a strong financial investment is being made worldwide in order to promote research on those new diagnosis and therapy systems. Among such applications, miniature biosensors, biocompatible coatings, matrices applied to tissue engineering, smart drug release systems and contrast agents aimed at the improvement of clinical imaging are the most remarkable.

Session: Bionics versus regenerative medicine

Organiser: *Josep A. Planell*, Institute for Bioengineering of Catalonia (IBEC), Spain

Abstract: Ethically speaking, increasing life expectancy should be associated to good quality of life. Aging, diseases and accidents introduce strong requirements on the need to substitute, repair or regenerate damaged tissues and organs of the human body. Transplantation does not always offer the best solution, especially for the elderly. At present there are two possible alternative strategies: a) The bionics approach seeking the substitution or repair of tissues or organs by means of artificially engineered mechanical and/or electronic devices mimicking the lost function, or b) The regenerative medicine approach combining cells, engineering methods and suitable physico-chemical factors to trigger stem cell activity to fully regenerate the tissue or organ and its functionality.

Session: Nanotechnology and health – promises and risks

Organiser: *Hermann Stamm*, European Commission, Joint Research Centre (JRC), Italy

Abstract: The beneficial aspects of nanotechnology for human health are expected to improve the quality of life for everyone. Applications of nanotechnology in medicine have the potential to improve the standard of healthcare across the population by earlier and better diagnosis, and by new therapies especially for those diseases that cause the most suffering for patients and the highest burden on society. Many areas of nanotechnology do not present *new* hazards for human health and the environment and, in general, the present regulatory frameworks applied e.g. in the US and the EU seem to be sufficiently broad and flexible to handle most of the nanotechnology developments. Analyses of potential risks posed by nanotechnology and related regulatory issues usually concern a specific field of applications the most prominent being the unknown toxicity of engineered nanomaterials. Very often, the perceived or realistic opportunities and risks of nanotechnology derive from the very same characteristics. As an example the transportation properties of nanoparticles in tissue allow the development of novel pharmaceuticals (e.g. targeted drug delivery) but also raise concerns of adverse health effects due to greater toxicity than expected from the elemental composition. The symposium will give an overview of the scientific aspects for both – benefits and risks emphasising the use of nanotechnology for new applications in health and environment. Challenges of communicating risks to the public will be considered stressing the need for informed decisions based on sound science.

Session: Can mathematics help medicine?

Organiser: *Marta Sanz-Solé*, Centre de Recerca Matemàtica (CRM), Spain and ***Ari Laptev***, Royal Institute of Technology, European Mathematical Society (EMS), Sweden

Abstract: Mathematics are used in many models aiming to understand the behaviour of different heart functions, to design optimal treatments, to assist in surgical planning and to simulate global consequences of a surgery intervention. It is possible to model the electromechanical behaviour of the heart under different conditions with promising results towards diagnosis, to study vascular mass transport in order to localize atherosclerotic lesions, to simulate drug eluting stents, and to give both numerical and visual evidence of some heart diseases. Practical results will be offered to discussion.

Session: The male-female health survival paradox

Organiser: *James Vaupel*, Max Planck Institute for Demographic Research, Germany

Abstract: Is it true that males are healthier than females but die younger? If so, why? The presentations in this session will address these two overarching questions concerning the male-female health-survival paradox. In particular, there will be a discussion of the evidence that men are healthier than women but die younger. How universal is this pattern across populations and over time? In addition, evidence on other species--such as baboons, lemurs, various birds, fruit flies, etc.--will be summarized. Among the explanations for the sex differences in human health and survival are biological risks, risks acquired through social roles and behaviours, illness behaviour, health reporting behaviour, physicians' diagnostic patterns, and differential health care access, treatment, and use. These explanations will be critically compared.

What should we eat and how should we look?

Theme description: We are constantly being advised about our diet. How good are the data on which this advice is based, and if they are good, why is the advice confusing? What is the ideal healthy and beautiful body? Why are we fat, and should we fear obesity? How shall we deal with the unhealthy obsessions with size zero and thinness in fashion magazines? What is a functional food and how should it be evaluated? What is a novel food? Is it OK to advise a population to eat these foods without an analysis of who is likely to benefit?

Keynote Speaker
Ben Goldacre**,** The Guardian**,** United Kingdom

Title: Food, Fads and Fantasies

Abstract: We are frequently bombarded with very specific claims on food and health by the media, the food supplement pill industry, the "functional foods" industry, and the new unregulated "nutritionists". Diet is undoubtedly one of many important lifestyle risk factors for ill health. But to what extent are these stories based in reality? Frequently they rely on basic – and fascinating - errors in scientific reasoning. They quote studies which do not exist, rely only on laboratory data, or extrapolate from weak observational data to make explicit clinical claims. Sometimes there is evidence to show that the claims are actively wrong, and that the advice or commodities being sold may even be harmful. But more than that, there is a risk that this very prescriptive, overcomplicated dietary advice - which speaks so far in excess of the evidence – can be confusing and disempowering, a distraction from simpler health advice, and possibly even detrimental to public health.

Session: Novel food and functional food: how will they be regulated?

Organiser: *Colette Shortt*, McNeil Nutritions, United Kingdom

Abstract: Increasing health awareness among consumers and the desire to improve well being and quality of life through diet have been key driving forces behind the development of functional foods. Due to advances in nutritional sciences and food technologies, manufacturers have been able to respond to consumers' demands and develop foods offering new and exciting dimensions to healthy eating. Functional foods essentially deliver specific physiological benefits, beyond that of basic nutrition, that enhance health and, in some cases, reduce the risk of disease. While the science-base provides the foundation for the development of functional foods and the design of an optimum diet, the integration of functional foods into the diet to ensure the promotion of health and the reduction of the risk of disease will depend on successful partnerships between consumers and those involved in science and technology. Given the challenges we face in Europe, such as, an ageing population and increasing global competition, the development of innovative foods with specific health benefits that appeal to consumers and contribute to a healthy diet is a topic that warrants specific attention.

Session: The aesthetics of the body

Organiser: *Marian Saad*, French Embassy London, United Kingdom

Abstract: The relationship we have with our bodies is complex. Feelings of repulsion and attraction, assertiveness and shyness, discretion and intrusiveness are expressed both consciously and also unconsciously, by how we present and treat our bodies. Social scientists have clarified how time, place, and social milieu influence our idea of beauty, our interpretation of a healthy body and the ways in which we use our bodies to express power. Participants are invited to explore these questions with panellists who will use examples in portraits of scientists, famous literary characters, and celebrities to frame the discussion.

Session: Dolly for dinner? Technological and socio-economic perspectives of animal cloning

Organiser: *Emilio Rodriguez Cerezo*, European Commission, Joint Research Centre (JRC), Spain

Abstract: Technological developments in animal cloning are approaching the point where the commercial use of cloned animals in food production is attracting public attention and raising policy issues. Governments are already confronted with the need to formulate policies on animal cloning, while scientists are challenged to provide the necessary expert advice. This session will discuss the scientific, technical and socio-economic issues facing policy makers and regulators, the trends in commercial applications and international legislation, the opportunities and risks for breeding and food production globally, and the needs and challenges of assessing and managing the potential risks.

Session: Why are we fat?

Organiser: *Marta Guadalupe Rivera-Ferre*, Universidad Autónoma de Barcelona (UAB), Spain

Abstract: Is it only a matter of the freedom to choose what we eat, or are there other driving-forces behind obesity? Obesity is not only about people's eating choices. Other political and economic factors are crucial in determining obesity trends, including the economic liberalisation of the food chain and increasing globalisation. Purposeful intervention via public health policies will be necessary to counter many of the factors which give rise to increasing obesity. This session will discuss the socio-political and economic causes of obesity.

Session: Food security and sustainability

Organiser: *Philippa Bell*, Royal Society of Chemistry (RSC), United Kingdom

Abstract: Despite increases in global food production, there are at least 800 million hungry people worldwide. In Malthusian terms, this problem can only get worse and the tendency for people to demand different foods, especially meat, will accelerate this trend. But the success of industrialised agriculture in recent decades has had significant negative effects on environment. What does sustainable agriculture mean, and what recent progress in technological advancement can provide solutions in minimising the environmental impact of food production?

Enhancing energy security, fighting global warming

Theme description: How can we satisfy our demands for energy? Will it be possible to reduce carbon emissions rather than slow their growth? How effective will those interventions proposed in Europe be in the global scheme of things? Will technological interventions be more effective than societal ones? Do carbon trading schemes fund effective developments in energy research and technology? What incentives are there for carbon reduction? How involved should scientists be in influencing political, industrial and public behaviour?

Keynote Speaker
Nick Butler, University of Cambridge, United Kingdom

Title: Restoring Energy Security

Abstract: Much attention has been devoted in recent years to analysis of energy insecurity including the short term risks to continuity of supply and the longer term challenges associated with climate change. The next step is to move to analysis of the practical steps which can be taken - by Governments, business and individuals - to restore a sense of security. The paper will cover those issues and will suggest a programme of actions.

Session: Future nuclear power - The practicalities

Organiser: *Tajinder Panesor*, The Institute of Physics (IoP), United Kingdom

Abstract: There is renewed worldwide interest in nuclear power generation. Over recent years there has been a wave of new nuclear plant construction in the Far East, most notably in China and South Korea. Many EU nations now face important decisions as to whether new nuclear power stations are required in order to help meet their increasing demands for energy and reduce their dependence on imported natural gas from politically unstable gas-producing nations. Nuclear power plants provide large amounts of dependable base-load electricity capacity; they operate efficiently for several decades, and have made a significant contribution in helping many EU nations reduce their carbon dioxide emissions. New nuclear plants could play a role in maintaining and improving Europe's current diversity, security and environmental balance of electricity supply. This session will highlight: (1) the development of new nuclear reactors; (2) the economics of new nuclear build compared with other low carbon technologies; (3) the management of legacy and future radioactive waste and (4) the capacity for EU nations to engage in an expansion of nuclear power in terms of technical capability, legislatory and regulatory frameworks, and the necessary human resources.

Session: Fusion: will it always be 40 years away?

Organiser: *Tajinder Panesor*, The Institute of Physics (IoP), United Kingdom

Abstract: Nuclear fusion has long been hailed as the ultimate energy source, mimicking the processes which take place deep inside the Sun. Harnessing this energy would provide a virtually inexhaustible energy source with no greenhouse gas emissions at the point of generation. Results from the UK based Joint European Torus (JET) facility mean that physicists now have a deep understanding of the processes involved in a fusion reaction. The International Thermonuclear Experimental Reactor (ITER) project, based in France, aims to demonstrate the scientific and technological feasibility of a full-scale fusion power reactor. This session will illustrate the enormous potential of fusion, and describe what

needs to be done to demonstrate that it is a viable source of baseload electricity. It will also explore the challenges that lie ahead, such as developing materials which can withstand high temperatures and strong magnetic pulses for the whole lifetime of a power plant, and raising the sustainability of the required temperatures and pressures to a commercially viable level. More importantly, the session will discuss the implications of the decision by the USA to withdraw its financial contribution to the ITER project for 2008, and will explore whether fusion is a practical option for future electricity supply or a distraction from other, more readily achievable, solutions.

Session: Biofuels - a realistic energy solution

Organiser: *Elizabeth Milsom*, Royal Society of Chemistry (RSC), United Kingdom

Abstract: Depending upon who you speak with, biofuels are either going to save the world or aid in its destruction. In the European Union at least, it appears biofuels are here to stay and in fact are forecasted to grow rapidly. By 2020 it is proposed that 10% of all European fuel should be biofuel derived. Where on Earth are we going to get all this biofuel, and what would be the environmental implications of switching to biofuels on such a massive scale? Will we have wheat riots in the EU akin to the recent tortilla flour riots in Mexico that were caused by corn being diverted to biofuel production? Will the entire rainforest be cut down to make way for sugarcane production? Will you be able to see an orangutan in the wild in 20 years time? Do biofuels even reduce greenhouse gas emissions by all that much? In this seminar our expert speakers will debate these questions. We hope to demonstrate that by applying appropriate science and technology that biofuels can make a substantial contribution to reducing greenhouse gas emissions with a minimal social, economic and environmental footprint.

Session: Smart Energy Homes

Organiser: *Sean McWhinnie*, Royal Society of Chemistry (RSC), United Kingdom

Abstract: The Smart Energy Home (SEH) is a self-sufficient, or even a net positive, energy generator which does not require an external energy source or emit CO2. How can we ensure that more people use the technologies currently available to meet these objectives? Others are yet to be developed and therefore, “Living Innovation” is an integral part of the SEH concept. Will people be prepared to pay more to live in a SEH? Is the SEH concept only for new buildings, or can we also turn existing buildings into SEHs? In this session, expert speakers will show that science and technology can be employed in such a way as to persuade people to want to live in SEHs.

Session: Ecology and markets

Organiser: *Georg Meran*, German Institute for Economic Research (DIW), Germany

Abstract: Today there is an understanding that market-based environmental instruments contribute to a modern policy approach that accounts for both economic efficiency considerations and the protection of the environment. The most recent example is the European emission trading system for combating climate changes. However, the devil is in the details, and this session aims to address the major issues of an environmental policy approach based on market instruments. Do emission markets sufficiently provide an institutional framework to force emission reductions in an efficient way? Do emission trading schemes induce innovations for a green energy system or do we need complementary policy measures, e.g. green certificate measures, subsidies for renewables or direct regulations by environmental authorities? Or consider the additional risk firms are exposed to when emission certificates are introduced. The volatility of certificate prices may be a barrier to market with new entrants and lead to a slower diffusion of new technologies. What steps must be taken in agreement with the European Union and what policy measures can be taken independently at national level?

Session: The heat is on: are crops and algae our future source of energy?

Organiser: ***Karin Metzlaff***, European Plant Science Organisation (EPSO), Belgium and ***Chiara Tonelli***, University of Milan, Italy

Abstract: Plants and plant science can play an important role in providing bio-based energy supplies. Interest in plants as a source of biofuels has lead to considerable debate on which plants will be most suitable as energy crops, and which process technologies will need to be developed to use plant-based raw materials for biofuel generation. Significant opportunities to produce large quantities of biofuels exist in many regions of the world. However, suitable species are undomesticated. There are many examples of marine algae with massive oil content that might be of interest in developing alternative biofuel sources with the additional benefit that they will not consume agricultural land.

Session: Drought-tolerant plants: helping the world to cope with global warming

Organiser: ***Saeko Okada***, RIKEN (Institute of Physical and Chemical Research), Japan

Abstract: Environmental degradation and climate change are global problems. How can we use plant biotechnology to help? Molecular biological techniques can produce varieties of crops and trees that can tolerate drought. We need to understand plant responses to drought stress at the molecular level, since higher plants respond by various molecular and cellular processes. This session will describe recent research on the functions of stress-inducible genes, regulation of gene expression in response to drought stress, and identification of many drought-inducible genes and their functions.

Session: Massive renewable sources of energy and cooperation with Latin America

Organiser: ***Juan Antonio Rubio***, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Spain

Abstract: Present model of industrialized society, resting almost exclusively on burning fossil fuels, is unsustainable and, consequently, the shift to a renewable and environmentally friendly alternative becomes a need. Here a review of the state-of-the-art of massive renewable power plants will be done, showing those points where additional research is required to improve their performance to cover energy demand. Among the different options, solar thermal energy, which is the most promising one in some zones, will be analyzed in detail.
Developing countries (in particular Latin America) need to increase their energy production in order to compete in the global economy. The challenge for them is greater than in the industrialized countries and there exist a clear risk of repeating the same errors, thus accelerating the global warming. It is a matter of utmost importance to define the suitable instruments to assure a rapid transfer of those technologies that assure their sustainable development. The intention here is to open a discussion about the different ways to implement this concept.

Session: Photovoltaics: Sustainable energy in the Mediterranean region

Organiser: ***Magda Moner***, European Commission, Joint Research Centre (JRC), Italy

Abstract: The energy consumption of Mediterranean countries, highly dependent on fossil fuels, has more than doubled over the past 30 years. This session will debate the high potential of solar technologies for sustainable energy production in the Mediterranean region. Technical issues, policy support schemes, small systems, and large-scale power plants will all be considered and may be

shown to be cost-effective solutions. The prospect of transferring energy to the north of Europe can be explored. This session will debate on the high potential of solar technologies for a sustainable energy production in the Mediterranean region, embracing technical issues and policy support schemes, from local development by small stand-alone systems, island applications to large-scale power plants. The session will present solar electricity could compete against peak power prices from conventional electricity. Finally, in a wider scale, it will examine the potential of an interconnected Mediterranean array for solar power stations offering the possibility of energy exchange with northern European countries in the context of economical development.

Science and Innovation Policy

Theme description: The development of a strong science base in Europe is a necessary objective for the 21st century. The necessary structures, human resources and interactions with governments to shape an appropriate environment where science can flourish need careful consideration. What mechanisms need to be in place to attract good scientists to work in Europe and keep them here? How do we integrate mechanisms to deal with ethical issues when views may differ widely? Are the patterns in other countries informative?

Keynote Speaker
Sir David King, Former Government's Chief Scientific Adviser and Head of the Government Office of Science, United Kingdom

Title: The environmental challenges of the 21st Century

Abstract: The global population, currently 6.8 billion, will reach about 9 billion by mid-century. This provides a series of interconnected challenges which are qualitatively different from those faced by humanity at the beginning of the 20th Century. These include food and energy security, water resource, infectious diseases, reduced biodiversity, increased conflict and terrorism and the impacts of climate change. Reducing the impacts of climate change in the longer term uniquely requires collective global action by all major nations, which is why this represents the biggest challenge ever faced by our civilisation. The presentation will describe how these challenges can be met by combining scientific understanding of the nature of each challenge with appropriate technological responses. Appropriate action will require input from economists, politicians, the private sector and, of course, the public.

Session: The ERC: inducing structural changes to the European research landscape?

Organiser: *Ernst-Ludwig Winnacker*, European Research Council (ERC), Belgium

Abstract: The ERC is designed to promote scientific excellence and encourage creativity as well as risk-taking pioneering research. With attractive, high profile grants it should help Europe to retain top researchers and attract the very best from all over the world. An important strategic objective is to promote improvements of a structural nature in European research, including the working conditions and environment for frontier research. Will the ERC have the expected leverage effect on the European research landscape? How does the ERC influence the different actors of the research scene? How may these possible developments affect European funding systems and their positioning in the international setting?

Session: The Influence of Governments on Industrial R&D and Innovation

Organiser: *Albert Teich*, American Association for the Advancement of Science (AAAS), United States

Abstract: Governments around the globe are concerned with their competitive positions in an increasingly high-tech world. They are aware that their economies, their employment picture, and the standards of living of their citizens depend strongly on their nation's ability to innovate and to foster a workforce highly-qualified in science, mathematics, and technology. While a strong research and development (R&D) enterprise is not in itself sufficient for innovation to thrive, it is certainly a necessary component of a national strategy. This is recognized in most national (and trans-national) innovation strategies – for example, President Bush's "American Competitiveness Initiative" and the

congressionally-initiated “America COMPETES Act” in the U.S., Japan’s “Innovation 25,” Germany’s “High-Tech Strategy,” and the European Union’s 7th Framework Programme. In these countries and most others, however, R&D and innovation take place mainly in the private sector. National governments have only a limited ability to influence R&D spending and innovative behaviour in private firms. This symposium will examine the experience of three countries – the U.S. and U.K., with mature economies striving to maintain their positions, and Croatia, a post-socialist country still in the midst of an economic transition, aiming to elevate its position in the world. It will examine how various governments have tried to stimulate the industrial sector into becoming more innovative and increase their commitment to R&D. The focus will be on audience engagement and approximately half of the session will be devoted to questions and discussion with the audience.

Session: The European Charter for Researchers and its impact at research institutions

Organiser: *Renzo Rubele*, Euroscience, France

Abstract: The European Commission has adopted in 2005 a Recommendation issuing a European Charter for Researchers and a Code of Conduct for their recruitment. The Recommendation has since become an important part of the European policies for Human Resources Management in the European Research Area. Although endorsed by the EU Member States and undersigned by numerous research institutions across Europe, its impact is nevertheless questioned. The session will explore the degree of realisation of the underpinning principles, especially at Universities, and will discuss a proposal tabled by the Commission geared at enhancing its impact within research institutions. The debate will feed into the position of EuroScience that has been one of the major promoters and contributors to the drafting of the Charter.

Session: The European Institute of Innovation and Technology: gaps in Europe’s innovation capacity, matching US missions

Organiser: *Peter Tindemans*, Euroscience, France

Abstract: The European Institute of Innovation and Technology is the new name for the old acronym EIT. The EIT, then still called the European Institute of Technology and initially meant to create a European equivalent of a one-campus MIT, was a key factor in the European debate for several years on how to close the gap with the US in innovation performance. It will happen but in a different form: a Governing Board and small headquarters (the location should be decided in these very months) determine themes and strategy; the real work rests upon the Knowledge and Innovation Communities (KICs). The session will provide information on what key stakeholders expect from the EIT and provide a platform for discussing what the position of the EIT will be in relation to other new European-level institutions such as the European Research Council and the Joint Technology Initiatives (JTIs). How should key universities, major knowledge-intensive companies and outstanding public research laboratories react in order to benefit best from EIT's opportunities? Can we learn from the way the US is driving innovation through its mission-oriented agencies, which Europe doesn't have? What role can the Strategic Innovation Agenda play? These and other questions will be the topics of a panel discussion following the presentations, which will also include a member of the European Parliament and a representative of the host city.

Session: Constructing the European Research Area (ERA)—the example of the European Strategic Energy Technology Plan (SET-Plan)

Organiser: *Raffaele Liberali*, European Commission, Directorate General Research, Belgium

Abstract: In a changing world characterised by the accelerating globalisation of research and technology and the emergence of new scientific and technological powers—notably China and India—the European Research Area (ERA) is more than ever a cornerstone for a European knowledge

society. The European Strategic Energy Technology Plan (SET-Plan) adopted by the Commission on 22 November 2007 provides a concrete example of building the ERA in an area that today is rightly at the top of the political agenda. The SET-Plan proposes a new energy technology policy for Europe. In essence, it aims to accelerate the development of low carbon technologies and bring them rapidly to the market. We have to revitalise our innovation effort, rethink how we work together and create the conditions for industry to win the clean energy markets that are necessary to resolve the global energy and climate change challenges. Following presentations by the speakers, the session will take the form of a moderated interactive dialogue with the audience.

Session: Evidence-based policy or policy-based evidence? Nuclear weapons decision making in Europe.

Organiser: ***John Finney***, University College London / British Pugwash Group, United Kingdom, ***Carol Naughton***, Weapons of Mass Destruction (WMD) Awareness Programme, United Kingdom and ***Georges Parisot***, French Pugwash, France

Abstract: This session will discuss the way in which scientific and technical considerations are used in nuclear weapons decision-making in Europe, and contrast it with the situation in the US. It will explore ways of improving the openness of European decision making processes to ensure they are healthy and robust, and not biased by narrower commercial or political considerations. The speakers will review (a) the processes involved in making the recent UK decision to renew its Trident nuclear weapons system, (b) French plans to modernise its nuclear weapons systems, and (c) US planning to develop a new warhead. The open discussion will contrast these different approaches to see what can be learned from them, and examine possible ways of ensuring that such difficult decisions are made on the basis of robust scientific and technical inputs.

Session: The Interaction between Democracy and Expertise—Dilemmas for Parliaments

Organiser: ***Theodoros Karapiperis / Miklos Gyoerffi***, European Parliament, Scientific Technology Options Assessment (STOA), Belgium

Abstract: Part of the democratic decision-making process in parliamentary work is a confrontation of views based on the interests of constituencies represented by members of parliament. Stakeholders vary corresponding to the subject field; nevertheless it is desirable that they communicate their insights and opinions to parliament members. The interaction between stakeholders and politicians can be fruitful and mutually beneficial; however, it becomes less effective when political decision-making has to seek support and legitimacy in scientific evidence. In modern societies the advancement in science and technology has a significant impact on economic and social development. Thus, political decisions with respect to R&D funding, technology adoption and deployment, as well as regulatory issues often rank high on the political agenda. For parliamentarians, however, it can be extremely difficult to discriminate between scientific evidence, value-laden judgments and sheer lobbyism presented to them. In order to address the science and technology information needs of members of parliament in a systematic and structured manner, many parliaments have developed specialised services aimed at delivering scientific evaluation of technological options (usually called Technology Assessment). A main goal of Technology Assessment is to make the opinions of stakeholders more transparent by giving members of Parliament an unbiased insight into the arguments used and translating the results of societal debate to Parliament. The session will give examples of how Technology Assessment is used in different ways in political decision-making processes in Europe, highlighting the experiences of the European Parliament and other national European parliaments who have undertaken projects with significant scientific or technological content, particularly in the case of nanotechnology.

Session: What are the ethical and social responsibilities of scientists?

Organiser: ***Maximilian Fochler***, University of Vienna, Austria

Abstract: The traditional distinction between 'basic' and 'applied' science no longer describes adequately the reality of many research endeavours. The likely use made of discoveries and their future economic implications are now central to the research process. The ethical and social issues raised by

these developments are increasingly 'outsourced' to ethics committees or citizen panels. But what are the responsibilities remaining with the basic research workers? Should they, and if yes, when and how, be in touch with the public?

Session: Does the Open Method of Coordination in R&D give results?

Organiser: *Poul Kjaer*, European University Institute, Italy

Abstract: Which are the appropriate policy instruments for European R & D? Since the launch of the Lisbon Agenda in March 2000 the Open Method of Coordination (OMC) has been the preferred policy tool of the European Union within the area of R & D as a way to construct common European Research Area. However, will the EU be able to achieve a "single European science area" through the lowering of national barriers within the area of science and research? Is the Commission creating a "common market" for R&D rather than a "common science area"? And is the OMC really a new way of governance when compared with earlier European initiatives within the area of science and R & D? This session will evaluate the results which have emerged so far from the use of OMC instruments and raise the question whether this is an appropriate tool and discuss possible alternatives.

Session: Research policy scenario: Modernisation of Universities-strengthening partnership with the business community?

Organiser: *Luis Delgado*, European Commission, Directorate General Research, Belgium

Abstract: What can institutions, countries and Europe as a whole do to promote the integration of the elements of the “knowledge triangle”: education, research, and innovation? How can universities best develop their institutional strategies and make strategic choices to enhance their areas of excellence and strengthen partnership with the business communityThis session will be an enriching political debate on the above key questions, with contributions from decision makers from universities, governments and industry. There is a broad consensus that Europe is falling short in filling the innovation gap and in developing an integrated knowledge triangle. If, however, EU Member States are primarily responsible for sustaining a strong European industrial and competitive base, given the nature and scale of the innovation challenge, action at European level may generate additional benefits. Among possible measures, the various initiatives are being explored to contribute to improving the competitiveness base of the Member States by involving partner organisations in integrated innovation, research and education activities at the highest international standards. In this context, the research policy scenario sees increasing attention paid to the need to modernise European universities, including the development of more active innovation-oriented policies, such as reaching critical mass in certain strategic areas, translating R&D into commercial results, and reducing the fragmentation between research and the higher education system.

Session: Mars and Venus: how Europeans and Americans view and use science

Organiser: *Aidan Gilligan*, European Commission, Joint Research Centre (JRC), Belgium

Abstract: While global competition is pushing all regions to become the best place for science, does overall success depend on greater and closer collaboration between the US and Europe? Both US and Europe face new challenges in terms of how science is viewed and used. From stem cells to GMOs and climate change, there continues to be a tension between scientific information and political direction. In general, the public supports the need to find solutions to global issues such as infectious diseases, food security, climate change and energy supply. However, with stakeholders from big business to the media pitching different views, citizens are left wondering who they can really trust.

Session: Will Europe ever have a knowledge based economy?

Organiser: *Jens Degett*, Euroscience, France

Abstract: In the year 2000 the European Council of Ministers met in Lisbon and decided on a vision for the future of Europe. The vision was to make Europe the most competitive knowledge based economy in the world by 2010. Romano Prodi asked in 2003 a group of economist lead by André Sapir to write a report on the perspectives of the European economy and how the FP7 budget could support the Lisbon Strategy and improve Europe's economic development. This report analysed and supported the economic benefits of investing in a knowledge based economy. The Sapir Report suggested an increase of the research budget in the FP7 by 6 times and a similar decrease of agricultural subsidies. Though the Sapir Report was highly regarded by economists it did not change much, nor did the modest suggestion from the Commission to increase the research budget by 100%. What happened to this European vision?

Session: Research infrastructures for Europe

Organiser: *Iain Mattaj*, European Molecular Biology Laboratory (EMBL), Germany

Abstract: The first European roadmap for research infrastructures was published in October 2006 by the European Strategic Forum for Research Infrastructures (ESFRI). Since then 35 selected projects have been initiated to find ways to construct and operate these new infrastructures. We will discuss in this session how the ESFRI projects are progressing, what obstacles they are facing and what could be done to solve these problems. Well-known representatives from a range of scientific fields including physics, biomedical and social sciences will talk about their experiences and discuss what is needed in Europe in order to build world class research infrastructures.

Session: Euroscience's Interactive Workshop: development of a virtual network custom designed for scientists

Organiser: *Christine Heller del Riego,* Comillas University, Spain and ***Jens Degett***, Euroscience, France

Abstract: The purpose of the workshop is to discuss and give input as to how to develop a trans-, multi, and inter-disciplinary (semantic) network for scientists on the internet. Very often it is the combination of knowledge from different fields or the borderline between different scientific paradigms from diverse research cultures which creates new ideas and knowledge. It is relatively easy for a researcher to know what is going on in their field and to have contact and exchange of knowledge with his peers. It is much more difficult to find trans-disciplinary fora for discussion. A standardised way of describing research projects and performance will also make it easier to find collaboration partners and it could be a tool to improve mobility for young researchers.

Session: Foundations for Europe - Fostering Creativity

Organiser: *Wilhelm Krull*, Volkswagen Stiftung, Germany

Abstract: The future of Europe rests with its ability to think creatively, to break new ground, and to encourage risk-taking in all walks of life. Its capacity to innovate and to implement the necessary changes ultimately depends on the readiness of the European people to open up to fresh thinking, to listen to independent voices, and to develop a climate of mutual learning.
In this respect foundations have a crucial role to play. With their proven track record in facilitating social, cultural, scientific, and technological change they are in a unique position to encourage experimentation and risk-taking in hitherto unknown territories, and thus to contribute to successfully developing cultures

of creativity.
It is against this background that the AGA 2008 will focus on new opportunities, e.g. in developing role-models for social change, long-term capacity-building, and international collaboration, on major challenges involved in encouraging and implementing new pathways, as well as on some of the most relevant limits and limitations for foundations when it comes to achieving leveraging effects, or even lasting impacts on the future development of the respective arena.

Session: Achieving a More Innovative Europe

Organiser: ***Andrew Dearing***, European Industrial Research Management Association (EIRMA), France

Abstract: European public policy relating to scientific research is linked to the Lisbon Strategy's ambitions to increase jobs and growth in knowledge-oriented economies. The aim of this session is to engage the scientific and business communities in a debate about the nature of these economies and how to achieve them. Does a 3% target for R&D aid the process? Speakers will review progress, give their perspectives of the Aho report and possible subsequent actions in Europe, and comment on similar initiatives in other parts of the world.

Session: Women in Science: Speeding up change

Organiser: ***Mary Osborn***, Max Planck Institute for Biophysical Chemistry, Germany and ***Joan Guinovart***, Institute for Research in Biomedicine (IRB), Spain

Abstract: Increasing the number of women in science, particularly at top levels, in universities and research institutions is a surprisingly complex issue. Several measures such as legislation, quotas and positive action can produce change relatively rapidly but are controversial. Others, such as mainstreaming, making equal opportunities a management responsibility, and introducing family friendly policies, have not yet been widely adopted in Europe. A further possibility is, as in the U.S, to link funding with progress on gender issues. This interactive session will focus on identifying the most effective measures to ensure equal opportunities and to give equal resources to scientists at all levels regardless of gender. It will stress the need to do more to involve both men and women in these issues at both EU and national levels and will make proposals on how to speed up the pace of change.

Session: Reaching for the future of European Science

Organiser: ***Nina Kancewicz-Hoffman***, European Science Foundation (ESF), France

Abstract: It is increasingly important that governments, funding agencies and the science community at national and European levels are aware of the directions research might take in the future, especially where traditional disciplines combine to produce new and exciting areas of study, and are better able to plan their resources to meet future challenges. ESF Forward Looks are an instrument with a double mission: firstly to enable scientists to look beyond the frontiers of their fields and to identify challenges and promising areas ahead and secondly to help research organisations set and support the future priorities for European science.

Session: Women in science around the world

Organiser: ***Marja Makarow***, European Science Foundation (ESF), France

Abstract: In this session four high profile women scientists describe their trajectories in sectors still dominated by men. They have built their careers in different geographical and cultural milieus, and represent different scientific domains and generations, exemplifying diversity in their professional experiences. Therefore they will be able to make recommendations on how to improve and promote the presence of women in research in different cultures.

Science and Art

Theme description: Questions about the interactions between science and art have given rise to debate for centuries and continue to this day. In Barcelona we can see how Gaudi attacked the problems of architecture to allow artistic vision to emerge. Science and art both deal with both vision and cognition; but how does science inform art and how does art inspire science? Can art add anything new to science? Can visual representations of science be regarded as art? Is a work of art that relies heavily on science good art? To what extent does art shape scientific expression and demonstration by metaphor and pictures?

Session: Art and science: opportunities for interaction

Organiser: ***Mónica Lobo***, Ciência Viva, Portugal

Abstract: Can art contribute to science communication, and is science and technology inspiring contemporary art? Work resulting from an interaction between artists and researchers will be presented to the public in an art–science exhibition in 2008 in Portugal. This session will be used as a starting point for a debate on art and science.

Session: Science meets Poetry

Organiser: ***Jean-Patrick Connerade***, Imperial College London, United Kingdom

Abstract: This session aims to dispel the myth that science and poetry are somehow irreconcilable opposites, and also to address the question: do scientists and poets comprehend the world in different ways, or is it simply that they express themselves differently? The session will bring together active scientists who are also published poets, who will propose further insights into this question. The similarities between the way in which poets support each other's work and how scientists with common interests congregate will be discussed. Examples will also be given of poet-scientists from the past and pieces of poetry inspired by science. In addition, this session will provide an opportunity for participants to meet professional poets from many European countries, especially the UK, France, Germany, Spain, Italy and Russia.

Session: How do science and art interact?

Organiser: ***Sandra Richter***, University of Stuttgart, Germany

Abstract: In recent years, the arts have turned to the sciences on a scale not seen since the 1930s. Ian McEwan, for instance, is one of a growing band of serious literary artists to try to use complex scientific ideas to give shape to his novels. In the visual arts, conceptual artist Christopher Janney has used lasers, heart monitors and other technological gadgets "to explore the nature of creativity and the origin of the soul." The Stanford computing guru Donald Knuth's extraordinary books on computer programming have been described by admirers as technical and personal works of art. In this session three leading commentators on the relations between the arts and the sciences will explore a number of questions surrounding their interaction. Paola Spinozzi from the University of Ferrara has an interest in how far art and science have a common origin. She is interested in their shared history and also in the

extent to which they may turn on common biological dispositions. Jackie Pigeaud, emeritus professor of classics and the history of medicine at the University of Nantes, possesses an unsurpassed knowledge of the ways in which scientific and the artistic worldviews melded together in antiquity and in the Romantic era. He has also written an acclaimed history of the analogy between art and living things. Alice Jenkins from the University of Glasgow includes among her fields of expertise the boundaries of arts and the sciences in nineteenth-century Britain. She is also one of the founders of the flourishing British Society for Literature and Science. The session will be moderated by Neil Vickers, a literary scholar with a special interest in the history of medicine and in modern popularizations of science.

Session: Conserving the past: the chemistry of art restoration

Organiser: ***Sarah Dickinson***, Royal Society of Chemistry (RSC), United Kingdom

Abstract: Chemists have a key role to play in art conservation and restoration. Analysis of the paints and pigments used in paintings can now be achieved without damaging the artwork, helping not only plan further restoration but also to estimate its age and perhaps uncover hidden pictures beneath. How do we identify pigments and protective coatings, and how do we develop new ones? This session will explain some of the techniques used to examine paintings, and describe some of the chemistry that artists of the past employed to create their works of art.

Session: Drawing science: from Leonardo to Edison

Organiser: ***Camilla Rossi-Linnemann***, National Museum of Science and Technology Leonardo da Vinci, Italy

Abstract: Leonardo da Vinci was one of the first to make accurate representations of technological knowledge through drawing. This suggests a strong relationship between art and science. Can a similar connection be found in the drawings, notebooks and sketches of modern scientists and inventors such as Thomas Edison or Guglielmo Marconi? Is technical drawing only a working method; does it serve a utilitarian purpose; or can we find in it suggestions and emotions associated to art? Can the creative processes of art and science meet through the use of drawing?

Session: Are the arts the language of the brain?

Organiser: ***Christian Kleinert***, Science in Dialogue (Wissenschaft im Dialog, WiD), Germany

Abstract: Science influences the arts - arts influence science. How does this interaction affect both fields? This question will be answered by a symposium where music and drawings will be presented as well as subject of scientific studies but also as media for communicating science. Can jazz music change the brain? Is music "the language of the brain?" Science says yes. This together with other best practices examples like an opera written for communicating Einstein’s Theories or the Descartes Prize awarded organiser and painter of the MAR-ECO Exhibition will explain the advantage of using arts for science communication. In addition a case study related to research about the Little Ice Age and its impact on painting of the 16th and 17th century will show that also drawings can be used in a two folded way as a subject of art history as well as a media for science communication.

Session: Science and the preservation of cultural heritage

Organiser: ***Piotr Swiatek***, European Cooperation in the field of Scientific and Technical Research (COST), Belgium

Abstract: Heritage tourism contributes more to European GNP and provides employment for more people than the whole automotive sector. Modern scientific techniques are essential to the development

of conservation strategies. Conserving artefacts is both culturally essential and an economic imperative. Has this process been seriously impeded by EU funding structures? Understanding materials requires the same cutting-edge analytical tools whether we are referring to a microprocessor or Venetian glass. How can scientists, conservators and curators work together effectively? How can we train the experts of the future to embrace the multidisciplinary approach required?

Screening: burdens and benefits

Theme description: What is the future of health screening? Which diseases should we screen for, and which should we ignore? Should parts of our current screening programmes be abandoned? Are we unnecessarily making patients out of healthy people? What is the contribution of modern genetics? Are we likely to find new biomarkers for illnesses? Will modern genetics also shed light on biodiversity? Is drug screening in sport akin to fighting a losing battle?

Keynote Speaker
Lord Warner, Former Health Minister, United Kingdom

Title: Science and public policy—political dilemmas

Abstract: Drawing on personal experience as a UK Health Minister the presentation will examine some of the ethical and political dilemmas involving science that modern politicians have to handle and resolve. Topics discussed will include genetics, human tissue use, human fertilisation research, stem cells, clinical trials, ethical procedures for research, animal experiments and alternative medicine. In the modern state politicians often find themselves—whether they wish it or not —holding the ring between enthusiastic scientists pushing out the boundaries of human knowledge and a lay public sceptical about the motives of some scientists and where they are taking mankind. The public's agenda may be more concerned with confidentiality of information, religious beliefs, sanctity of life and bodies and pace of change rather than the onward march of science. Politicians have to pay attention to these concerns—often fuelled by the media and campaigning religious organisations—without strangling science.

Session: DNA Barcode as a tool to study the biodiversity

Organiser: *Carlos Ribera*, University of Barcelona (UB), Spain

Abstract: In 2003, researchers of the University of Guelph, Ontario, Canada, proposed a new method named DNA barcoding, which uses a short DNA sequence from the mitochondrial genome as a molecular diagnostic for species-level identification (like a supermarket barcode). Some of the advantages of this technique are that DNA barcode sequences can be obtained reasonably quickly and cheaply, can help to identify species from partial information, works for all stages of life, can distinguish among species that look alike and can facilitate the recognition of new species. In contrast, this initiative has been criticised because it can be mislead by several phenomena which might limit its application value. This forum will discuss the utility, reproducibility, and confidence of the DNA barcoding technique in the scientific and social context.

Session: Screening programmes – promoting health or anxiety?

Organiser: *Tony Gilland*, Institute of Ideas, United Kingdom

Abstract: According to the European Commissioner for Health and Consumer Protection some 32,000 European deaths from breast cancer could be prevented annually if best practices for mammography screening were adopted across the EU. But this only tells half the story. According to the NHS Breast Screening Programme, 400 women are required to be screened over a ten year period to save one life. Critics point to the huge resources that go into screening programmes to save few lives and draw attention to the anxiety they generate.

Interest in extending screening programmes, for example to tests for prostate and colorectal cancer, has been strong in recent years despite much dispute over their net benefit. In January 2008 UK Prime Minister Gordon Brown announced his intention to introduce free screening for conditions such as heart disease, stroke, diabetes and kidney disease. Will the expansion of screening lead to better physical health and longer life – or does it risk fuelling a morbid preoccupation with biological survival, to the detriment of our intellect and quality of life?

Session: Choosing children, designing families

Organiser: *Barbara Prainsack/Clare Williams*, King's College London, United Kingdom

Abstract: Pre-implantation techniques have made choosing the sex of your child easier. In some cultural contexts one gender (usually male) is more valued, whilst in other cultures parents seek to "balance" their family by having both female and male offspring. Should countries find a common approach to sex selection, or should different cultures decide according to their own particular values and needs? In this session, the global implications of using these techniques will be considered.

Session: Doping and society: towards the perfect human machine?

Organiser: *Jordi Segura*, Institut Municipal d'Investigació Mèdica (IMIM), Spain

Abstract: The present proposal is framed within the scientific programme under the format "seminar" and "Theme 10"'. The aim is to bring together experts in the field of doping detection coming from different countries and institutions with the purpose of giving insight to the fight against doping. During the summer of 2008, the Pekin Olympic Games will take place, so the topic takes special relevance within this context. This topic is of great interest to a broad number of people (young and old, eastern and western, rich and poor) as it deals with the concepts of physical endurance, the limits of the human body, the ethics involved in sports and doping as a way not only of making money but also to win worldwide coverage and "eternal fame and glory", a concept that started in Greece a long time ago.

Communicating Science

Theme description: Scientists increasingly see communication with the public as an essential part of their work. But it is hard for them to communicate directly with non-scientists, so researchers normally have to go through the broadcast and print media. What are the pressures on journalists reporting on research, from editors demanding 'sexy stories' on one side and researchers denouncing hype on the other? How far should journalists go in simplifying and popularising complex issues? Maybe a little humour could help? And can scientists improve the underlying scientific understanding of the population by becoming more involved in schools?

Session: Research and Outreach Cooperation during the International Polar Year: Dazzling Science and Powerful Messages

Organiser: ***David Carlson***, International Polar Year (IPY), United Kingdom and ***Margarete Pauls,*** Alfred Wegener Institute for Polar and Marine Research, Germany

Abstract: The International Polar Year includes a broad array of research in geophysical, ecological and social sciences devoted to a comprehensive understanding of polar regions and their global importance. Developing a successful outreach programme for such a large programme requires close interaction between science and outreach and recognition of regional, national and international factors that influence effective outreach. This integrated research and outreach session showcases IPY research activities side-by-side with outreach activities. We will present science results, outreach plans, and outreach results from several IPY Projects.

Session: Ethics in science journalism

Organiser: ***Hanns-J. Neubert***, ScienceCom/European Union of Science Journalists' Associations (EUSJA), Germany

Abstract: Historically, science journalists consider themselves more scientists than journalists. What are the roots and the traditions of science writers in Europe, how did this craft develop in the capitalist and communist worlds, who are the role models in the globalised world to ensure the flow of communication between scientists and the public and vice versa? Are science journalists vulnerable to intellectual and moral corruption? Do science writers need a special code of ethics like medical practitioners?

Session: Scientoonics: a novel way to learn science having fun

Organiser: ***Pradeep Kumar Srivastava***, Central Drug Research Institute, India

Abstract: Science education is facing now-a-days a tough challenge around the world. Many times, the way it is being taught, it looks very technical, less interesting and sometimes even boring. Educationists around the world including in USA are worried as students are opting for more lucrative career options in business, commerce and information technology. This trend is not a healthy one as no country can progress without the development in science. Similarly scientific presentations in the conferences/seminars/workshops many times are quite boring because of the poor presentation. SCIENTOONICS is new branch of science communication, which deals with effective science communication using a novel class of science cartoons called scientoons. It is well said that a picture is worth thousand words. *Cartoons* are the combination of caricature and satire. *Caricature* means distorted drawing and *satire* means a humorous comment. If the subject of the cartoon is science then

they are called science cartoons. SCIENTOONS are a new class of science cartoons, based on science. They not only make you smile and laugh but also provide information about new researches, subjects and concepts in a simple, understandable and interesting way. Scientoons have been recognized/appreciated all over the world by several international organizations including WHO, UNESCO, UNEP, Royal Swedish Academy, International Union of Pure and Applied Chemistry, American Chemical Society, Junior Chamber International (USA), DECHEMA, Germany and also by NCSTC (DST, Govt. of India), CSIR, Indian Science Congress Association and many more. This Scientoon based audiovisual technique is more useful when a scientific program is undertaken for mass awareness on the subjects like environmental pollution, biodiversity conservation, AIDS awareness and many other subjects and areas. This paper is an attempt to show that how complex subjects of science can be presented and effectively explained using scientoons so that the science communication/education can be made more informative, interesting and useful.

Session: Reaching for the stars: research in heaven, communication in hell

Organiser: *Dirk Lorenzen*, German Science Journalists' Association (WPK), Germany

Abstract: Europe has a significant astronomy and space programme, but very little is said about it. The Very Large Telescope (VLT) run by the European Southern Observatory is considered the world's most powerful observatory, even competing with the Hubble Space Telescope. Hubble is well known to almost all Europeans: why is the VLT not? What's wrong?

Session: Food Risk Communication—Bridging theory and Practice

Organiser: *Laura Smillie*, European Food Information Council (EUFIC), Belgium

Abstract: Over the past decade a number of food scandals across Europe have strongly influenced the way consumers think about food. Today, they are more concerned than ever before about the food they eat. This concerning trend has been compounded by the fact that the same food scandals prompted scepticism regarding industry and regulators as reliable sources of information. If risk communication in this complex, distrusting environment can be achieved successfully, some of the lessons learned will benefit other disciplines. So how scientists can best communicate their latest findings, particularly if their research results conflict with consensual scientific thought? What can we learn from academia and how should food risk communication be best put into practice? How do journalists interpret new science and what pressures do they face to bring science to the masses? Do journalists use the consumer's emotive reaction to food-related topics as a means to increase readership? And to what extent can those tasked with food risk communication ensure that they provide the best possible information to help journalists with their challenging task? In this session, experts from the fields of academia, journalism and those tasked with the responsibility of food risk communication will explore current and best practices illustrated with case study material. The panel will also discuss the value of best practice and guideline approaches for responsible food risk communication.

Session: Radio, podcasting, and health news, beyond borders

Organiser: *Ginger Pinholster*, American Association for the Advancement of Science (AAAS) and EurekAlert!, United States

Abstract: Drug-resistant tuberculosis, avian influenza, HIV-AIDS, malaria, obesity and malnutrition, childhood vaccination programs, and many other health-related issues reach the public first through radio reports and online podcasts. Radio and podcast reporters thus play a critical role in communicating relative health risks to the public, beyond national borders. How can researchers communicate accurately and effectively when working with these reporters? In this interactive session, European, US and African reporters will explain their strategies for using radio and podcasts to communicate health research. Science magazine's "Gonzo Scientist," podcaster John Bohannon

(www.gonzoscientist.org), also will be on hand to conduct mock interviews with researchers, and panelists will be ready with tips and advice for preventing miscommunication. The session is intended to provide audience members with concrete advice for improving their radio and podcast communications skills.

Session: Revealing Europe`s Hidden Map

Organiser: *Albert Gerdes*, Centre for Marine and Environmental Sciences (MARUM), University of Bremen, Germany

Abstract: The area covered by EU waters is considerably larger than continental Europe itself and almost half of the Union's population lives less than 50 kilometres from the sea. Europeans still know relatively little about fascinating submarine life including cold-water corals, mud volcanoes and methane hydrates. Using modern technologies, there is a great potential to reach both the European general public and specific target groups such as schoolchildren, teachers, and decision makers. Stunning high-definition video footage and impressive three-dimensional maps of the seabed can act as door-openers to marine science.

Session: The planet Earth

Organiser: *Vladimir Kossobokov*, Russian Academy of Sciences (RAS), Russia

Abstract: The United Nations has declared the year 2008 to be the International Year of Planet Earth (IYPE). The aim of the IYPE is to demonstrate new and exciting ways in which earth sciences can help future generations meet the challenges involved in ensuring a safer and more prosperous world. The year 2008 is also the International Polar Year, International Heliophysical Year and Electronic Geophysical Year. The proposed session will highlight the importance of the earth sciences in a multi-disciplinary setting.

Session: **The pressures on reporting research**

Organiser: *Peter Green*, AlphaGalileo Foundation, United Kingdom

Abstract: This session will take the format of a moderated discussion between speakers and audience. The discussion will lead to votes by the audience on the relative importance of the issues raised in prevent more and better coverage of European research. The chairman will structure to the debate and identify the issues that require voting on by the audience. The chair will be supported by a social scientist with experience of the media research, who will provide factual interjections. The pressures on reporting research already identified are: 1) editorial policy and news agendas 2) pressures from/ the advantages to research companies and others of offering freebies and exclusives 3) internal pressures, preventing news being disseminated by research bodies 4) pressures from the researcher founders - government, foundations 5) open access. Others kind of pressures journalists and public relations staff face in covering/promoting research may arise during the debate.

Session: Science, money and politics

Organiser: *Cristina Jimenez*, Imperial College London, United Kingdom

Abstract: Selective use of scientific evidence can enhance influence public opinion on controversial issues or boost a company's share price. In crisis management, decisions often follow political expediency rather than scientific advice. The prime example of scientific evidence being used for political purposes is climate change. Elsewhere, scientific evidence may be sacrificed on the altar of profit. For example, pharmaceutical companies fund most of the clinical trials of new drugs; when a trial

is sponsored by the industry, the results are more likely to be positive. These influences, together with negligent government regulation, have contributed to the drug safety scandals of the last few years. Investigative journalism has helped to uncover these scandals. How can scientists and science journalists remain objective when their reports can have instant political and financial impact?

Session: What can scientists do to improve science education in schools?

Organiser: ***Marlene Rau***, European Molecular Biology Laboratory (EMBL), Germany

Abstract: Aimed at scientists and others interested in science education, this interactive session introduces three successful science education activities run by top European research organisations. Workshops, festivals and a journal - there's something for every budget and scale. What works well? What are the pitfalls to avoid? How can a research institute set up such a project? How can individual scientists get involved? Join an existing programme or start something new? After discussing the specifics of each of the projects, the speakers will draw general conclusions about what scientists and their institutes can do. Members of the audience will be encouraged to ask questions or offer advice gained from their own science education activities.