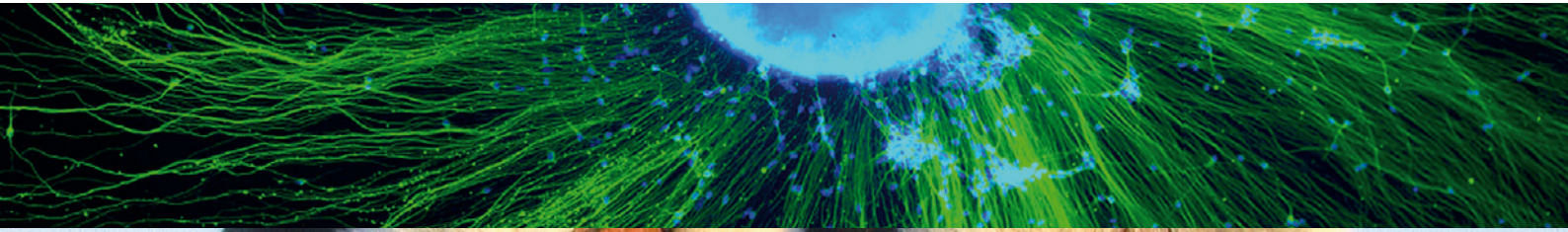
EUROPEAN SCIENCE FOUNDATION

About the European Science Foundation



Contents

September 2010

Foreword

The world is undergoing profound change, and so is the world of research. The notion “Grand Challenge” has become almost a cliché, but it describes the stark reality of global problems – climate change, lack of sustainable energy sources, economic and political instability, ageing populations, poverty, hunger and migration – that can only be addressed by evidence-based policies. And where does the evidence come from? It comes from research. And if the problems are global, then so, necessarily, is the research.

Ever larger consortia must now co-operate on a global scale. We have a European Research Area, the national research funding and performing organisations, the European Commission’s Framework Programmes, and for 36 years we have had the European Science Foundation, but we can no longer think in terms only of Europe. The problems we face need dedicated, international collaboration. We do not yet have this level of collaboration, because in Europe, about 85 per cent of public research investment goes only to national endeavours. Today’s researchers must be able to join large scale, collaborative, international projects, and the infrastructure that serves them must be accessible to all.

The nature of scientific research is changing because technology is changing. Take for example the Large Hadron Collider – the data are distributed all over the globe to every one of the thousands of physicists connected to CERN in Geneva. The space agencies, the genome research institutes and the telescope facilities distribute astonishing quantities of information to researchers far away: no longer do scientists necessarily have to travel long distances and use the laboratories on the premises. This concept of infrastructure as the hub for global research reinforces the idea of a widespread research community.

The changes in Europe are tremendous. The European Research Council has profoundly modified attitudes; the accent is now on young principal investigators, and on excellence and potential, rather than equality and *juste retour*. We have changes at the national level as well – politicians ask about the social and economic value of research, and its returns to the taxpayer. The universities are changing, enjoying greater autonomy, coupled with greater accountability.

The ESF itself is at the advent of the most significant change in its history. The Heads of European Research Councils, EUROHORCs, have developed, together with ESF, a joint vision on a competitive European Research Area and agreed on 10 actions to realise that vision. At the end of 2009, EUROHORCs invited ESF to discuss on how the two organisations could merge into a new one, which could deliver efficiently on their joint vision in a rapidly evolving environment. All these developments at the global level, in Europe, and in the ESF, while sparkling healthy friction, provide new opportunities.

Professor Marja Makarow, Chief Executive

What is the European Science Foundation?

The establishment of the European Science Foundation (ESF) in Strasbourg in 1974 was one of the earliest milestones on the road to achieving real cooperation in European research. The ESF began life with a membership of 42 academies and research councils in 15 countries; in 2010 it counts 79 Member Organisations (MOs), including research funding organisations, research performing organisations, academies and learned societies, in 30 countries.

▸ See pages 61-63 for the list of ESF Member Organisations

As an independent, non-governmental organisation dedicated to pan-European scientific networking and collaboration, the ESF has had a key role to play in mediating between a multitude of heterogeneous research cultures and agencies. The ESF hosts an array of instruments to accommodate various types and levels of international collaboration, within Europe and beyond.

The ESF's unique characteristic in this area is its responsiveness to the scientific community, in contrast with the more targeted approaches taken by the European Commission. Many of the instruments operated by the ESF, e.g. Exploratory Workshops, EUROCORES (European Collaborative Research scheme), Research Networking Programmes (RNPs) and ESF Research Conferences, are designed to respond to needs articulated by the research community. Open calls for proposals are published on an annual basis, so that the themes for programmes, networks and workshops are gathered from the research community, in line with the ESF's bottom-up principles. This is particularly welcome in research areas which might not otherwise be prioritised for funding on an international level.

In recent years, the ESF's profile has shifted from being mainly a facilitator of collaborative research and networking to also providing a platform for Member Organisations to develop joint strategic operations and synergy among themselves. By influencing the strategic agendas of MOs in this way, greater leverage over a much larger European budget and agenda is achieved. In other words, the ESF maximises the impact of its support to the research community by combining bottom-up and top-down approaches to scientific cooperation.

How the ESF operates

Working on behalf of its principal stakeholders – mostly its Member Organisations and thereby Europe's scientific community, the ESF's activities are currently organised around the three operational pillars of the Strategic Plan 2006-2010: **strategy**, **synergy** and **management**.

Science Strategy

Provides high-level and high-quality foresight and advice on science, research infrastructure and science policy issues. Specific activities include Forward Looks, Science Policy Briefings, Science Position Papers, Exploratory Workshops and Member Organisation Fora. In addition, the ESF collaborates with strategic partner organisations on science policy issues.

Science Synergy

Brings together excellent scientists at all stages of their careers to advance the frontiers of research. Activities include EUROCORES, Research Networking Programmes and ESF Research Conferences.

Science Management

The ESF has a coordinating role in some projects funded by the European Commission and is also currently the legal entity to provide and manage the scientific, administrative and technical secretariat for COST (European Cooperation in Science and Technology).
The COST governance is in the hands of the Committee of Senior Officials, representing governments of 36 countries.
The ESF also provides peer review and evaluation support to its Member Organisations and other appropriate establishments.

Organisation

The Assembly

It is the main decision-making body of the ESF.
It meets once a year, and all Member Organisations are represented. The Assembly appoints the President, Vice-Presidents and the Chief Executive of the ESF. It also approves the annual reports of the Governing Council, the reports of the Committees of the Foundation, and the annual report of the Chief Executive. It ratifies the budget and accounts of the Foundation, admits new members, and approves and amends the Statutes. The Assembly also provides a venue for debate and interaction between the Member Organisations.

The Governing Council

It is responsible for setting, approving, directing and monitoring the overall strategy direction of the Foundation. It is chaired by the President and is composed of one representative from each 'national group' of Member Organisations. The representatives are the Heads of organisations within the ESF membership. The Governing Council normally meets twice a year (in Spring and Autumn).

The Finance and Audit Committee

The Finance and Audit Committee (FAC) advises the Governing Council on the preparation and the management of ESF budgets and accounts as well as on matters relating to ESF administration and on audit processes. The FAC reviews on a regular basis the risks to which the organisation is exposed and the measures undertaken to mitigate these risks.
The FAC is composed of high-level finance and science managers nominated by Member Organisations.

The Science Advisory Board

It is composed of independent high level scientists (including the Chair) as well as the Chairs of ESF's five Standing Committees. The Science Advisory Board's responsibilities include: providing high-level scientific advice to the Chief Executive – such as ideas for new science actions, instruments and analyses of the evolving European and global science and science policy context; overseeing overall science quality control of the ESF's activities, including peer review, and safeguarding interdisciplinarity of the instruments; and the overall scientific quality and relevance of the key instruments.

Scientific Standing Committees

The ESF has five Scientific Standing Committees composed of leading scientists nominated by the ESF's Member Organisations. The Scientific Standing Committees are responsible for identifying scientific priorities, formulating strategies, developing research agendas and conducting peer review.

The five Scientific Standing Committees are as follows:

- **European Medical Research Councils (EMRC)**
- **Humanities (SCH)**
- **Life, Earth and Environmental Sciences (LESC)**
- **Physical and Engineering Sciences (PESC)**
- **Social Sciences (SCSS)**

► For membership lists see pages 63-72

Expert Boards and Committees

Expert Boards and Committees are established as the need arises, giving the ESF the flexibility to adapt to the changing scientific landscape. They provide advice and initiate strategic developments. The six Expert Boards and Committees are as follows:

- **Committee on Radio Astronomy Frequencies (CRAF)**
- **European Polar Board (EPB)**
- **European Space Sciences Committee (ESSC)**
- **Marine Board – ESF (MB-ESF)**
- **Materials Science and Engineering (MatSEEC)**
- **Nuclear Physics European Collaboration Committee (NuPECC)**

ESF Office

The ESF headquarters are based in Strasbourg, France with 2 offices in Belgium: the Conferences Unit is based in Brussels and the Marine Sciences Unit in Ostend.
The ESF Office is directed by the Chief Executive, assisted by an international staff representing usually 20 to 30 nationalities.

ESF mission statement

The European Science Foundation provides a common platform for its Member Organisations in order to:

- **advance European research;**
- **explore new directions for research at the European level.**

Through its activities, the ESF serves the needs of the European research community in a global context. It carries out an array of activities, ranging from organising scientific exploratory workshops to providing science policy advice.

ESF values

The European Science Foundation's mission is guided by shared values that characterise its specific organisational culture. These values are:

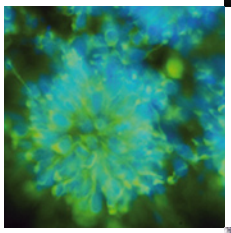
- **Excellence:** the gatekeeper criterion for all scientific activities; it will also drive the management philosophy and operating procedures;
- **Openness:** to all scientists and disciplines; no barriers between disciplines; open sharing of results; transparency to stakeholders and partners;
- **Responsiveness:** in its procedures and structure;
- **Pan-European:** rising above national interests to the benefit of science in the whole of Europe;
- **Ethical awareness and human values:** sensitive to societal and ethical considerations in all its activities; attention to gender aspect.

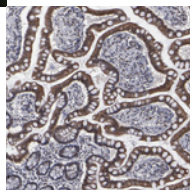
Science

The ESF manages its wide ranging portfolio of scientific activities under five **Scientific Standing Committees** and six **Expert Committees and Boards**, covering all fields of research. They operate under the strategic guidance of the Member Organisations. These bodies, composed of high-level researchers nominated by the ESF Member Organisations, deal with strategic science questions for their domains and are responsible for the selection of proposals. Growing interdisciplinarity is reflected in mutual observership and in an increasing number of activities, involving cooperation between committees. Scientific partners from Europe and beyond take part as observers. Overall quality assurance of the ESF's operations, advice on new strategic scientific direction and interdisciplinarity is provided by the **Science Advisory Board**.

Scientific Standing Committees

The Scientific Standing Committees are responsible for identifying scientific priorities, formulating strategies, developing research agendas and conducting peer review. The five Scientific Standing Committees are as follows:



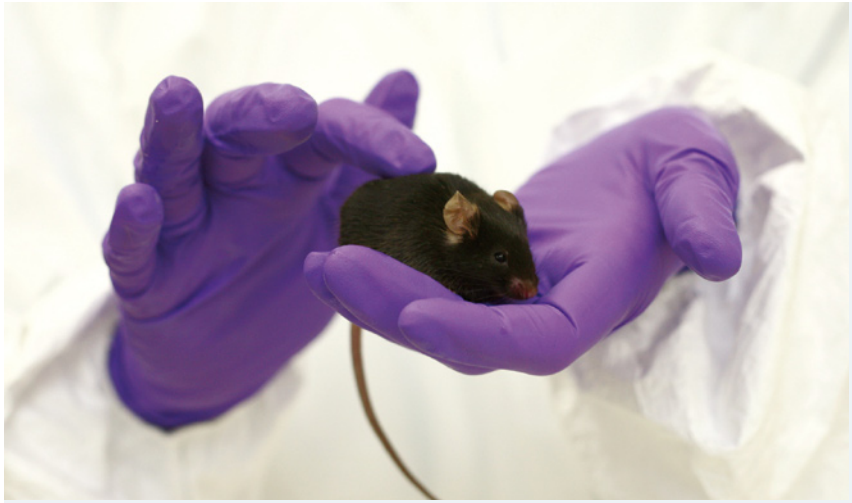


• Standing Committee for the European Medical Research Councils (EMRC)

Globalisation has brought change to our society – emerging and rapidly spreading infectious diseases, shifting disease patterns with treatment-resistant tuberculosis, rapid and dramatic climate change and, in Europe, an altered demography with an ageing population. Medical research is essential and the European Medical Research Councils (EMRC) Standing Committee plays a key role in supporting joint research efforts. The EMRC is the membership organisation for all the medical research councils in Europe under the ESF. The mission of the EMRC is to promote innovative medical research and its clinical application towards improved human health. The EMRC offers authoritative strategic advice for policy making, research management, ethics and better health services. It has an important role in the future development of medical research in Europe and it invites the European Commission, the European Research Council, learned societies, universities and academic medical centres for debate and action to bring its recommendations to fruition.

See membership list page 64

▸ **www.esf.org/emrc**



Improving animal research directive

New legislation intended to harmonise regulations on animals in research across the European Union could stifle medical research, Roger Lemon, who chairs an ESF Group on the EU Directive on Protection of Animals, has warned.

"I think that at present the view is that the new Directive will allow most, but certainly not all, of what is currently permissible. Much will depend on how each Member State transposes the Directive to national law, and some medical and veterinary research should be considered as still under threat until we see the outcome of that process," Lemon says.

The new Directive will limit important research by imposing new administrative and financial burdens on animal researchers, as well as precluding certain kinds of research. The Directive could affect at least three major areas of research, says Lemon. The first are experiments into chronic pain states, which are important for a better understanding of diseases such as arthritis.

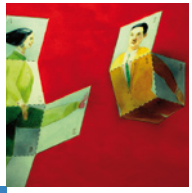
The second are those experiments carried out under the broad umbrella of 'applied research'. Under the new Directive, these will no longer be authorised unless they are for the alleviation of life-threatening or debilitating diseases. This could hamper pharmaceutical company research into disorders that do not lie under this umbrella but which still represent important areas of concern for human patients, adds Lemon.

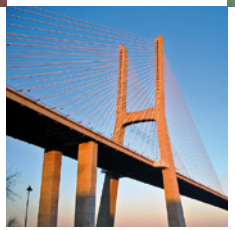
Thirdly, the development of vaccines and treatments for major diseases that currently require chimpanzees and other great apes will be limited.

"I think the redrafting of 'Article 8' to continue to allow basic research in non-human primates was a very important step, it is fundamental for work on neurological and neuropsychiatric disorders which affect around 1 billion people worldwide", adds Lemon.

Finding alternatives to animals for research is important, but as Lemon points out, it has always been a priority. "In my experience, scientists never use animals when other non-animal techniques will suffice," he says. "The high cost of animal experiments and their administrative burden prevent such practices." Alternatives, such as cell screening tests for new drugs that avoid using mice are now widely used.

"It is worth pointing out that almost all scientists who use animals also use alternatives, such as computer modelling and non-invasive work in humans," says Lemon. "However, some questions will never be answered by such approaches; we will always need some animal experiments."





• Standing Committee for the Humanities (SCH)

Humanities research explores the origins and products of the human capacity for creativity and communication. The Standing Committee for the Humanities (SCH) encourages the exchange between different currents and traditions of Humanities research in Europe, which have contributed to its many linguistically and culturally distinct identities. SCH seeks to better interconnect these rich diversities by developing cross-national research infrastructures for the Humanities.

SCH supports “bottom-up”, basic research in mono- and multidisciplinary frameworks, and aspires at refining methodologies and practices for the integration of humanities research into foresight activities, which will lead towards the production of new knowledge and improved understanding.

Humanities research investigates transcultural and supranational challenges on a global scale, thus lending meaning to the complexity of modern societies, for example through comparative studies of science and societal values, religion and migration.

See membership list page 65

▸ **www.esf.org/human**

SCH Highlight

A meeting of minds

Professors Chris and Uta Frith of University College London, UK, and Aarhus University, Denmark, share the 2009 European Latsis Prize, awarded by ESF, for their work on the human mind.

Professor Chris Frith has been a Principal Investigator in the SCH EUROCORES Programme "Consciousness in a Natural and Cultural Context" from 2006-2009. In the framework of this programme he has collaborated with the Danish colleagues at Aarhus University.

"It's exciting to be awarded this prize and particularly to receive it together, recognising our work individually and as a team," says Chris. "Our collaboration shows that not only is it valuable to cross disciplines, but it is also valuable to cross national boundaries". The Friths' pioneering work has led to important insights into autism, dyslexia, and schizophrenia as well as consciousness and social neuroscience.

Uta adds that, "We are a prime example of the benefits of the kind of interpersonal and cross-cultural cooperation that we are now studying explicitly with our Danish colleagues at Aarhus University.

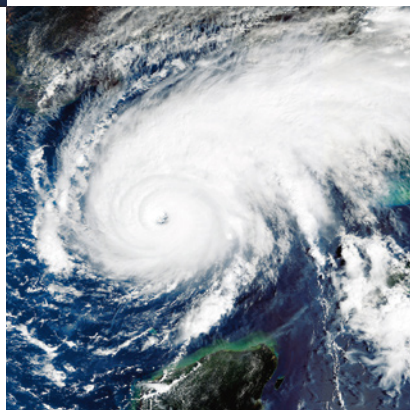
We have always discussed each other's research and more recently our constant hidden collaboration has become visible to others as we now tend to publish together."

The Prize is given on the basis of scientific excellence, a focus on the relation between brain and mind, the impact of the research on society, and its contribution to progress in Europe. A jury of eminent scientists in the field evaluates the merits of nominees.

Serendipity, of course, plays an important role in achieving scientific excellence. "If I had not met Uta, my research career would have been very different," adds Chris. "It has been important to us that, until very recently, we have always worked in different institutions and on different topics. As a result, my research has been fertilised by the different approaches and topics that engaged Uta."

The team's joint paper "Interacting Minds – A Biological Basis" in 1999 represented a shift from the study of subjects in isolation to the looking at the biological foundations of social cooperation. The team is now developing the approach further to explore the mechanisms through which minds interact. The research could help us build a clearer picture of what sometimes goes wrong.

The Friths received the Prize and a €66,000 award at the Annual Assembly of the European Science Foundation on Thursday 19 November 2009 in Strasbourg, France.



• Standing Committee for Life, Earth and Environmental Sciences (LESC)

All the important issues relating to our surroundings are covered by the life, Earth and environmental sciences. Biosciences will make a growing impact in the 21st century as it contributes greatly to the very much needed sustainable development of our world. In the meantime geosciences will continue to play a crucial role in the understanding of critical environmental issues that are facing mankind. There is a continuity of informational transfer from genome up through cell, community and environment, and defining characteristics of life thus depends strongly on flux from the environment. The Standing Committee for Life, Earth and Environmental Sciences (LESC) aims at a better understanding of biological, environmental and Earth systems across time and space.

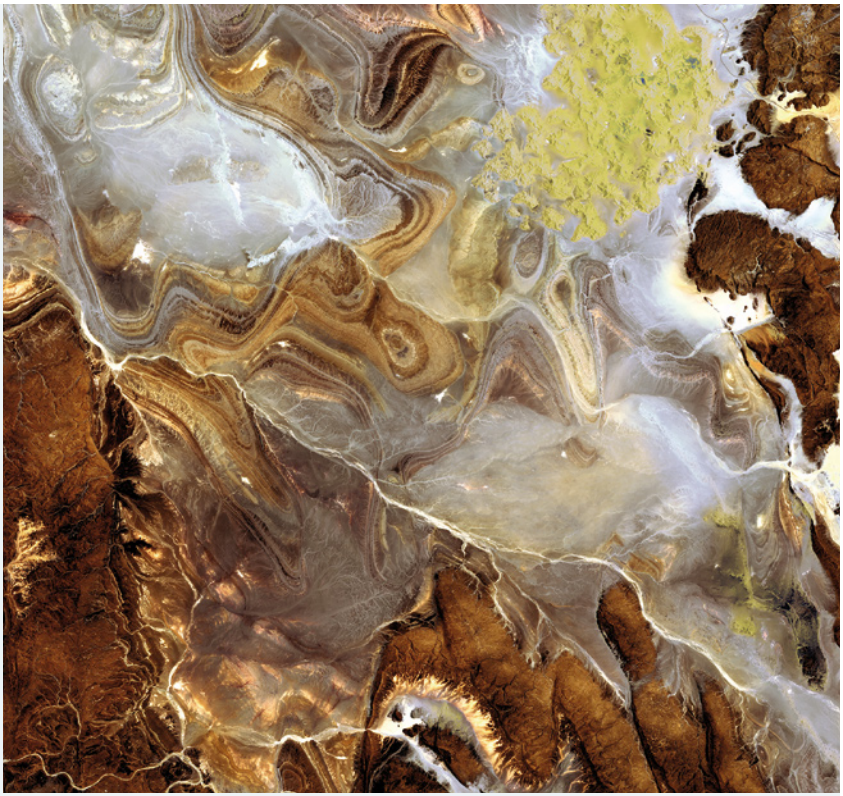
See membership list page 66

▸ **www.esf.org/lesc**

LESC Highlight

Earth's RESCUE package

A multidisciplinary effort in which ESF and COST join forces gives us Responses to Environmental and Societal Challenges for our Unstable Earth (RESCUE). As humanity is currently facing historically unprecedented changes because of pollution and the unsustainable exploitation of natural resources, our need to understand the global environmental has become a matter of urgency. A rescue response requires the coordination of political and societal agendas and a way to find common ground between the natural sciences and the humanities.



RESCUE will give a boost to natural, social and human sciences by improving efficiency and taking advantage of each of their strengths.

RESCUE will also articulate the emerging scientific issues related to global change and explore new approaches towards the necessary interdisciplinary science and education.

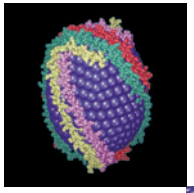
Professor Leen Hordijk, RESCUE Chair, is convinced that our response to global changes must be underpinned by science. "Policies should be well informed and preferably based on scientific understanding and the fact that the social sciences and humanities need to be involved more in the agenda setting," he says. He suggests that misinformed economics theories may be at least partly to blame for our current predicament.

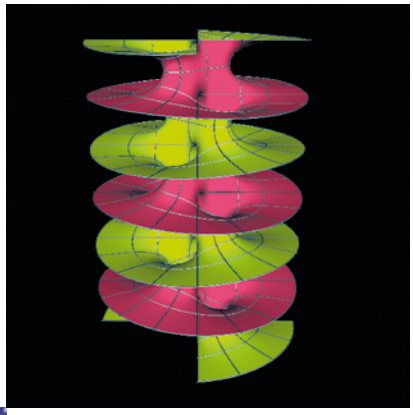
"My strongest concern as a scientist is: How can research help address the vicious circle of environmental change, resource scarcity, poverty, and poor health?" he asks.

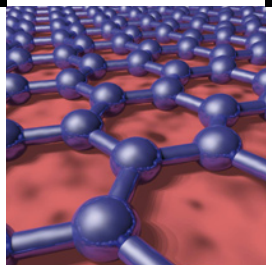
In the short term, RESCUE will bring together leading scientists in a dozen scientific disciplines whose conclusions will eventually have a trickle-down effect on science and policy analysis. "In the long term, or I'd rather hope in the medium term, the analyses of the RESCUE Working Groups will cut down a series of barriers between the sciences and between science and policy development," Hordijk adds. New ideas could thereafter become sustainable over generations through education.

Hordijk emphasizes that, "We should work towards an integrated approach and bring the social sciences into our mostly natural science and engineering based approaches." Only then might a RESCUE response to global changes be possible.

The extraordinary landscape of the Tanezrouft Basin, one of the most desolate parts of the Sahara desert, in south-central Algeria. The region is known as 'land of terror' because of its lack of water and vegetation.







• Standing Committee for Physical and Engineering Sciences (PESC)

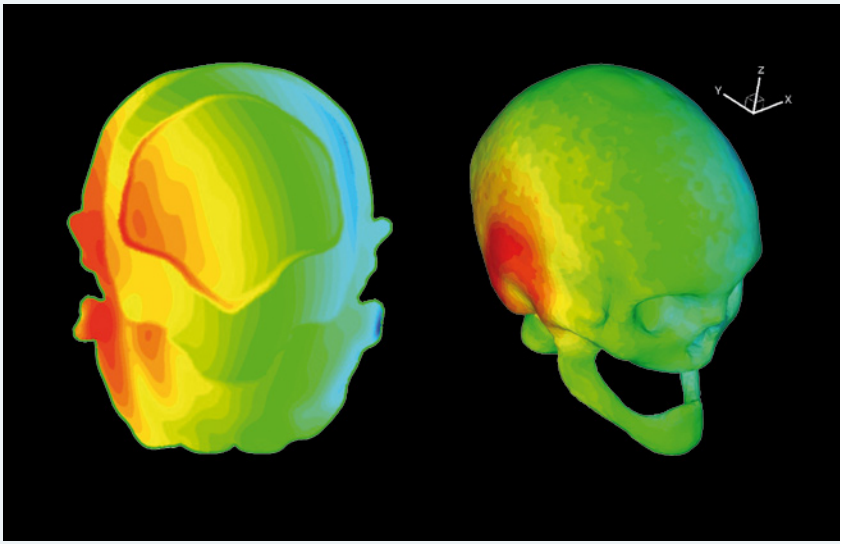
The physical and engineering sciences are key drivers for research and innovation, providing fundamental insights and creating new applications for mankind. The goal of the ESF Standing Committee for Physical and Engineering Sciences (PESC) is to become the pan-European platform for innovative research and competitive new ideas while addressing societal issues in a more effective and sustainable manner. The Committee is a unique cross-disciplinary group, with networking activities comprising a good mix of experimental and theoretical approaches. It distinguishes itself by focusing on fundamental research and engineering. PESC covers the following broad spectrum of fields: chemistry, mathematics, informatics and the computer sciences, physics, fundamental engineering sciences, materials sciences.

See membership list page 66

▸ **www.esf.org/pesc**

Industrial solutions add up

"European industry can maintain its role only if it is capable of innovation," that's the message from Professor Mario Primicerio of the Università degli Studi, in Firenze, Italy, Chair of the ESF Forward Look on Mathematics and Industry. "Moreover, in some cases innovation is a condition *sine qua non* for survival!" he adds. "Indeed, this is the meaning of the European strategy of a knowledge-based economy".



Numerical modelling of the propagation of an electromagnetic wave emitted by a mobile phone throughout the head tissues.
© NACHOS project-team, Stéphane Lanteri, INRIA Sophia Antipolis

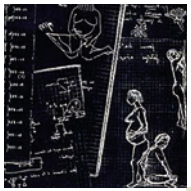
Within this economic climate, mathematics, as the common language of research, plays a crucial and central role to boost innovation and industry.

The programme was oriented towards analysing existing relationships between industry and mathematical research in order to find its strong and weak points. A policy paper will appear at the end of 2010.

"We have collected close to 100 'success stories' that illustrate how, in different fields, collaboration between industry and mathematical research has been successful across Europe," says Primicerio. "We have also pointed out that the distinction between the so-called 'pure' and 'applied' mathematics is nonsense from a scientific point of view since all areas of mathematics can be useful in solving industrial problems," adds Primicerio.

Among the recent highlights from this programme is a system for modelling the effects of mobile phone use on the tissues of the head and developing an optimal inner sole for functional footwear. The programme has also applied itself to a mathematical simulation and optimisation of crystal growth for the semiconductor industry.

The researchers involved in this programme have now turned to one of the major issues of the day, oil. Mathematical models for wax precipitation in waxy crude oils (oils containing a large proportion of hydrocarbons) have allowed researchers to study the dynamics of wax deposits forming in pipelines in cold regions of the world and, in particular, undersea pipelines.



• Standing Committee for the Social Sciences (SCSS)

The social sciences examine and explain human beings on different levels, from neural foundations to individual behaviour, group processes and the functioning of entire societies. Consequently, the social sciences employ a wide variety of methods to ensure scientific rigour and the production of reliable knowledge. Against this background, the SCSS funds and develops initiatives in the fields of psychology and the cognitive sciences, pedagogic and education research, social anthropology, sociology, gender studies, economics, business and administrative sciences, geography, demography, environmental sciences, law, political sciences, communication sciences, international relations, social statistics and informatics. Naturally, the social sciences benefit from the insights gained through related disciplines such as the humanities or life and medical sciences. These areas of convergence allow for a fuller understanding of the diverse facets of the social science enterprise, and range from literary, philosophical and historical inputs on the one hand, to biological and medical on the other. At the same time, almost all scientific problems have aspects that require the participation of social sciences in their thorough examination.

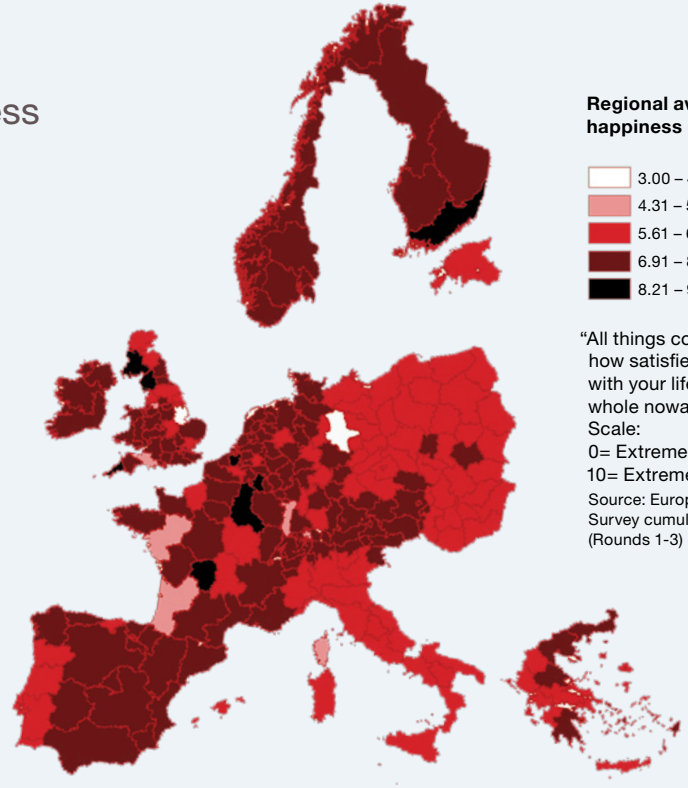
See membership list page 68

▸ **www.esf.org/scss**

SCSS Highlight

The geography of happiness

Modern Western society assumes that being happy and satisfied with life are universal goals of human existence, but how do we define happiness and can we measure progress towards these goals? Research on subjective well-being might answer those questions by complementing the conventional monetary socio-economic indicators of quality of life.



The HAPPINESS (HAPpiness, Political Institutions, Natural Environment and Space) project is comparing the influence of external factors on personal well-being. Susana Ferreira, a leading member of the team, explains the underlying problem:

"Even after accounting for a wide range of personal characteristics, socio-economic and macroeconomic conditions, individual life satisfaction scores vary widely across countries and even across different regions within the same country," she says. Understanding why could provide us with a "geography of happiness" across Europe, that demonstrates how local climate, one's natural environment, and even the political system, affect well-being. The research will look at how all these different factors influence subjective well-being as well as correlating it with more conventional socio-economic and demographic information, environmental attitudes and political orientation.

"To achieve these aims we are collating data on spatial attributes (climate, environmental endowments, characteristics of the political system) at the regional and national levels across Europe," explains Ferreira. The team is then linking the data from different people to geographical location. "We have made significant progress in the design of a strategy for merging contextual data to individual survey data by adding spatial identifiers to the European Social Survey dataset," adds Ferreira.

So far, the work has focused on developing the necessary methodology for studying subjective well-being data using surveys. The team has also realised that there are significant day-of-the week effects on self-reported subjective well-being. "Sunday is the 'bluest' day of the week," she points out. This important discovery means that the team must incorporate controls that take into account the day of the week. They also find that interviewers and interviewees may self-select themselves to certain days and so surveys must be randomised especially if the sample size is small.

Happiness research could ultimately help improve our lives and personal well-being, adds Ferreira: "It can inform the debate on what factors, beyond consumption and income, influence welfare and the trade-offs between all the different factors."

Expert Boards and Committees

Expert Boards and Committees are established as the need arises, giving the ESF the flexibility to adapt to the changing scientific landscape.
The six Expert Boards and Committees are as follows:

• Marine Board – ESF

The Marine Board provides a pan-European platform for its member organisations to develop common priorities, to advance marine research and to bridge the gap between science and policy, in order to meet future marine science challenges and opportunities.
Established in 1995, the Marine Board facilitates enhanced cooperation between European marine science organisations (both research institutes and research funding agencies) towards the development of a common vision on the research priorities and strategies for marine science in Europe. In 2010, the Marine Board represents 30 member organisations from 19 countries.
The Marine Board provides the essential components for transferring knowledge for leadership in marine research in Europe. Adopting a strategic role, the Marine Board serves its member organisations by providing a forum within which marine research policy advice to national agencies and to the European Commission is developed, with the objective of promoting the establishment of the European *Marine* Research Area.

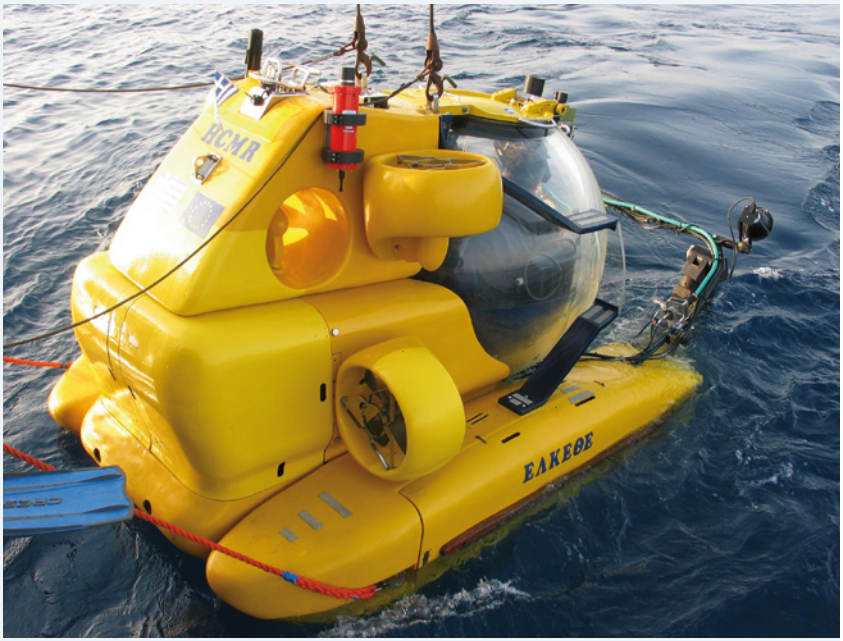
See membership list page 69

▸ **www.esf.org/marineboard**

MB-ESF Highlight

Ocean-going science

We are yet to fully explore the marine environment, to understand its immense biodiversity, the countless ecosystems, and the effect the oceans have on climate for the well-being of the planet. Moreover, the marine world offers a vast array of natural resources that has yet to be fully explored and used to support economic development and provide new products and services beneficial for society.

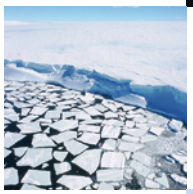


Hellenic Centre for Marine Research (HCMR) submersible Thetis 1
© Jacques Binot

"In addition to buoys and satellites, we rely heavily on research vessels and associated equipment and underwater vehicles to acquire the *in situ* data necessary to understand a lot of marine processes," says Jacques Binot, coordinator of the EUROFLEETS project, developed directly as a result of the Marine Board Position Paper 10 *European Ocean Fleets* (March 2007) and supported by the 7th Framework Programme.

While the marine environment holds great potential, access to it is costly and hazardous because it is so variable and unpredictable. However, increasing demands from society mean that Europe must offer a united front in marine research for a long-term approach. The EUROFLEETS project is working towards this by promoting an alliance of marine research centers, universities and small and medium-sized enterprises across Europe. The aim is that all those involved can work together, share resources and infrastructure and improve the quality of marine research in Europe thanks to technological developments in embarked software and underwater vehicles.

"Only a very limited part of the world's oceans are understood in any detail," adds Binot. EUROFLEETS is a first attempt to make progress in European integration of research fleets and to open access to 18 European research vessels on the basis of scientific excellence. The endeavour is also most important in providing a real understanding of climate evolution and predicting natural hazards. As an example, he adds that, "Observation and long-term monitoring of ocean ridges is a key element to understand seismic activity."



• European Polar Board (EPB)

The European Polar Board is Europe's strategic advisory body on science policy in the polar regions. It acts as a voice and high-level facilitator of cooperation between European national funding agencies, national polar institutes and research organisations. The EPB is concerned with major strategic priorities in the Arctic and Antarctic and has members from national operators and research institutes in 20 countries. The board is taking a central role in the coordination and management of Polar Initiatives at European level. The European Polar Board has active liaison with major polar programmes outside Europe including the United States, Russia and Canada and has been involved in discussions with other international agencies such as the World Meteorological Organization and in international research cooperation and environmental monitoring in the polar regions. A Green Paper on the future of European polar research for the next decade is currently being prepared. The European Polar Board is the official coordinator of the ERICON – AURORA BOREALIS (European Research Icebreaker Consortium), a project supported under EC FP7 as part of the implementation of the ESFRI roadmap projects. This 4.5 Mio€ project will focus on the strategic, management, legal and financial aspects of implementing this large-scale research facility.

See membership list page 68

▸ **www.esf.org/epb**

EPB Highlight

Breaking the ice, scientifically

The Polar regions are the Earth's most sensitive recorders of global climate change, as they react in a more pronounced way than any other place on our planet. With ESF support, a new research icebreaker, AURORA BOREALIS, will build on technological innovations such as novel hull designs to cut its way through the Arctic research.

According to Dr Bonnie Wolff-Boenisch, Executive Manager of the ERICON AURORA BOREALIS, "AURORA BOREALIS will be the first multinational research icebreaker equipped with a drilling rig, which will enable polar scientists to study some of the most pressing scientific questions of the coming decades for the first time." Importantly, it can launch international research expeditions into the Arctic Ocean and the seas of the Antarctic continental shelf through all seasons of the year.

Decreasing sea ice and changing polar environmental boundary conditions are making the Arctic environment more vulnerable. However, operations in the Polar regions are currently very challenging.

"Until today key data from the polar regions have been missing, most notably from the wintertime, that could feed and validate climate simulation models," explains Wolff-Boenisch. By gathering this data it should be possible to reconstruct more precisely past climatic variability to better predict future climate and oceanic changes.

The vessel serves two different scientific communities: the general polar science community, which currently operates only in the summer, and the deep-sea drilling community, which will study the structure and properties of the oceanic crust and the history of oceanic deposits. This has never been done in the icy waters of the Arctic during the winter and will allow unprecedented geophysical surveying of ice-covered regions and reduce the need for exploratory drilling, surveying and modelling for scientific studies.

The AURORA BOREALIS will also assess population growth and dynamics of the flora and fauna of this region living in extreme conditions. It may even open up new research into little-known species with potential benefits in biomedical research.

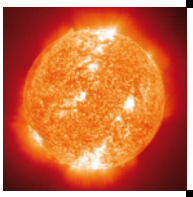
Wolff-Boenisch says the business plan is now being finalised and underway is "the development of a 15-year science plan regarding relevant polar research topics elaborated with the scientists, the future users of the ship."

• European Space Sciences Committee (ESSC)

The European Space Sciences Committee, established in 1975, grew out of the need for a collaborative effort that would ensure European space scientists made their voices heard on the other side of the Atlantic, in an era when successive Apollo and space science missions had thrust the idea of space exploration into the collective consciousness. Almost 35 years later, the ESSC actively collaborates with the European Space Agency (ESA), the European Commission, national space agencies and the ESF Member Organisations. This has made ESSC a reference name in space sciences within Europe. The mission of the ESSC is to provide an independent forum for scientists to debate space sciences issues. The ESSC is represented *ex officio* in all ESA's scientific advisory bodies, in ESA's High-level Science Policy Advisory Committee advising its director general, in the EC's FP7 space advisory group, and it holds an observer status in ESA's Ministerial Council. At the international level, ESSC maintains strong relationships with the National Research Council's (NRC) Space Studies Board in the US and corresponding bodies in Japan and China.

See membership list page 69

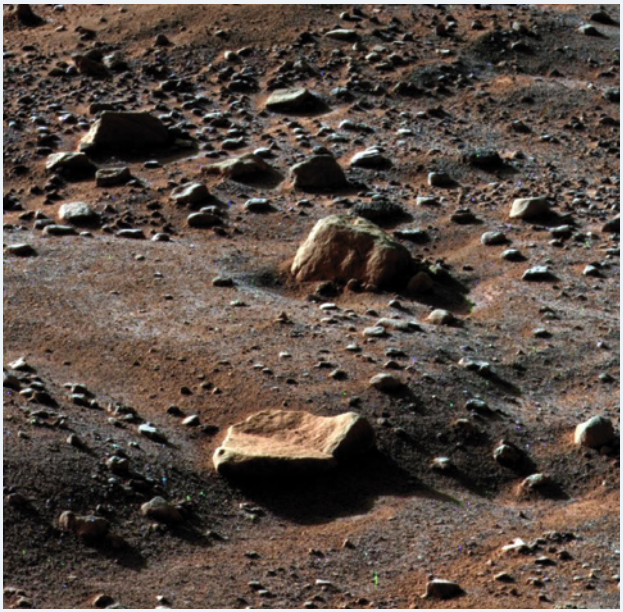
▸ **www.esf.org/essc**



ESSC Highlight

Understanding life in the extremes

Understanding how life copes in the extremes, how it first evolved and whether it exists elsewhere in the universe is the focus of the CAREX research community. The CAREX programme involves nine full partners and over 50 EU and non-EU associate partners and it is coordinated by the British Antarctic Survey (BAS). It builds on an earlier ESF funded project Investigating Life in Extreme Environments, ILEE, and is coordinating this community alongside a pan-European strategy for this research.



Morning Frost on the Surface of Mars.

"The term extreme environment is, of course, formulated in terms of what humans consider extreme," says BAS's Cynan Ellis-Evans, "but many organisms living at 'extremes' are very comfortable in what we would consider harsh environments and some such organisms indeed will not survive outside these environments."

CAREX deals with the full spectrum of life at environmental limits such as high acidity or alkalinity, high or very low pressures, extreme hot and cold, radiation, and high concentrations of salt and heavy metals.

The research helps us understand how organisms cope with these seemingly severe stresses.

"Extreme environments and their biodiversity have intrinsic value in themselves and need to be documented," adds Ellis-Evans. "However, the real importance comes from the insights into how life has evolved on Earth, how life copes with environmental change over different timescales and how life might exist on other planetary bodies."

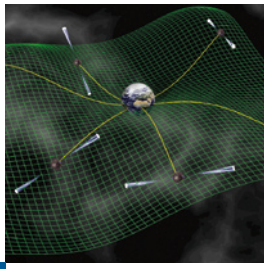
Ellis-Evans explains that the physiological and biochemical strategies used by organisms in extreme environments are often distinct from those employed in non-extreme situations, and so studying them improves our understanding of fundamental cell processes, adaptation and evolution.

"In some cases these can have further application in research or industrial products," he adds.

For instance, researchers investigating black fungi in Antarctic cold deserts are collaborating with hot desert researchers and also using the International Space Station to study radiation tolerance of black fungi.

Similarly, polar marine biologists are working with tropical ocean researchers on the biological response to both thermal extremes.

"The CAREX project is about establishing better coordination and community identity rather than undertaking science *per se*, though exciting science has emerged as a bonus," adds Ellis-Evans, with several cross-discipline collaborations emerging from its international scientific workshops.



• Committee on Radio Astronomy Frequencies (CRAF)

Established in 1988, CRAF represents all the major radio astronomical observatories in Europe. Its mission is to coordinate the protection of the frequency bands used by radio astronomers in Europe to keep them free from interference. This task will remain indispensable for astronomical science in the foreseeable future. The committee's pursuit of this task is becoming increasingly difficult, given the steady increase in global use of the electromagnetic spectrum for both terrestrial and space-borne communications such as mobile telephones. CRAF works towards this aim by: coordinating a common policy on spectrum protection for the European research communities in radio astronomy, passive remote sensing and related sciences; representing this policy and these communities in interactions with the relevant national and supranational entities at the European and international level; and initiating and encouraging scientific studies aimed at reducing interferences at source and the effects of interferences. At the European level, the committee plays a key role in defining, coordinating and articulating the frequency needs of the radio astronomy community.

See membership list page 70

▸ **www.esf.org/craf**

CRAF Highlight

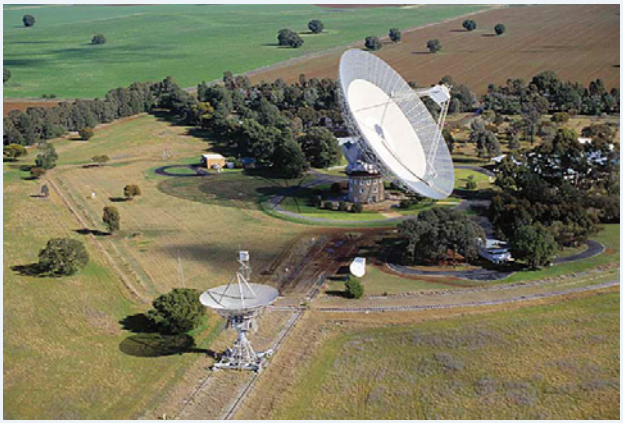
CRAF searches for answers to radio pollution

Radio astronomy can access the most distant and ancient parts of our universe. However, radio telescopes are so sensitive that they also detect even the weakest stray signals from mobile communications, digital television and wireless networks. Now, ESF's Expert Committee on Radio Astronomy Frequencies (CRAF) is pulling together radio astronomers from European, Turkish and South African observatories to cut radio pollution.

CRAF Chairman Axel Jessner explains, "The universe is much, much bigger than our tiny sphere of human influence, and is totally oblivious to our conventions and wishful thinking." Radio spectrum pollution and political machinations are, however, threatening our observations of the universe.

Recent bandwidth auctions to telecommunications providers, which indirectly benefit taxpayers, have meant that radio signals at these frequencies are now swamped by transmissions from electronic devices and so are lost to radio astronomers. Faint radio signals that may have taken thousands of years to reach us from a pulsar in our galaxy or even billions of years to travel from a distant stellar nursery simply cannot compete with spectrum pollution. Of course, those same taxpayers also fund the radio astronomy research that is being stifled by spectrum pollution.

Jessner suggests that efforts must be increased in order to protect radio astronomy from undue interference. CRAF is at the forefront of these efforts and is working closely with ESF to study data losses caused by spectrum pollution. It is also lobbying at the European Union level to ensure that technology adheres to radio guidelines.



Radio telescopes like the Parkes Observatory in Australia, are located far away from cities, where the skies are relatively quiet. © CSIRO

For instance, CRAF is finding solutions to persistent interference from the IRIDIUM mobile satellite service. It is also investigating the radio fog generated by 'Ultra Wide Band' (UWB) technology. "CRAF is trying hard to limit the damage by mass-produced UWB devices to radio astronomy in negotiations with regulatory authorities and industry," says Jessner.

In addition, it has, with international cooperation, persuaded industry to voluntarily switch frequencies for the short-range radar used in motor vehicles that was exploiting an internationally protected radio astronomy band.

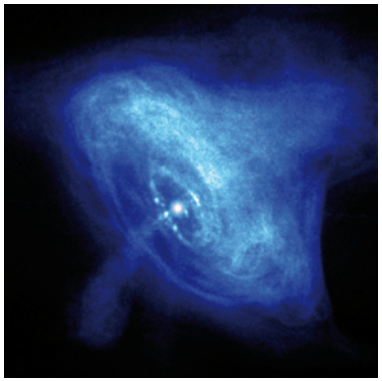
Despite their green credentials, electricity-generating wind turbines also cause problems for radio astronomy. Facilities in Belgium, Germany, Sardinia, and Sweden could be affected, says Jessner and CRAF is developing planning guidelines to minimise their detrimental effect on science.

• Nuclear Physics European Collaboration Committee (NuPECC)

The committee's tasks are to strengthen European collaboration in nuclear physics and science. NuPECC defines a network of complementary facilities within Europe and encourages optimisation of their use. The committee provides a forum to discuss the exploitation of future facilities and instrumentation; and to issue recommendations on the development, organisation, and support of European nuclear physics, and on particular projects. NuPECC regularly presents reports on scientific issues of importance to the European nuclear physics community and publishes a Long Range Plan (Forward Look) every six years delineating the perspectives for the field and giving recommendations and priorities for the advancement of nuclear science in Europe.

See membership list page 70

▸ **www.esf.org/nupecc**



NuPECC Highlight

Nuclear committee

The Nuclear Physics European Collaboration Committee (NuPECC) was founded in 1988 and became an Expert Committee of the ESF in 1990. Its member organisations are involved in nuclear science and research or are nuclear research facilities.

NuPECC aims to strengthen European collaboration in nuclear science by promoting nuclear physics and its use across many different research fields, as well as facilitating collaborative ventures between research groups within Europe. Nuclear science gets to the heart of matter and is important from a fundamental scientific perspective as well as in technology, medicine, and power generation.

And according to Sissy Koerner, of TU Muenchen, NuPECC's major project at the moment is the preparation of a new Long Range Plan for nuclear physics in Europe. "European funding has been received in various projects in FP6, such as the Integrated Infrastructure Initiatives EURONS and HadronPhysics as well as several design studies, e.g. EURISOL and now continuations in FP7 are under way," says Koerner.

In addition to the more regional and national funding that university groups and research laboratories obtain two major projects are underway in Europe: FAIR (Facility for Antiproton and Ion Research) in Darmstadt, Germany, will help us better understand the properties of "hadronic matter", the protons and neutrons composed of quarks and bound together by the strong force, which make up 99.9 percent of the visible mass of the universe. SPIRAL2, a new particle accelerator in Caen, France, will investigate heavy and superheavy elements which will lead to a better understanding of matter.

"Being in the fortunate situation of having two excellent projects on the ESFRI list, nuclear physics will be able to attract young and brilliant people to participate in the quest for revealing the secrets of the world that surrounds us," says Koerner.

• Materials Science and Engineering Expert Committee (MatSEEC)

MatSEEC is an ESF Expert Committee in the remit of and associated with the ESF Standing Committee for Physical and Engineering Sciences (PESC) with a task related term of five years. The mission includes delivering foresight reports and scientific advice to PESC and ESF on issues related to materials science, engineering and matters of concern to the related scientific communities, as well as to European National Agencies and Ministries, institutions of the European Commission, and the European Strategic Forum on Research Infrastructures (ESFRI) upon request.

See membership list page 71

▸ **www.esf.org/matseec**

MatSEEC Highlight

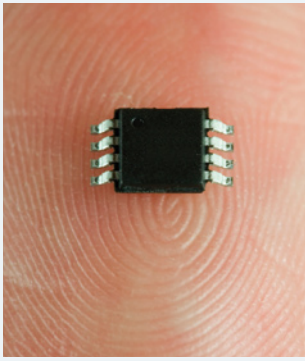
Pan-European committee for materials science and engineering

A newly established expert committee in materials science and engineering, known as MatSEEC, has identified its first priority topics for the future of research in this field. The ESF will provide coordinated foresight and research advice during the next five years to its participating organisations and the research community in Europe.

MatSEEC expects to produce its first recommendations by the end of 2010. Some priority areas will require greater analysis to provide valid advice that may shape future research programmes at national and European level, such as the 8th Framework Programme (FP8) and the European Strategic Forum for Research Infrastructures (ESFRI). These more detailed analyses are likely to need input from the wider materials community, and MatSEEC looks forward to this broad cooperation.

MatSEEC will review progress on a regular basis, will identify new topics for attention, and may also provide scientific or foresight advice on request from specific organisations.

Over 20 major national funding organisations, together with the European Space Agency and European Materials Research Society/European Materials Forum, have joined forces to form and support MatSEEC. The Committee is chaired by Professor Guenther Bauer of the University of Linz, Austria.



Microchip on a finger
© iStockphoto

Science Advisory Board

The Science Advisory Board (SAB) provides advice to the Chief Executive on strategic science issues and on key instruments (EUROCORES, Forward Looks). It provides overall science quality control of the ESF's activities and safeguards the interdisciplinarity of the instruments. It also decides on the topics of the annual European Latsis Prize. The SAB is composed of six high-level independent members with a broad disciplinary balance and strong scientific reputation and the Chairs of the ESF's five Standing Committees. Independent members are nominated by Member Organisations and are appointed by the Governing Council for a period of three years.

Science Strategy

The objective of the instruments under Science Strategy is to provide evidence-based foresight and advice on science, research infrastructure and science policy issues of European significance to underpin decisions on strategic directions and priorities, or on programmes of science-driven research. In the application of these instruments special attention is paid to promoting Europe's ability to open up new research areas in order to be a leader rather than a follower. The instruments in Science Strategy can have a real impact if the experts involved are of the highest authority. High quality output requires a critical awareness of the need for an impartial balance of interests.

Forward Looks

Foresighting is the flagship activity of the ESF's strategic arm. It enables Europe's scientific community, in interaction with policy makers, to develop medium to long-term views and analyses of future research developments with the aim of defining research agendas at national and European level. The resulting documents, designated Forward Looks, are driven by the ESF's Member Organisations and, by extension, the European research community. Quality assurance mechanisms are applied at every stage of the development and delivery of a Forward Look to ensure its quality and impact.

▸ **www.esf.org/flooks**

- **Gene Environment Interaction in Chronic Disease (GENESIS)**
  EMRC (starting year: 2010)

  Over the last few decades a dramatic increase in chronic inflammatory diseases is being observed, particularly within the industrialised world. Clinical manifestations at the mucosal surfaces of the airways and the gastrointestinal tract are of major importance in this regard. Model diseases comprise bronchial asthma, allergic rhinitis and chronic inflammatory bowel disease. Clinical phenotypes are characterised by an inappropriate immune response. These diseases have a tremendous socio-economic impact. Worldwide about 300 million people are suffering from asthma according to the most recent ISAAC-study. The aim of the GENESIS Forward Look is to achieve a breakthrough in causative and efficacious treatment and prevention strategies for chronic inflammatory diseases at surfaces.

  ▸ **www.esf.org/genesis**

- **Media Studies: new media and new literacies**
  SCH*, SCSS (starting year: 2010)

  Media impinge upon almost all aspects of contemporary life, and they are constitutive of key political, financial, social and cultural processes. Media have undergone profound changes in the past two decades, changes that may be defined in terms of digitisation, globalisation and commoditisation. Studying media is, therefore, an important component to gaining understanding about fundamental processes of change in society. New technological, economic and socio-cultural developments are leading to a thorough mediatisation of society in the sense that complex media processes have an impact on all dimensions of social life. The aim of the MEDIA Forward Look is to advance the scientific capacities and organisational cohesion of European media research in order to answer fundamental questions posed by recent developments in media and Information and Communication Technologies (ICTs). The Forward Look proposal that was submitted on this topic was approved by the ESF Governing Council in October 2008; its launch has been delayed for two years and is now anticipated for early 2011.

  ▸ **www.esf.org/media-studies**

- **Central and Eastern Europe Beyond Transition: convergence and divergence in Europe**
  SCSS (starting year: 2009)

  The objective of the Forward Look on Central and Eastern Europe Beyond Transition is to define the extent to which research agendas need to address issues that are specific to this region and the extent to which pan-European research agendas need to pay more attention to the specific dynamics of change in this region. Convergence and divergence co-exist: how can the interplay on both be encapsulated most constructively in

research projects within the field of social sciences?
Three workshops held in 2010 with experts and stakeholders have considered relevant issues in Economics, Sociology, Politics and Local Governance. An extensive survey of existing research funded by major national and international sponsors has also formed part of the exercise to provide insights into current priorities in social science research on CEE as well as the actors determining them. Both have fed into the production of a draft report presenting preliminary conclusions which will be finalised after a consensus conference in February 2011 and published in mid-2011 along with a Science Policy Briefing to provide concise recommendations.

▸ **www.esf.org/cee**

- **Mathematics and Industry**

PESC (starting year: 2009)

Mathematics provides a universal framework for innovation, which is vital for society and industry. However, the interaction between mathematics and industry is far from optimal. Consequently, a strong inter-connected community and a vision for Europe are needed more than ever. This Forward Look is aimed at analysing the current state of interaction between mathematics and Industry. Through its analyses and recommendations, it will enable the scientific and industrial communities, together with policy makers, to develop medium to long-term strategies for future research activities and applications. It is expected that it will impact society by strengthening the mathematical knowledge base of a wide spectrum of research-intensive industries. One key goal is thus to define well-adapted and ambitious research and political agendas at national and European levels.
An ESF Science Policy Briefing is to be published towards the end of 2010.

▸ **www.esf.org/mathematics**

- **Responses to Environmental and Societal Challenges for our Unstable Earth (RESCUE)**

LESC*, PESC, SCSS, SCH, COST (starting year: 2009)

Humankind is currently facing unprecedented changes in the Earth system arising at a rapidly growing rate because of human activities: among others, unsustainable exploitation and consumption of natural resources and accelerating perturbations of the environment. The systemic understanding of global environmental change has expanded markedly, but societal and policy-relevant drivers and consequences are still to be fully explored. In particular, the complex Earth system requires interdisciplinary studies at scales compatible with political and societal agendas, and needs some stronger common, integrated foundations between natural, social and human sciences to be established.
In this context, RESCUE will help to address the societal and scientific challenges related to global environmental change, including its human dimensions, and will help to stimulate an integrated response from natural, social and human sciences.

▸ **www.esf.org/rescue**

- **NuPECC Long Range Plan 2010 (Perspectives for Nuclear Physics Research in Europe)**

NuPECC*, PESC (starting year: 2009)

Nuclear Physics (NP) is a vibrant area of science in Europe. More than 5 000 scientists and engineers perform cutting-edge research at various large-scale and smaller national facilities, and at numerous universities.
The goal of the Nuclear Physics Forward Look LRP2010 is to bring together the entire Nuclear Physics community in Europe to formulate a coherent plan how to best develop the field in the next decade and beyond. The objectives of the Forward Look are: to review the status of the field in Europe and put it into the worldwide context; formulate recommendations for developing the science and its applications; agree upon an action plan and suggest a roadmap for the upgrade of existing, or the construction of new, large-scale facilities.

▸ **www.nupecc.org**

- **Technological Breakthroughs for Scientific Progress (TECHBREAK)**

ESSC (starting year: 2009)

TECHBREAK was initiated as a request from the European Space Agency (ESA). In space sciences, as well as in “mainstream” science, the development of innovative technologies opens new fields of research and provides sophisticated new tools for scientists. However, the experience of the past decades of space research has demonstrated that a conservative approach to – not yet fully proven – technology is too often followed. This

may be partly due to the very long development times in that domain, but the result is that evolution is gradual and breakthroughs do not happen as frequently as they could.
The objectives of this ESF Forward Look, supported by ESA, are to: take stock of breakthrough scientific objectives; foresee the evolution of the technologies, in space and non-space domains; forecast the development of technologies for the achievement of scientific breakthroughs; characterise risks and propose mitigation schemes; and identify partnership schemes, space and non-space.

▸ **www.esf.org/techbreak**

- **Implementation of Medical Research into Clinical Practice – A growing challenge**

EMRC (starting year: 2008)

Evidence-based medicine is the continuous, explicit and judicious use of current best evidence in making decisions about the care of individual patients. Implementation of medical research results, as evidence-based medicine (EBM) in health care in Europe, has been debated for the last ten years, but there seems to be an ever widening gap between scientific medical research results and everyday practice in hospitals and primary care in the European health care system. Predictive medicine with early stage intervention in diseases and the paradigm shift with genetic information available for many patients and diseases will further increase this gap.

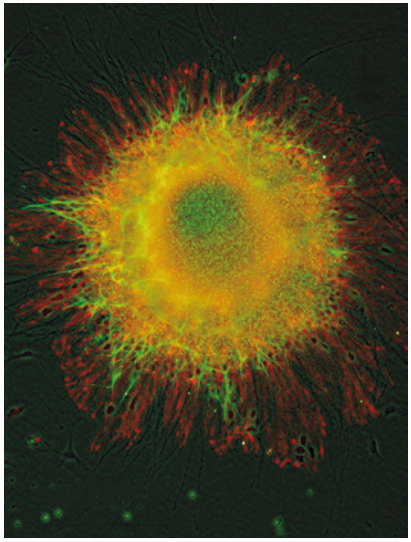
▸ **www.esf.org/imrcp**

***** Leading Committee

LESC: Standing Committee for Life, Earth and Environmental Sciences
PESC: Standing Committee for Physical and Engineering Sciences
EMRC: Standing Committee for the European Medical Research Councils
SCH: Standing Committee for the Humanities
SCSS: Standing Committee for the Social Sciences
ESSC: European Space Sciences Committee
NuPECC: Nuclear Physics European Collaboration Committee
COST: European Cooperation in Science and Technology

Science Policy Briefings

The ESF Science Policy Briefings (SPB) are means to deliver position statements on urgent science policy issues, for example the ethical use of animals in research or the use of human stem cells. Since the launch of this instrument in 1997, more than three dozen policy briefings have addressed topics within the European Research Area. The recommendations from Science Policy Briefings are intended to trigger targeted efforts by relevant stakeholders, including the ESF and its Member Organisations, governments, the European Commission, the European Parliament, other international agencies, industry and academia.



A sphere formed by neural progenitor cells differentiated from the human embryonic stem cell line HS360 in four-week serum-free culture in N2B27 medium. Green immuno-reaction for the marker Map-2, and red for Nestin (SPB38: Human Stem Cell Research and Regenerative Medicine, 2010).

The following Science Policy Briefings have been published in 2009-2010:

- **SPB36: European Food Systems in a Changing World** (2009)

  Food security is a primary societal goal in which food systems play a pivotal role. European food systems are changing, driven by complex technological and policy factors including Common Agricultural Policy (CAP) reform. These changes will affect the interactions between food availability, food access and food utilisation in uncertain ways. In addition to providing safe and healthy food, European food systems also contribute to an increasing number of goals including environmental functions, landscape and societal objectives. A 2006-2008 Forward Look (FL) focused on how the changes in Europe's food systems drivers, in the context of balancing the varied goals, will affect the above described interactions. A final report and the Science Policy Briefing 36 were developed as follow ups to the Forward Look.

- **SPB37: Ocean Acidification** (2009)

  Ocean acidification is the hidden partner of climate change. Up to now, the oceans have buffered the effects of global warming by absorbing almost a third of the carbon dioxide emitted from man's fossil fuel dependence. Today the oceans are more acidic than they have been for 800,000 years, causing rapid irreversible changes in ocean chemistry. The Science Policy Briefing highlights that much more must be done at the international level to understand the implications and tackle what lies ahead. Current programmes at both the European and national scales are relatively small compared to the challenge posed by acidic oceans and global warming. Existing research has mainly been initiated by individual researchers or teams, with little overall coordination. This needs to be brought together through a large-scale research initiative taking full advantage of the combined skills across European countries.

- **SPB38: Human Stem Cell Research and Regenerative Medicine: a European Perspective on Scientific, Ethical and Legal Issues** (2010)

  This Science Policy Briefing examines the key scientific questions for human stem cell research in the context of the rapidly emerging field of regenerative medicine, which promises to be one of the most fascinating and controversial scientific developments of the 21st century. Regenerative medicine could apply human embryonic stem cells to, for example, identify new compounds for drug development, or as cell-based therapies for treatments. The different ethical or religious beliefs in individual countries in Europe mean each has different policies for human stem cell research, and some are not willing to develop human stem cell-based therapies. The authors of the report explore the current ethical concerns, particularly with clinical application, and analyse how the legislative landscape has altered in Europe within the previous six years. The report highlights a particular issue with the complexity of patenting human embryonic stem cell technologies, and the ongoing need for public funding at the national and European level.

- **SPB39: Ageing, Health and Pensions in Europe: An Economic Perspective** (2010)

  The population of Europe is ageing more rapidly than that of any other continent and this will have major economic, social and healthcare consequences. This Science Policy Briefing identifies what is needed to provide the social innovation necessary for 'successful ageing'. Three broad policy and research themes emerge: work, financial security and wellbeing. People are likely to work for longer, and this means that jobs must be attractive to older workers and that the workers must be attractive to employers. Because we are likely to live longer, we need to save more for our retirement to guarantee financial security into late old age. This is an important matter for both the individual and for society. Finally we need better to understand how social and economic conditions in a person's earlier life relates to health and well-being in old age. This Science Policy Briefing makes recommendations on how best to achieve these research goals.

- **SPB40: Male Reproductive Health: Its Impacts in Relation to General Wellbeing and Low European Fertility Rates** (2010)

  Over recent decades, fertility rates in Europe have fallen drastically. While this decline is largely due to social and economic factors, such as the wider use of contraception, there is growing evidence that young European men have a reduced semen quality, an increased incidence of testicular cancer and a high rate of other reproductive malformations. This report is one of the first to focus on this important issue which could have an impact on future birth rates and demographic changes in industrialised countries. The report highlights the urgent need for research to better understand the status of male reproductive health in Europe and to identify its causes, which include possible environmental factors as well as genetic causes, and probably an interplay between the two. The authors recommend that awareness of male reproductive health issues is increased, that interdisciplinary research in the field is strengthened and that there is a need for long-term epidemiological studies into male reproductive health.

Science Policy Briefings on the following subjects will be published during 2010:

- Landscape in a Changing World: bridging divides, integrating disciplines, serving society
- Mathematics and Industry

▸ Published SPBs are available at: **www.esf.org/publications/science-policy-briefings**

Science Position Papers

Science Position Papers are published under the responsibility of one or more ESF Standing Committees or Expert Boards/ Committees. As such they represent a considered opinion of the community represented by the Committee(s) involved, and not necessarily that of the European Science Foundation as a whole.

The following Science Position Papers have recently been published:

- **Promoting Internationalisation of the Social Sciences in Central and Eastern Europe**
(SCSS, July 2010)

  The Standing Committee for the Social Sciences (SCSS) decided in 2006 to launch a project to map and promote the social sciences in Central and Eastern Europe (CEE). The project focused on the role of the ESF Member Organisations and was therefore called the MOCEE (Member Organisations in Central and Eastern Europe) project. The MOCEE project targeted the following ten CEE countries: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Lithuania, Poland, Romania, Slovak Republic and Slovenia. The objectives were to study the research needs of CEE countries in the social sciences; to promote the dialogue between CEE and other European scientific communities. This Position Paper is one of the results of the MOCEE project. It describes the past and present of the internationalisation of social sciences in the Central and Eastern European region and puts forward recommendations.

- **ESF-EMRC Position on the Implications of the EMF Directive 2004/40/EC for European Biomedical Magnetic Resonance Research**
(EMRC, June 2010)

  Europe must act to prevent new legislation impeding the use of magnetic resonance imaging (MRI) in medical research, diagnosis and treatment, states the ESF. The position paper is endorsed by the European Medical Research Councils, representing the medical research communities in 30 countries. The EC Electromagnetic fields (EMF) directive limits the exposure of workers to EMF with frequencies in the range of zero to 300 GHz. These limits are based on sparse evidence and are so low they could prevent MRI research, and severely hinder further development of the technology for patients with life-threatening diseases. The report recommends an exemption from any limit values for MRI in clinical and research settings, allowing researchers to manage health and safety requirements through other measures.

- **Science dimensions of an Ecosystem Approach to Management of Biotic Ocean Resources (SEAMBOR)**
(Marine Board, May 2010)

  The Marine Board-ESF, the International Council for the Exploration of the Sea (ICES) and the European Fisheries and Aquaculture Research Organisation (EFARO) have pooled their expertise for the first time, bringing insights from marine science, fisheries, socio-economics and policy. Together, they call for a clearer view of links between changes in marine ecosystems, human use and human well-being. Such understanding could prevent and ideally anticipate crises such as the oil spill in the Gulf of Mexico, as well as improving long-term, sustainable and integrated management of marine living resources such as fish. The report offers independent scientific input to current policy discussions about the marine environment such as the new EC Marine Strategy Framework Directive.

- **Vital Questions – The Contribution of European Social Science**
  (SCSS, December 2009)

  Why do economies fail? What welfare changes will best support an ageing workforce? How can children be better educated? The complexity of human behaviour means society's most important issues rarely have simple answers. The position paper describes the current state and future prospects of the social sciences in Europe. Written, edited and reviewed by leading social scientists, it contributes to the public understanding of scientific research – much of it supported by the European Science Foundation and its Member Organisations – and of the contribution that social science is making and can make in future to the solution of challenges of vital importance to the people and societies of Europe.

▸ Publications available at:
www.esf.org/publications/science-position-papers

Exploratory Workshops

These one-off meetings, held normally over one to three days, bring together researchers in an interactive environment with the strategic aims of identifying in a bottom-up way new research challenges and the ways they may be addressed through new programmes and other initiatives. The workshops have Europe-wide participation, involving both early career and established high-level researchers.

▸ **www.esf.org/workshops**

The ESF is funding a total of 53 Exploratory Workshops in 2010:

- **Brains4Brain – Treating Pediatric Neurodegenerative Diseases from Laboratory Bench to the Bedside,** 3-5 March, Frankfurt, DE, EMRC
- **Natural Resources for Innovative Design,** 3-6 March, Eindhoven, NL, LESC/SCH
- **The Impact of Training for Teachers in Higher Education,** 18-20 March, Bratislava, SK, SCSS
- **The Future of Research in Renaissance Festivals: Resources and Collaboration,** 21-22 March, Venice, IT, SCH
- **Promoting Normality in Childbirth across Europe,** 22-25 March, Dublin, IE, EMRC/SCSS
- **Iron and Change in Europe – The First Two Thousand Years,** 26-28 March, London, UK, SCH
- **Foundations of Autonomic Computing for Traffic Management Systems,** 14-16 April, Durham, UK, PESC
- **Viking and Norse Materiality in The North Atlantic: Developing New Approaches and Integrating Research Frameworks,** originally planned for 19-21 April, Birmingham, UK, SCH, postponed: new dates not finalised
- **Language and Origin: The Role of Language in European Asylum Procedures,** 22-23 April, Wassenaar, NL, SCH
- **Human Resources for Research: Perspectives and Tendencies for Researchers Career, Expectations and Job Satisfaction in the European Research Area,** 26-27 April, Rome, Italy, SCSS
- **Socio-Economic and Environmental Implications of Energy Crop Production in Europe – So Little Land So Many Services,** 26-28 April, Dublin, IE, LESC/SCSS
- **Music, Culture and Politics in Early Nineteenth-Century Europe,** 6-8 May, London, UK
- **Application of Non-Traditional Stable-Isotope Systems to the Study of Sources, Fate and Impact of Metals in the Terrestrial Environment,** 10-12 May, Toulouse, FR, LESC
- **Archaeology of Sheep Domestication: New Approaches,** 17-18 May, London, UK, LESC/SCH
- **Transnational Lives, Mobility and Gender,** 19-22 May, Lisbon, PT, SCSS
- **Manipulation of Biomaterials Surface by Plasma Processing,** 26-30 May, Iasi, RO, PESC/EMRC
- **Self-Organized Ecogeomorphic Systems: Confronting Models with Data for Land-Degradation in Dryland,** 7-10 June, Potsdam, DE, LESC
- **The Almost Gaussian Universe,** 9-11 June, Gif-Sur-Yvette, FR, PESC
- **Migrant Legality, Work, and Employment in Contemporary Europe,** 10-11 June, Amsterdam, NL, SCSS
- **Exploring Epistemic Shifts in Computer Based Environmental Sciences,** 10-12 June, Aarhus, Denmark, LESC
- **Organic Bioelectronics,** 14-16 June, Trento, IT, PESC/LESC
- **In/equality for Third Country Nationals: Implementation and Effects of EU Directives on Migration and Asylum,** 28-30 June, Oxford, UK, SCSS

- **Preventing and Sanctioning the Hindrances to the Right to Apply Before The European Court of Human Rights,** 1-2 July, Strasbourg, FR, SCSS
- **Postmigrant Youth Scenes in Urban Europe,** 1-4 July, Frankfurt, DE, SCSS
- **New Approaches to Horizon Scanning for Emerging and Infectious Viruses in Europe,** 6-8 July, Egham, UK, LESC
- **Genotype by Environment Interactions in Sexual Selection,** 13-16 July, Falmouth, UK, LESC
- **The Challenges of Developing Social Care Informatics as an Essential Part of Holistic Health Care,** 21-24 July, Keele, UK, SCSS
- **Multiple Modernities of Same-Sex Sexuality in Nigeria,** 18-20 August, Maynooth, IE, SCH
- **Mathematical Aspects of the Physics with Non-Self-Adjoint Operators,** 30 August-3 September, Prague, CZ, PESC
- **Cosmogony Of Agns: Unifying Approaches For The Next Decade,** 31 August-3 September, Brindisi, IT, PESC
- **Region, Memory and Agency in Eastern and Western Europe,** 2-4 September, Bristol, UK, SCH
- **From Phenotypes to Pathways: Design and Analysis of Single and Combinatorial Gene Perturbation Screens,** 9-11 September, Cambridge, UK, LESC
- **The Historical Formation of European Drinking Cultures: Regions, Methods, Sources,** 9-12 September, Venice, IT, SCH
- **Boxing or Dancing? the Changing Role of Unions in Europe in Light of the Financial Crisis,** 10-12 September, Essen, DE, SCSS
- **Exploring and Comparing Prostitution Policy Regimes in Europe,** 15-17 September, London, UK, SCSS
- **Prevention and Treatment of Vitamin D Deficiency in Europe: Rationale and Design of a Randomized Controlled Trial with Moderate and High Doses of Vitamin D3 and Multiple Outcomes,** 16-17 September, Amsterdam, NL, EMRC
- **Latin Identities: : Post-Reformation Sources in Europe,** 16-18 September, Dublin, IE, SCH
- **The Origins of Modern Mass Culture: European Leisure in a Comparative Perspective 1660-1870,** 16-19 September, Gregynog near Newtown, UK, SCH
- **Palatial Economy in the Ancient Near East and in the Aegean: First Steps Towards a Comprehensive Analysis and Inventory,** 16-19 September, Nanterre, FR, SCH
- **Myths of the Contemporaneity: Public Reason between Deconstruction and Reconstruction,** 20-21 September, Cuneo, IT, SCH
- **Exploring the Roots of Linguistic Diversity: Biolinguistic Perspectives,** 20-22 September, Barcelona, ES, SCH
- **Microreactor Technology for Healthcare Applications – MITHRA,** 26-28 September, Fiesa, SI, PESC
- **Forgiveness,** 30 September – 2 October, Dublin, IE, SCH/SCSS
- **Convivencia in Byzantium? Cultural Exchanges in a Multi-Ethnic and Multi-Lingual Society,** 1-3 October, Dublin, IE, SCH
- **Public Art and its Distresses. From Mainstream City Marketing Strategies to a Tool for Social Regeneration,** 21-22 October, Milan, IT, SCSS
- **Dissipative Systems: Entropy Methods, Classical and Quantum Probability,** 1-3 November, Vienna, AT, PESC
- **Reconstructing The Female Labour Force Participation Rate in Western Europe, 18th and 19th Centuries,** 4-6 November, Barcelona, ES, SCSS
- **Roman Colonization under the Republic: Towards a New Interpretative Framework,** 9-12 November, Nijmegen, NL, SCH
- **Horizontal Tax Coordination within the EU and within States,** 10-11 November, Vienna, AT, SCSS
- **Demystifying the Caliphate: Advocates, Opponents and Implications for Europe,** 12-13 November, London, UK, SCH/SCSS
- **Multidisciplinary Consortium for the Development of Effective, but Non-toxic Drugs against MDRTB and XDR-TB,** 1-3 December, Lisbon, PT, EMRC
- **Borderless Planning in Europe,** 7-10 December, Delft, NL, SCSS
- **Information and Behaviour in Networks,** 9-10 December, Oxford, UK, SCSS

LESC: Standing Committee for Life, Earth and Environmental Sciences
PESC: Standing Committee for Physical and Engineering Sciences
EMRC: Standing Committee for the European Medical Research Councils
SCH: Standing Committee for the Humanities
SCSS: Standing Committee for the Social Sciences

Member Organisation Fora

Member Organisation Fora are output-oriented, issue-related venues for the Member Organisations, involving other organisations as appropriate, to exchange information and experiences and develop joint actions in science policy.
MO Fora advance excellence in research at the European level creating synergies with complementary actions jointly with academies, and research funding and performing organisations.
MO Fora channel the implementation of those joint actions by identifying best practices, developing common guidelines and making policy recommendations.

▸ **www.esf.org/mo-fora**

• Science in Society Relationships

Science faces new challenges by society due mainly to the increased level of education in the population and to the democratic systems that encourage the public to have a say regarding science. The traditional one-directional models based on science communication are not sufficient to face these challenges. The issue of scientific culture and the relations with multiple publics and networks with diverse natures and "cultures" have not been addressed yet. Therefore, it is necessary to deal with public engagement and not focus on science dissemination only.
The main purpose of this MO Forum is to map the actual science engagement situation in order to design a better future scenario for current and future users of science. A recently conducted survey about the "state of the art" in public engagement in science is being analysed by the Forum in order to build policy recommendations and guidelines.

This Forum, launched in 2010, is concentrating on the following topics: capacity building; recognition, impact and evaluation; identification of best practices; development of a foresight exercise.

• Research Integrity

The level of attention "research integrity" receives varies from country to country but continued efforts to raise the awareness is required as more than ever misconduct cases have been making the cover of the news. The Research Integrity Forum *was* launched at the end of 2008 as a result of the 1st World Conference on Research Integrity. It has been developing a European Code for Research Integrity, exchanging approaches and good practices and encouraging those organisations which do not yet have the appropriate support to develop such structures, to learn from others and initiate debates in their respective communities.

The outcomes of this Forum are expressed in its Executive Report *Fostering Research Integrity in Europe* published and first presented to the public at the 2nd World Conference on Research Integrity in Singapore in July 2010. The report takes the format of a European Code of Conduct for Research Integrity, which can be used as a reference point for all aspects of research activities, complementing existing codes of ethics and complying with national and European legislative frameworks.

• European Alliance on Research Career Development

The promotion of research careers is key to the overall success of the ERA. For Europe to remain competitive in retaining and recruiting the best researchers, it is urgent to adopt a common strategy to ensure the attractiveness of research careers. The MO Forum on Research Careers (November 2007-April 2010) touched

upon this issue and presented its conclusions and recommendations in its final report *Research Careers in Europe: Landscape and Horizons*. The European Alliance on Research Career Development Forum will build upon these recommendations by addressing "equal playing fields" for researchers of all backgrounds through a new "scientific quality approach", supporting the development of "portfolio careers", improving the attractiveness and competitiveness of European research careers and structuring research careers.

• Research Infrastructures

Research excellence requires excellent Research Infrastructures (RI) which not only support research but also lead its development into new directions and create an attractive environment for world-class researchers. Operating at a different level from the EU Member States' European Strategy Forum for Research Infrastructure (ESFRI), many ESF Member Organisations fund, operate and access research infrastructures of national and European importance and have thus identified the need to establish a network of stakeholders complementary to ESFRI for discussing and sharing best practice in funding and operating the transnational research infrastructures.
Launched in 2010, this Forum will develop comprehensive tools for the adequate treatment of research infrastructure related topics such as: access and standards; funding and evaluation; mobility and networks; and mapping. The Forum is looking forward to updating and upgrading the inventory of national research infrastructures with European significance which was initiated by the EUROHORCs, the European Commission and the ESF through the MERIL project.

• Scientific Foresight for Joint Strategy Development

Jointly charting the roads for scientific excellence to meet the scientific and societal grand challenges creates a basis for joint action of research organisations. Foresight provides a mechanism for this by developing a shared vision of the long-term research agenda. The ESF aims to develop scientific foresight and use its results as a basis for joint strategy development at the supranational level. This action will address the need to develop an effective European research policy, capitalising on cultural, geographic and scientific diversity and to promote transnational funding, benchmarking of quality and shared scientific priorities for strategic research and researcher-driven programmes.
This Forum first met in September 2010 and is currently working to define the scope of foresight studies and to identify best practices.

• Peer Review

Excellence in research is fostered by rigorous transparent peer review, and thus the quality of research depends on the quality of the procedures used to select the proposals for funding. Funding organisations face the challenge of establishing and maintaining the best procedures to assess quality and potential, a demanding task as each proposal is scientifically unique and originates from varying research cultures. As a result, many different systems and criteria are currently in use in European countries.
Since 2006, the Peer Review Forum has been working towards the standardisation of peer review processes and practices by implementing Action 5 of the EUROHORCs and ESF Road Map Guide as mandated to the ESF. The main responsibility of the Forum is the elaboration and completion of the European Peer Review Guide that seeks to promote a measure of coherence and effectiveness in the form of practical recommendations and standardisation of processes, procedures and definitions at a European level. In order to develop this Guide, the Forum carried out a survey targeted at the European research funding/performing organisations and research councils. The survey has determined common procedures and identified good practices in Peer Review. The Forum is currently finalising the European Peer Review Guide and the Survey on European Peer Review Practices, both of which will be published at the end of 2010.

• Evaluation of Publicly Funded Research

During the course of its work, the MO Forum on Evaluation of Funding Schemes and Research Programmes raised questions about internal operations and external accountability of funding programmes through ex-post evaluation. After its mapping exercise expressed in its final report *Evaluation in National Research Funding Agencies: Approaches,*

experiences and case studies: A Report of the ESF Member Forum on Evaluation of Funding Schemes and Research Programmes, the need for a new Forum was recognised.
This Forum, launched in 2010, aims to improve evaluation studies on funding schemes by developing evaluation guidelines, to learn about best practices of impact assessment and to identify the challenges in conducting transnational comparative research portfolio evaluation.

- **Evaluation: Indicators of Internationalisation**

  As research is becoming more and more international, benchmarking exercises and mutual learning cannot stop at national borders. The MO Forum on Evaluation of Funding Schemes and Research Programmes identified comparable funding schemes. As a result, this Forum was created in 2010 in order to undertake a pilot study aiming to design and to produce a set of indicators that could account for the internationalisation of European research activities and programmes.
  The proposed approach is to define positioning indicators that provide evidence to position the actors in a multidimensional way and therefore provide a support to actors' strategic decisions. The indicators will improve the coordination of the system rather than provide efficiency measurements.

Strategic Partnerships

Partnerships with other stakeholders of the ERA, in addition to the Member Organisations of ESF, have resulted in strategy and policy development, as well as implementation actions. This section gives examples of outputs of partnerships with some key organisations.

ESF has worked closely on science policy issues with the EUROHORCs, which is an informal association of 45 heads of public research funding and performing organisations, 39 of which are Member Organisations of the ESF. EUROHORCs and ESF gave a joint response to the European Commission's Green Paper on the European Research Area in 2007, and published in 2009 the *EUROHORCs and ESF Vision on a globally competitive ERA and their Road Map for Actions*. Out of the ten implementation actions of the Road Map, eight are mandated to individual EUROHORCs organisations, while two, development of scientific foresight and peer review, are mandated to the ESF.

In response to an invitation of the former EU Commissioner for Research, Janez Potočnik, ESF and EUROHORCs developed in 2008 a simulation of Joint Programming, a new approach for using Europe's public R&D funds to tackle major societal challenges through enhanced cooperation. The simulation *Effective Health Services for European Citizens* used cardiovascular diseases as a test case due to their importance for public health, and the basis provided by the *White Paper on Status and Strategy for Medical Research in Europe* published by the ESF Standing Committee EMRC in 2007. At the invitation of the High Level Group charged with identification of the thematic areas for Joint Programming, ESF contributed to the drafting of voluntary guidelines for the framework conditions for foresighting activities and peer review procedures.

Upon the request of European Ministers of Research, the ESF carried out, on behalf of the EUROHORCs, a survey on direct cross-border collaboration between European research funding and performing organisations outside of the Framework Programmes. Forty member organisations of EUROHORCs and/or ESF responded to the survey, which maps the intensity and formats of their international collaboration, the extent to which joint procedures are implemented, the areas where collaboration works particularly well, and where obstacles persist (*Cross-border Research Collaboration in Europe*).

The European Research Area Board, ERAB, is the independent advisory body of the European Commission on research and science policy. The 22 members include the Chief Executive, and the heads of two Member Organisations of the ESF who also are EUROHORCs members. In 2009 the ERAB published its strategic vision for the next 20 years, *Preparing Europe for a New Renaissance*. One of the consultation debates was organised by the ESF and participants included, in addition to ERAB and ESF, the EUROHORCs, the European Research Council (ERC), the League of European Research Universities (LERU), and All European Academies (ALLEA). Upon the invitation of the Commissioner for Research, Innovation and Science, Máire Geoghegan-Quinn, ERAB provided ten key recommendations for her to take forward into the new Research and Innovation Policy. The recommendations will be elaborated in the forthcoming second ERAB report, *Realising the New Renaissance*.

Science Synergy

The activities which are grouped under Science Synergy aim to encourage and stimulate dialogue and cooperation between researchers for new directions in research, and to plan and implement European-level research. These instruments bring together Member Organisations for the funding of those activities that fit their strategic priorities and interests.

EUROCORES Programmes

The European Collaborative Research (EUROCORES) Scheme enables researchers in different European countries to develop collaboration and scientific synergy in areas where international scale and scope are required for top class science in a global context. The scheme provides a flexible framework for national research funding and performing organisations to join forces in supporting forefront European research in and across all scientific areas. The national organisations support all aspects including research funding, scientific coordination and networking.
The EUROCORES scheme currently has more than 30 active programmes involving more than 1 000 researchers and 66 funding organisations.

▸ **www.esf.org/eurocores**

List of current EUROCORES programmes:

Medical Sciences (EMRC)

Functional Genomic Variation in the Epilepsies (EuroEPINOMICS) **
2011-2014, EMRC
▸ www.esf.org/euroepinomics

Stress and Mental Health (EuroSTRESS)
2008-2011, EMRC
▸ www.esf.org/eurostress

Pan-European Clinical Trials (ECT)
2005-2011, EMRC
▸ www.esf.org/ect

Life, Earth and Environmental Sciences (LESC)

Molecular Science for a Conceptual Transition from Fossil to Solar Fuels (EuroSolarFuels) **
2011-2014, LESC
▸ www.esf.org/eurosolarfuel

Ecology of Plant Volatiles, from Molecules to the Globe (EuroVOL) **
2011-2014, LESC
▸ www.esf.org/eurovol

European Trans-Atlantic Coral Ecosystem Study (EuroTRACES) **
2011-2014, LESC
▸ www.esf.org/eurotraces

Ecological and Evolutionary Functional Genomics (EuroEEFG)
2010-2013, LESC
▸ www.esf.org/euroeefg

Synthetic Biology: Engineering Complex Biological Systems (EuroSYNBIO)
2010-2013, LESC
▸ www.esf.org/eurosynbio

Membrane Architecture and Dynamics (EuroMEMBRANE)
2009-2012, LESC
▸ www.esf.org/euromembrane

4-D Topography Evolution in Europe: uplift, subsidence and sea level change (TOPO-EUROPE)
2008-2011, LESC
▸ www.esf.org/topo-europe

Challenges of Marine Coring Research (EuroMARC)
2007-2011, LESC
▸ www.esf.org/euromarc

Ecosystem Functioning and Biodiversity in the Deep Sea (EuroDEEP)
2007-2011, LESC
▸ www.esf.org/eurodeep

Quality Control of Gene Expression-RNA Surveillance (RNAQuality)
2007-2010, LESC
▸ www.esf.org/rnaquality

Challenges of Biodiversity Science (EuroDIVERSITY)
2006-2010, LESC
▸ www.esf.org/eurodiversity

Physical and Engineering Sciences (PESC)

Bio-inspired Engineering of Sensors, Actuators & Systems (EuroBioSAS) **
2011-2014, PESC
▸ www.esf.org/eurobiosas

Graphs in Geometry and Algorithms (EuroGIGA) **
2011-2014, PESC
▸ www.esf.org/eurogiga

Maximizing the Impact of Graphene Research in Science and Innovation (EuroGRAPHENE)
2010-2013, PESC
▸ www.esf.org/eurograhene

Origin of the Elements and Nuclear History of the Universe (EuroGENESIS)
2010-2013, PESC
▸ www.esf.org/eurogenesis

Friction and Adhesion in Nanomechanical Systems (FANAS)
2008-2011, PESC
▸ www.esf.org/fanas

European Quantum Standards and Metrology (EuroQUASAR)
2008-2011, PESC
▸ www.esf.org/euroquasar

Cold Quantum Matter (EuroQUAM)
2007-2010, PESC
▸ www.esf.org/euroquam

Smart Structural Systems Technologies (S3T)
2007-2010, PESC
▸ www.esf.org/s3t

Self-Organised NanoStructures (SONS 2)
2007-2010, PESC
▸ www.esf.org/sons2

Fundamentals of Nano-Electronics (FoNE)
2007-2010, PESC
▸ www.esf.org/fone

Humanities (SCH)

Understanding and Misunderstanding: Cognition, Communication and Culture (EuroUnderstanding) **
2011-2014, SCH
▸ www.esf.org/eurounderstanding

European Comparisons in Regional Cohesion, Dynamics and Expressions (EuroCORECODE)
2011-2013, SCH
▸ www.esf.org/eurocorecode

Better Analyses Based on Endangered Languages (EuroBABEL)
2009-2012, SCH
▸ www.esf.org/eurobabel

Modelling Intelligent Interaction – Logic in the Humanities, Social and Computational Sciences (LogICCC)
2008-2011, SCH*/SCSS
▸ www.esf.org/logic

The Evolution of Cooperation and Trading (TECT)
2007-2010, SCH*/LESC
▸ www.esf.org/tect

Technology and the Making of Europe, 1850 to the Present (Inventing Europe)
2007-2010, SCH
▸ www.esf.org/inventingeurope

Social Sciences (SCSS)

Higher Education and Social Change (EuroHESC)
2009-2012, SCSS
▸ www.esf.org/eurohesc

Modelling Intelligent Interaction – Logic in the Humanities, Social and Computational Sciences (LogICCC)
2008-2011, SCSS/SCH *
▸ www.esf.org/logiccc

Cross-national and Multi-level Analysis of Human Values, Institutions and Behaviour (HumVIB)
2008-2011, SCSS
▸ www.esf.org/humvib

The Evolution of Cooperation and Trading (TECT)
2007-2010, SCSS/SCH *
▸ www.esf.org/tect

List of programmes in preparation:

From the open Call for themes in 2009, seven were selected to be further developed into EUROCORES Programmes. Calls for the following programmes were published in January 2010:

Functional Genomic Variation in the Epilepsies (EuroEPINOMICS)
2011-2014, EMRC
▸ www.esf.org/euroepinomics

Ecology of Plant Volatiles, from Molecules to the Globe (EuroVOL)
2011-2014, LESC
▸ www.esf.org/eurovol

European Trans-Atlantic Coral Ecosystem Study (EuroTRACES)
2011-2014, LESC
▸ www.esf.org/eurotraces

Molecular Science for a Conceptual Transition from Fossil to Solar Fuels (EuroSolarFuels)
2011-2014, LESC
▸ www.esf.org/eurosolarfuels

Bio-inspired Engineering of Sensors, Actuators and Systems (EuroBioSAS)
2011-2014, PESC
▸ www.esf.org/eurobiosas

Graphs in Geometry and Algorithms (EuroGIGA)
2011-2014, PESC
▸ www.esf.org/eurogiga

Understanding and Misunderstanding: Cognition, Communication and Culture (EuroUnderstanding)
2011-2014, SCH
▸ www.esf.org/eurounderstanding

* Leading Committee
** Programme in the selection phase

European Collaborative Research Projects in the Social Sciences (ECRP)

The Social Sciences Unit operates an annual call in the social sciences on behalf of 21 social science funding organisations across Europe. This responsive-mode scheme is open to applications on any topic in the social sciences that can demonstrate a framework for international collaboration.

▸ **www.esf.org/ecrp**

European Collaborative Research Projects VI (ECRP VI) **
2011-2014, SCSS
▸ www.esf.org/ecrp6

European Collaborative Research Projects V (ECRP V)
2010-2013, SCSS
▸ www.esf.org/ecrp5

European Collaborative Research Projects IV (ECRP IV)
2009-2012, SCSS
▸ www.esf.org/ecrp4

European Collaborative Research Projects III (ECRP III)
2008-2011, SCSS
▸ www.esf.org/ecrp3

European Collaborative Research Projects II (ECRP II)
2007-2010, SCSS
▸ www.esf.org/ecrp2

** Programme in the selection phase

Research Networking Programmes

The Research Networking Programmes (RNPs), running up to five years, are a networking platform for nationally funded research groups to meet and discuss major scientific and research infrastructure issues with the goal to advance the frontiers of science which require transnational collaboration. A successful programme proposal, selected following an open call and an international peer review process, must demonstrate both high-quality research and added value of being carried out at the European level.
The programmes are funded by a sub-set of ESF Member Organisations interested in a specific proposal recommended by ESF. RNPs involve annually close to 10 000 researchers.

▸ **www.esf.org/programmes**

List of current Research Networking Programmes:

Medical Sciences (EMRC)

European LeukemiaNet (ESF-ELN)
2010-2015, EMRC
▸ www.esf.org/esf-eln

European Myositis Network (EUMYONET), 2010-2015, EMRC
▸ www.esf.org/eumyonet

European Network for Gastrointestinal Health Research (ENGIHR)
2010-2014, EMRC
▸ www.esf.org/engihr

European Network for the Study of Adrenal Tumors (ESF-ENS@T)
2009-2014, EMRC
▸ www.esf.org/esf-ensat

The Identification of Novel Genes and Biomarkers for Systemic Lupus Erythematosus (BIOLUPUS)
2009-2014, EMRC
▸ www.esf.org/biolupus

The Euroglycosciences Forum (EUROGLYCOFORUM)
2009-2013, EMRC/LESC*
▸ www.esf.org/glycoscience

The European Child Cohort Network (EUCCONET)
2008-2013, EMRC*/SCSS
▸ www.esf.org/eucconet

Regenerative Medicine (REMEDIC)
2008-2013, EMRC
▸ www.esf.org/remedic

Functional Genomics in Aspergillus Fumigatus and New Strategies to Fight against the First Fungal Pathogen in Europe (FUMINOMICS)
2008-2012, EMRC*/LESC
▸ www.esf.org/fuminomics

European Research Network for Investigating Human Sensorimotor Function in Health and Disease (ERNI-HSF) 2007-2012, EMRC
▸ www.esf.org/erni-hsf

Frontiers of Functional Genomics (FFG)
2006-2011, EMRC/LESC*
▸ www.esf.org/ffg

Life, Earth and Environmental Sciences (LESC)

EARTHTIME – The European Contribution (EARTHTIME-EU)
2010-2015, LESC
▸ www.esf.org/earthtime-eu

Micro-Dynamics of Ice (Micro-DICE)
2010-2015, LESC
▸ www.esf.org/microdice

Research and Monitoring for and with Raptors in Europe (EURAPMON)
2010-2015, LESC
▸ www.esf.org/eurapmon

Advances in Farm Animal Genomic Resources (GENOMIC-RESOURCES)
2010-2014, LESC
▸ www.esf.org/genomic-resources

Tall TOwer and Surface Research Network for Verification of Climate Relevant Emissions of Human Origin in Europe (TTORCH)
2009-2014, LESC
▸ www.esf.org/ttorch

The Euroglycosciences Forum (EUROGLYCOFORUM)
2009-2013, EMRC/LESC*
▸ www.esf.org/glycoscience

The Functionality of Iron Minerals in Environmental Processes (FIMIN)
2009-2013, LESC
▸ www.esf.org/fimin

Climate Change – Manipulation Experiments in Terrestrial Ecosystems (CLIMMANI)
2008-2013, LESC
▸ www.esf.org/climmani

Evolution of Social Cognition: comparisons and integration across wide range of human and non-human animal species (CompCog)
2008-2013, LESC/SCSS*
▸ www.esf.org/compcog

Frontiers of Speciation Research (FroSpects)
2008-2013, LESC
▸ www.esf.org/frospects

Natural Molecular Structures as Drivers and Tracers of Terrestrial C Fluxes (MOLTER)
2008-2013, LESC
▸ www.esf.org/molter

Functional Genomics in Aspergillus Fumigatus and New Strategies to Fight Against the First Fungal Pathogen in Europe (Fuminomics)
2008-2012, EMRC*/LESC
▸ www.esf.org/fuminomics

European Networking Summer School (Plant & Bioinformatics) (ENSS)
2007-2012, LESC
▸ www.esf.org/enss

Body-size and Ecosystem Dynamics: integrating pure and applied approaches from aquatic and terrestrial ecology to support an ecosystem approach (SIZEMIC)
2007-2011, LESC
▸ www.esf.org/sizemic

Frontiers of Functional Genomics (FFG)
2006-2011, EMRC/LESC*
▸ www.esf.org/ffg

Functional Dynamics in Complex Chemical and Biological Systems (FUNCDYN)
▸ www.esf.org/funcdyn, 2006-2011, PESC/LESC*

Mediterranean Climate Variability and Predictability (MedCLIVAR)
2006-2011, LESC
▸ www.esf.org/medclivar

Nitrogen in Europe: Assessment of current problems and future solutions (NinE)
2006-2011, LESC
▸ www.esf.org/nine

Thermal Adaptation in Ectotherms: linking life history, physiology, behaviour and genetics (ThermAdapt)
2006-2011, LESC
▸ www.esf.org/thermadapt

Workshops on Marine Research Drilling (Magellan Workshop Series)
2006-2011, LESC
▸ www.esf.org/magellan

Archean Environmental Studies: the Habitat of Early Life (ArchEnviron)
2005-2010, LESC
▸ www.esf.org/archenviron

Physical and Engineering Sciences (PESC)

Common Perspectives for Cold Atoms, Semiconductor Polaritons and Nanoscience (POLATOM)
2010-2015, PESC
▸ www.esf.org/polatom

Contact and Symplectic Topology (CAST)
2010-2015, PESC
▸ www.esf.org/cast

Gaia Research for European Astronomy Training (GREAT)
2010-2015, PESC
▸ www.esf.org/great

New Approaches to Biochemical Sensing with Plasmonic Nanobiophotonics (PLASMON-BIONANOSENSE)
2010-2015, PESC
▸ www.esf.org/plasmon-bionanosense

New Frontiers in Millimetre/Sub-Millimetre Waves Integrated Dielectric Focusing Systems (NEWFOCUS)
2010-2015, PESC
▸ www.esf.org/newfocus

Random Geometry of Large Interacting Systems and Statistical Physics (RGLIS)
2010-2015, PESC
▸ www.esf.org/rglis

Exploring the Physics of Small Devices (EPSD)
2009-2014, PESC
▸ www.esf.org/epsd

Interactions of Low-Dimensional Topology and Geometry with Mathematical Physics (ITGP)
2009-2014, PESC
▸ www.esf.org/itgp

New Frontiers of Infinity: mathematical, philosophical and computational prospects (INFTY)
2009-2014, SCH*/PESC
▸ www.esf.org/infty

Quantum Spin Coherence and Electronics (QSpiCE)
2009-2014, PESC
▸ www.esf.org/qspice

Super-Intense Laser-matter Interactions (SILMI)
2009-2014, PESC
▸ www.esf.org/silmi

Games for Design and Verification (GAMES)
2008-2013, PESC
▸ www.esf.org/games

Interdisciplinary Approaches to Functional Electronic and Biological Materials (INTELBIOMAT)
2008-2013, PESC
▸ www.esf.org/intelbiomat

The New Physics of Compact Stars (CompStar)
2008-2013, PESC
▸ www.esf.org/compstar

New Trends and Applications of the Casimir Effects (CASIMIR)
2008-2013, PESC
▸ www.esf.org/casimir

Optimization with PDE Constraints (OPTPDE)
2008-2013, PESC
▸ www.esf.org/optpde

Harmonic and Complex Analysis and its Applications (HCAA)
2007-2012, PESC
▸ www.esf.org/hcaa

Mapping the Detailed Composition of Surface-adsorbed Protein Layers on Biomaterials and Nanoparticles – an alternative approach to biocompatibility and nanotoxicity (EpitopeMap)
2007-2012, PESC
▸ www.esf.org/epitopemap

Multidisciplinary Frontiers of Magnetic Resonance (EMAR)
2007-2012, PESC
▸ www.esf.org/emar

Nanoscience and Engineering in Superconductivity (NES)
2007-2012, PESC
▸ www.esf.org/nes

Computational Astrophysics and Cosmology (ASTROSIM)
2006-2011, PESC
▸ www.esf.org/astrosim

Functional Dynamics in Complex Chemical and Biological Systems (FUNCDYN)
2006-2011, PESC/LESC*
▸ www.esf.org/funcdyn

Molecular Simulations in Biosystems and Material Science (SimBioMa)
2006-2011, PESC
▸ www.esf.org/simbioma

New Generation of Organic Based Photovoltaic Devices (ORGANISOLAR)
2006-2011, PESC
▸ www.esf.org/organisolar

Quantum Geometry and Quantum Gravity (QG)
2006-2011, PESC
▸ www.esf.org/qg

Interdisciplinary Statistical and Field Theory Approaches to Nanophysics and Low Dimensional Systems (INSTANS)
2005-2010, PESC
▸ www.esf.org/instans

Advanced Mathematical Methods for Finance (AMaMeF)
2005-2010, PESC
▸ www.esf.org/amamef

Automata: from Mathematics to Applications (AutoMathA)
2005-2010, PESC
▸ www.esf.org/automatha

Highly Frustrated Magnetism (HFM)
2005-2010, PESC
▸ www.esf.org/hfm

Ultrafast Structural Dynamics in Physics, Chemistry, Biology and Material Science (DYNA)
2005-2010, PESC
▸ www.esf.org/dyna

Humanities (SCH)

Court Residences as Places of Exchanges in Late Medieval and Early Modern Europe (1400-1700) (PALATIUM)
2010-2015, SCH
▸ www.esf.org/palatium

Beyond Territoriality: globalisation and transnational human rights obligations (GLOTHRO)
2010-2014, SCH/SCSS*
▸ www.esf.org/glothro

Responding to Complex Diversity in Europe and Canada (RECODE)
2010-2014, SCH/SCSS*
▸ www.esf.org/recode

Comparative Oriental Manuscripts Studies (COMSt)
2009-2014, SCH
▸ www.esf.org/comst

New Frontiers of Infinity: mathematical, philosophical and computational prospects (INFTY)
2009-2014, SCH*/PESC
▸ www.esf.org/infty

Experimental Pragmatics in Europe (EURO-XPRAG)
2009-2013, SCH
▸ www.esf.org/euro-xprag

The Philosophy of Science in a European Perspective (PSE)
2008-2013, SCH
▸ www.esf.org/pse

Standard drugs and drug standards (DRUGS)
2008-2013, SCH
▸ www.esf.org/drugs

Associated Regional Chronologies for the Ancient Near East and Eastern Mediterranean (ARCANE)
2006-2011, SCH
▸ www.esf.org/arcane

Social Sciences (SCSS)

Beyond Territoriality: Globalisation and Transnational Human Rights Obligations (GLOTHRO)
2010-2014, SCSS*/SCH
▸ www.esf.org/glothro

Responding to Complex Diversity in Europe and Canada (RECODE)
2010-2014, SCSS*/SCH
▸ www.esf.org/recode

African Borderlands Research Network (ABORNE)
2009-2014, SCSS
▸ www.esf.org/aborne

European Social Cognition Network 2 (ESCON 2)
2009-2014, SCSS
▸ www.esf.org/escon2

Academic Patenting in Europe (APE-INV)
2009-2013, SCSS
▸ www.esf.org/ape-inv

Evolution of Social Cognition: comparisons and integration across a wide range of human and non-human animal species (CompCog)
2008-2013, SCSS*/LESC
▸ www.esf.org/compcog

The European Children Cohorts Network (EUCCONET)
2008-2013, EMRC/SCSS*
▸ www.esf.org/eucconet

Quantitative Methods in the Social Sciences 2 (QMSS 2)
2008-2012, SCSS
▸ www.esf.org/qmss2

European Neuroscience and Society Network (ENSN)
2007-2012, SCSS
▸ www.esf.org/ensn

TransEurope Research Network (TRANSEUROPE) Transnationalisation and Changing Life Course Inequality in Europe
2006-2011, SCSS
▸ www.esf.org/transeurope

Globalizing Europe Economic History Network (GLOBALEURONET)
2006-2010, SCSS
▸ www.esf.org/globaleuronet

Public Goods, Public Projects, Externalities (PGPPE)
2006-2010, SCSS
▸ www.esf.org/pgppe

Qualitative Research in the Social Sciences in Europe (EUROQUAL)
2006-2010, SCSS
▸ www.esf.org/euroqual

* Leading Committee

LESC: Standing Committee for Life, Earth and Environmental Sciences
PESC: Standing Committee for Physical and Engineering Sciences
EMRC: Standing Committee for the European Medical Research Councils
SCH: Standing Committee for the Humanities
SCSS: Standing Committee for the Social Sciences

Research Conferences

ESF Research Conferences provide the opportunity for leading scientists and young researchers to jointly discuss the latest developments in new and emerging fields of research. Topics are proposed by the scientific community through an annual call for proposals.

The Research Conferences Scheme currently contains conference series in: • Biomedicine • Chemistry • Environmental sciences • Humanities • Interdisciplinary natural and social sciences • Mathematics • Molecular biology at the interface with other disciplines • Physics/biophysics • Social sciences. Each series is conceived, branded and financed in partnership with high-level European research organisations, including universities and industry.

The Research Conferences last four to five days and bring together up to 150 researchers of different disciplines, backgrounds and nationalities. They promote an atmosphere of free discussion and exchange of information, and aim to create long-term networks between participants. Conferences are open to researchers from academia, industry, society and policy worldwide.

Activities of the ESF Conferences Unit also include world conferences (such as the ESF-JSPS Frontier Science Conferences for Young Researchers) as well as a series of summer and winter schools in physics.

▸ **www.esf.org/conferences**

2010 events
(September-December):

- *ESF Research Conference*
  Bacterial Networks 2010, 4-9 September, Sant Feliu de Guixols, ES
- *ESF-COST High-Level Research Conference*
  Natural Products Chemistry, Biology and Medicine III, 5-10 September, Acquafredda di Maratea, IT
- *ESF-LiU Conference*
  Paying Attention: Digital Media Cultures and Generational Responsibility, 6-10 September, Linköping, SE
- *ESF-FWF Conference in Partnership with LFUI*
  Submarine Paleoseismology: The Offshore Search of Large Holocene Earthquakes, 11-16 September, Obergurgl, AT
- *ESF Mathematics Conference in partnership with EMS and ERCOM*
  Highly Oscillatory Problems: From Theory to Applications, 12-17 September, Cambridge, UK
- *ESF-COST High-Level Research Conference*
  Future Internet and Society: Complex Networks Perspective, 2-7 October, Acquafredda di Maratea, IT
- *ESF-EMBO Symposium*
  Emergent Properties of the Cytoskeleton: Molecules to Cells, 3-8 October, Sant Feliu de Guixols, ES
- *ESF-COST High-Level Research Conference*
  Networked Humanities: Art History in the Web, 9-14 October, Acquafredda di Maratea, IT

- *ESF-EMBO Symposium*
  Functional Neurobiology in Minibrains: From Flies to Robots and Back Again, 17-22 October, Sant Feliu de Guixols, ES
- *ESF-UB Conference in Biomedicine*
  Nanomedicine: Reality Now and Soon, 23-28 October, Sant Feliu de Guixols, ES
- *Europe-Africa Frontier Research Conference*
  Dynamic Interlinkages between Social and Ecosystem Changes: Towards a Europe Africa Partnership, 8-12 November, Hulshorst, NL
- *ESF-EMBO Symposium*
  Molecular Perspectives on Protein-Protein Interactions, 14-19 November, Sant Feliu de Guixols, ES
- *ESF-Bielefeld-CeBiTec Conference*
  Microbes and Industrial Biotechnology, 21-24 November, Bielefeld, DE
- *ESF-ZiF-Bielefeld Conference*
  Environmental Change and Migration: From Vulnerabilities to Capabilities, 5-9 December, Bad Salzuflen, DE
- *ESF Mathematics Conference in partnership with EMS and ERCOM*
  Combinatorics and Analysis, 12-17 December, Eindhoven, NL
- *ESF-COST High-Level Research Conference*
  Extreme Environmental Events, 13-17 December, Cambridge, UK

2011 events (to be completed)

- *ESF-JSPS Frontier Science Conference for Young Researchers*
  Cutting Edge Immunology and Its Clinical Application, 1-6 March, Hulshorst, NL
- *ESF-EMBO Symposium*
  Molecular Bioenergetics of Cyanobacteria: From Cell to Community, 10-15 April, Sant Feliu de Guixols, ES
- *ESF-LFUI Research Conference*
  Fundamental Science of Graphene and Applications of Graphene-Based Devices, 24-29 April, Obergurgl, AT
- *ESF-LFUI Research Conference*
  Water Governance: Meeting the Challenges of Global Change, 5-10 June, Obergurgl, AT
- *ESF Research Conference*
  MedCLIVAR Final Conference – Mediterranean Climate: From Past to Future, 6-9 June, Lecce, IT
- *ESF-EMBO Symposium*
  B Cells and Protection: Back to Basics, 12-17 June, Sant Feliu de Guixols, ES
- *ESF-UB Summer School*
  3rd European Summer School in Nanomedicine, 19-24 June, Wittenberg, DE
- *ESF-LiU Conference*
  Religion, Gender, and Human Rights: Challenges for Multicultural and Democratic Societies, 21-25 June, Linköping, SE
- *ESF-EMBO Symposium*
  Biological Surfaces and Interfaces, 26 June – 1 July, Sant Feliu de Guixols, ES
- *ESF Mathematics Conference in partnership with EMS and ERCOM*
  Third European Set Theory Conference, 3-8 July, Edinburgh, UK
- *ESF Mathematics Conference in partnership with EMS and ERCOM*
  Completely Integrable Systems and Applications, 3-8 July, Vienna, AT
- *ESF-LFUI Research Conference*
  Charge Transfer in Biosystems, 17-22 July, Obergurgl, AT
- *ESF-LiU Conference*
  Re-Visiting The Contact Zone: Museums, Theory, Practice, 17-21 July, Linköping, SE
- *ESF-LFUI Research Conference*
  Cosmogenic Nuclides, 8-13 August, Obergurgl, AT
- *ESF-EMBO Symposium*
  Glutathione and Related Thiols in Living Cells, 4-9 September, Sant Feliu de Guixols, ES
- *ESF-LiU Conference*
  The 'New Monarchy': Rethinking the Relations of Elites and Princes In Europe's Iron Century, 1590s to 1720, 5-9 September, Linköping, SE
- *ESF Research Conference*
  NanoCarb'11, 6-11 September, Acquafredda di Maratea, IT
- *ESF-EMBO Symposium*
  Epigenetics in Context: From Ecology to Evolution, 18-23 September, Sant Feliu de Guixols, ES
- *ESF-LFUI Research Conference*
  Continuing Challenges in Earthquake Dynamics: New Methods for Observing and Modelling a Multi-Scale System, 24-29 September, Obergurgl, AT
- *ESF-EMBO Symposium*
  Synthetic Biology of Antibiotic Production, 2-7 October, Sant Feliu de Guixols, ES
- *ESF-LiU Conference*
  Eco-Chic: Connecting Ethical, Sustainable and Elite Consumption, 10-14 October, Linköping, SE

Science Management

Programme management defines the third pillar of ESF operations – Science Management. Under this area of activities ESF is dedicated to serve the scientific community in strengthening the position of cutting-edge science in Europe in a cost-effective manner by creating synergies between funding sources and by assisting the breaking down of barriers to cross-boundary cooperation.

Peer Review Support

Responding to a need in Europe, ESF provides peer review and research evaluation support to its Member Organisations and when appropriate to other similar establishments.
The nature and scope of this host of activities encompass contributions from provision of expert reviewers for particular peer review missions to full-scale planning, coordination and management of specialised peer review and research evaluation assignments. The underlying competencies have resulted from core science management activities at the ESF, and enhanced through common actions, dialogues and joint policy initiatives such as Member Organisation Fora, and EUROHORCs Mandates.

Coordination of European Commission Projects

ERA-NET is a scheme of the European Commission to promote the coordination and cooperation of national and regional programmes in order to overcome the traditional fragmentation of research efforts in the European Union (EU). It was introduced in the Sixth Framework Programme for Research and Technological Development (FP6). The scheme is also open to consortia for coordinating national programmes in researcher-led science. The ERA-NET scheme operates via an open call, welcoming proposals for coordination actions in any field of science and technology in a bottom-up approach.
The Commission pays the additional costs for funding agencies related to the coordination. Many of the ESF's Member Organisations are active in ERA-NETs covering different topics and specific domains. In FP7, it has been proposed to expand the ERA-NET instrument to include funding contributions to cooperative research.

- **Coordination Action for Research Activities on Life in Extreme Environments (CAREX)**

  The CAREX project is a Coordination Action funded by the European Commission under the Seventh Framework Programme. CAREX builds on the ESF "Investigating Life in Extreme Environments" initiative (2004-2006) and adopts an interdisciplinary approach to the subject, covering microbial life, life strategies of plants and life strategies of animals on various extreme environments ranging from deep sea to polar regions and even outer space bodies.
  The two main objectives of the proposed CAREX project are i) to strengthen the structure of the community involved in life in extreme environments research in Europe by catalysing networking, interactions and exchange of best practices among it and, ii) to further the knowledge of life in extreme environments by developing a strategic research agenda for Europe in this field. This project lasts three years (2008-2010) and encompasses, among other things, three large scale interdisciplinary workshops and the implementation of a web-based communication platform.

  ▸ **www.carex-eu.org**

- **Towards Human Exploration of Space: a EUropean Strategy (THESEUS)**

  The THESEUS project is a Coordination Action funded by the European Commission under the 7th Framework Programme under grant agreement nº 242482.
  Past space missions in Earth orbit have demonstrated that human

beings can survive and work in space for long durations. However, there are pending technological, medical and psychological issues to be solved before adventuring in longer duration space missions (protection against ionizing radiation, psychological issues, behaviour and performances, prevention of bone loss, etc). Furthermore, technological breakthroughs, e.g. in life support systems and recycling technologies are required to reduce the costs of these expeditions to acceptable levels. Solving these issues will need scientific and technological breakthroughs of interest for clinical and industrial applications and also allow identifying the relevance of these questions to health issues on Earth. Despite existing ESA or NASA studies or roadmaps, Europe still has no roadmap approved by the European scientific and industrial communities. The objective of THESEUS is to develop an integrated life sciences research roadmap enabling European human space exploration in synergy with the ESA strategy, taking advantage of the expertise available in Europe and identifying the potential of non-space applications and dual research and development, by (i) identifying disciplinary research priorities; (ii) focussing on fields with high terrestrial application potential; and (iii) building a European network as the core of this strategy.

▸ **www.theseus-eu.org**

- **European Polar Consortium (EUROPOLAR ERA-NET)**

EuROPOLAR ERA-NET is composed of 25 ministries, funding agencies and national polar RTD authorities from 19 European countries (including the Russian Federation and Greenland Home Rule Government) with the overall aim of strengthening and deepening European nations' strategic cooperation in the polar regions and ensuring a strong driver for developing joint European programmes and contributions to environmental policy development in the European union. It is the first time that Russian and European union countries have cooperated so closely on the strategic aspects of polar research programmes leading to the development of a European Polar Consortium liaison office in St Petersburg within the Arctic and Antarctic Institute of the Roshydromet Agency. The strategic vision and long-term goal of the European Polar Consortium is the development of a "European Polar Entity" which will be established through a dialogue at a political level. During the next 12-18 months the European Polar Consortium will seek agreement to put forward strategic recommendations from the funding agencies and ministries of EuROPOLAR on the development of cooperative research programme areas of frontier polar science including the fields of astronomy and astrophysics, polar genomics and life in extreme environments. ESF-European Polar Board unit is responsible for the strategic direction and management of the project.

▸ **www.europolar.org**

- **European Polar Research Icebreaker Consortium (ERICON-AB)**

The ERICON-AB project, involving 10 countries, will generate the strategic, legal, financial and organisational frameworks required from national governments and the European Commission to commit financial resources to the construction and running of the European polar research icebreaker AURORA BOREALIS. Scientific management frameworks will be assessed including mechanisms to handle dedicated large-scale multi-year or special mission-specific research programmes. The strategic integration of the facility into the fabric of the European Research Area shall be achieved by connecting the national research priorities and the demand for ship time of the stakeholder countries with a European level facility. The relevance of the facility in promoting science and technology cooperation with EU strategic partner countries such as the Russian Federation will be specifically analysed. Deliverables will focus on moving the project from the preparatory phase to the construction phase by addressing key barriers especially in relation to engineering initial financial models that allow the participation of both EU member states and non-EU partner countries. Consortium beneficiaries and legal experts will develop the environment for frameworks for joint ownership and operation of a multi-country research facility. A dedicated legal implementation structure for managing and operating the AURORA BOREALIS will be proposed and its connection with other existing research assets such as polar stations, air support

and supporting satellite assets will be analysed. The final deliverables of this project will be concerned with reaching a decision point and agreement with nations ready to move forward with the construction phase. It is anticipated that a series of natural decision points for agencies/governments to pass on their individual degree of integration into the project will be programmed in to the ERICON-AB stakeholder councils meetings.

▸ **www.eri-aurora-borealis.eu**

• European Social Survey

The European Social Survey is a multi-country, biannual survey designed to monitor and interpret changing public attitudes and values within Europe and to investigate how they interact with Europe's changing institutions. The first three rounds of the survey took place in 2002, 2004 and 2006 and the field work of round four took place in the autumn of 2008. So far the fourth round is the most successful: 30 countries participate in the project, more than ever. The European Social Survey has been one of the main success stories of ESF: more and more countries have been supporting it since its start 10 years ago; it was the first social science project that got the Descartes Prize; Roger Jowell, its principal investigator, was knighted by the Queen of England; a review panel of the best possible experts from around the world gave a very favourable evaluation of its performance. Now, ESS is working on becoming a fully-fledged European Research Infrastructure Consortium (ERIC) after 2012. ESF in general and SCSS in particular have helped ESS start, develop and reach a point where the ERIC status is a probable next stage for the project.

▸ **www.esf.org/ess**

• Humanities in the European Research Area Joint Research Programme (HERA JRP)

HERA Network is a partnership between 21 humanities research councils across Europe and the European Science Foundation. The development of the Network was supported by the EC ERA-NET funding during 2004-2009. The overall objectives of HERA are to stimulate trans-national research cooperation in the humanities and to overcome fragmentation of research in the field in Europe. It also aims at improving cooperation between research funding agencies in Europe as well as at establishing best practices in science management and at setting up joint research programmes.
In January 2009 HERA launched the first Joint Research Programme (HERA JRP) for two themes 'Cultural Dynamics: Inheritance and Identity' and 'Humanities as a Source of Creativity and Innovation'. The programme is co-funded by 13 national funding agencies under the common pot funding mechanism and by the European Commission under the ERA-NET Plus scheme.
An overview of the funded projects can be accessed at www.heranet.info. The total budget of the 19 projects, most of which will run for three years, amounts to 16,4M EUR. In its role as the handling agency for HERA JRP, ESF managed the call for proposals, the two-stage peer review process as well as the contracting with the funded projects. It is now monitoring the projects and managing their networking and knowledge transfer activities.

▸ **www.heranet.info**

Appendices

Appendix 1

Member Organisations

Austria

- Fonds zur Förderung der wissenschaftlichen Forschung in Österreich (FWF) *
  Austrian Science Fund
  www.fwf.ac.at
- Österreichische Akademie der Wissenschaften (ÖAW) **
  Austrian Academy of Sciences
  www.oeaw.ac.at

Belgium

- Fonds de la Recherche Scientifique (FNRS) *
  Fund for Scientific Research
  www.fnrs.be
- Fonds voor Wetenschappelijk Onderzoek-Vlaanderen (FWO) *
  Research Foundation Flanders
  www.fwo.be

Bulgaria

- Българска академия на науките (BAS) **
  Bulgarian Academy of Sciences
  www.bas.bg
- Научни изследвания
  National Science Fund of Bulgaria
  www.nsfb.bg

Croatia

- Hrvatska akademija znanosti i umjetnosti (HAZU) **
  Croatian Academy of Sciences and Arts
  www.hazu.hr
- Nacionalna zaklada za znanost, visoko skolstvo i tehnologijski razvoj Republike Hrvatske (NZZ)
  The National Foundation of Science, Higher Education and Technological Development of the Republic of Croatia
  www.nzz.hr

Cyprus

- Ίδρυμα Προώθησης Έρευνας (RPF)
  Cyprus Research Promotion Foundation
  www.research.org.cy

Czech Republic

- Akademie věd České republiky (ASCR) **
  Academy of Sciences of the Czech Republic
  www.cas.cz
- Grantová agentura České republiky (GAČR) *
  Czech Science Foundation
  www.gacr.cz

Denmark

- Danmarks Grundforskningsfonden (DG)
  Danish National Research Foundation
  www.dg.dk
- Det Kongelige Danske Videnskabernes Selskab **
  Royal Danish Academy of Sciences and Letters
  www.royalacademy.dk
- Det Frie Forskningsråd – Kultur og Kommunikation (FKK) *
  The Danish Council for Independent Research – Humanities
- Det Frie Forskningsråd – Sundhed og Sygdom (FSS) *
  The Danish Council for Independent Research – Medical Sciences
- Det Frie Forskningsråd – Natur og Univers (FNU) *
  The Danish Council for Independent Research – Natural Sciences
- Det Frie Forskningsråd – Samfund og Erhverv (FSE) *
  The Danish Council for Independent Research – Social Sciences
- Det Frie Forskningsråd – Teknologi og Produktion (FTP) *
  The Danish Council for Independent Research – Technology and Production

The secretarial functions for all five Danish research councils are assumed by:

- Forsknings- og Innovationsstyrelsen (FIST)
  Danish Agency for Science, Technology and Innovation
  www.fi.dk

Estonia

- Eesti Teaduste Akadeemia **
  Estonian Academy of Sciences
  www.akadeemia.ee
- Eesti Teadusfond (ETF) *
  Estonian Science Foundation
  www.etf.ee

Finland

- Suomen Akatemia/Finlands Akademi *
  Academy of Finland
  www.aka.fi
- Tiedeakatemiajaosto/Sektionen för Vetenskapsakademierna **
  Delegation of the Finnish Academies of Science and Letters
  www.tsv.fi/international/akatemiat

France

- Agence Nationale de la Recherche (ANR) *
  French National Research Agency Foundation
  www.anr.fr
- Centre National de la Recherche Scientifique (CNRS) *
  National Centre for Scientific Research
  www.cnrs.fr
- Commissariat à l'Énergie Atomique/Direction des Sciences de la Matière (CEA/DSM) *
  Materials Sciences Division of the Atomic Energy Commission
  www.cea.fr
- Institut Français de Recherche pour l'Exploitation de la Mer (Ifremer) *
  French Research Institute for Exploitation of the Sea
  www.ifremer.fr
- Institut National de la Recherche Agronomique (INRA) *
  National Institute for Agronomic Research
  www.inra.fr
- *Institut National de La Santé et de la Recherche Médicale (Inserm)* *
  www.inserm.fr
- Institut de Recherche pour le Développement (IRD) *
  National Institute for Development
  www.ird.fr

Germany

- Deutsche Forschungsgemeinschaft (DFG) *
  German Research Foundation
  www.dfg.de
- Helmholtz-Gemeinschaft Deutscher Forschungszentren (HGF) *
  Helmholtz Association of German Research Centres
  www.hfg.de
- Max-Planck-Gesellschaft (MPG) *
  Max Planck Society
  www.mpg.de
- Union der deutschen Akademien der Wissenschaften **
  Union of the German Academies of Sciences and Humanities
  www.akademienunion.de

Greece

- ΕΟΝΙΚΟ ΙΔΡΥΜΑ ΕΡΕΥΝΩΝ (NHRF) *
  National Hellenic Research Foundation
  www.eie.gr/index-en.html
- Ίδρυμα Τεχνολογίας και Έρευνας (FORTH)
  Foundation for Research and Technology – Hellas
  www.forth.gr

* EUROHORCs
** ALLEA

Hungary

- Magyar Tudományos Akadémia (MTA) **
  Hungarian Academy of Sciences
  www.mta.hu
- Országos Tudományos Kutatási Alapprogramok (OTKA) *
  Hungarian Scientific Research Fund
  www.otka.hu

Iceland

- RANNIS *
  Icelandic Centre for Research
  www.rannis.is

Ireland

- An Chomhairle um Thaighde sna Dána agus sna hEolaíochtaí Sóisialta (IRCHSS)
  Irish Research Council for the Humanities and Social Sciences
  www.irchss.ie
- Health Research Board (HRB)
  www.hrb.ie
- Irish Research Council for Sciences, Engineering and Technology (IRCSET)
  www.ircset.ie
- Science Foundation Ireland (SFI) *
  www.sfi.ie

Italy

- Consiglio Nazionale delle Ricerche (CNR) *
  National Research Council
  www.cnr.it
- Istituto Nazionale di Fisica Nucleare (INFN) *
  National Institute for Nuclear Physics
  www.infn.it

Lithuania

- Lietuvos Valstybinis Mokslo Ir Studijų Fondas
  Lithuanian State Science and Studies Foundation
  www.vmsfondas.lt

Luxembourg

- Fonds National de la Recherche (FNR) *
  National Research Fund
  www.fnr.lu

Netherlands

- Koninklijke Nederlandse Akademie van Wetenschappen (KNAW) **
  Royal Netherlands Academy of Arts and Sciences
  www.knaw.nl
- Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO) *
  Netherlands Organisation for Scientific Research
  www.nwo.nl

Norway

- Det Norske Videnskaps-Akademi **
  Norwegian Academy of Science and Letters
  www.dnva.no
- Norges Forskningsråd *
  Research Council of Norway
  www.forskningsradet.no

Poland

- Polska Akademia Nauk (PAN) **
  Polish Academy of Sciences
  www.pan.pl

Portugal

- Academia das Ciências de Lisboa **
  Lisbon Academy of Sciences
  www.acad-ciencias.pt
- Fundação para a Ciência e a Tecnologia (FCT) *
  Foundation for Science and Technology
  www.fct.mctes.pt

Romania

- Consiliul National al Cercetarii Stiintifice din Invatamantul Superior (CNCSIS)
  National University Research Council
  www.cncsis.ro

Slovak Republic

- Slovenská Akadémia Vied (SAV) **
  Slovak Academy of Sciences
  www.sav.sk
- Agentúra na podporu výskumu a vývoja (APVV) *
  Slovak Research and Development Agency
  www.apvv.sk

Slovenia

- Javna agencija za raziskovalno dejavnost Republike Slovenije (ARRS) *
  Slovenian Research Agency
  www.arss.gov.si
- Slovenska Akademija Znanosti in Umetnosti (SAZU) **
  Slovenian Academy of Sciences and Arts
  www.sazu.si
- Slovenska Znanstvena Fundacija (SZF)
  Slovenian Science Foundation
  www.szf.si

Spain

- Consejo Superior de Investigaciones Científicas (CSIC) *
  Council for Scientific Research
  www.csic.es
- Comisión Interministerial de Ciencia y Tecnología (CICYT)
  Interministerial Committee on Science and Technology
  www.micinn.es

Sweden

- Forskningsrådet för arbetsliv och socialvetenskap (FAS)
  Swedish Council for Working Life and Social Research
  www.fas.forskning.se
- Forskningsrådet för miljö, areella näringar och samhällsbyggande (FORMAS)
  Swedish Council for Environment, Agricultural Sciences and Spatial Planning
  www.formas.se
- Kungliga Vetenskapsakademien **
  Royal Swedish Academy of Sciences
  www.kva.se
- Kungliga Vitterhets Historie och Antikvitets Akademien **
  Royal Academy of Letters, History and Antiquities
  www.vitterhetsakad.se
- Riksbankens Jubileumsfond
  www.rj.se
- Vetenskapsrådet (VR) *
  Swedish Research Council
  www.vr.se
- VINNOVA
  Swedish Agency for Innovation Systems
  www.vinnova.se

Switzerland

- Akademien der Wissenschaften Schweiz / Académies suisses des sciences **
  Swiss Academies of Arts and Sciences
  www.swiss-academies.ch
- Schweizerischer Nationalfonds (SNF) *
  Swiss National Science Foundation
  www.snf.ch

Turkey

- Türkiye Bilimsel ve Teknolojik Arastırma Kurumu (TÜBITAK) *
  The Scientific and Technological Research Council of Turkey
  www.tubitak.gov.tr

United Kingdom

- Arts and Humanities Research Council (AHRC) *
  www.ahrc.ac.uk
- Biotechnology and Biological Sciences Research Council (BBSRC) *
  www.bbsrc.ac.uk
- The British Academy **
  www.britac.ac.uk
- Economic and Social Research Council (ESRC) *
  www.esrc.ac.uk

- Engineering and Physical Sciences Research Council (EPSRC) * **www.epsrc.ac.uk**
- Medical Research Council (MRC) * **www.mrc.ac.uk**
- Natural Environment Research Council (NERC) * **www.nerc.ac.uk**
- Science and Technology Facilities Council (STFC) * **www.stfc.ac.uk**

* EUROHORCs
** ALLEA

Appendix 2

Governing Council 2010

- **Professor Ian Halliday** (United Kingdom), *President**
- **Professor Matthias Kleiner** (Germany), *Vice President**
- **Professor Peder Andersen**, Denmark
- **Mr Leonidas Antoniou**, Cyprus
- **Professor Eugenijus Butkus**, Lithuania
- **Dr Franci Demsar**, Slovenia
- **Professor Ioan Dumitrache**, Romania
- **Professor Jos J. Engelen**, Netherlands
- **Professor Frank Gannon**, Ireland
- **Dr Arvid Hallén**, Norway
- **Dr Véronique Halloin**, Belgium
- **Dr Daniel Höchli**, Switzerland
- **Professor Michal Kleiber**, Poland*
- **Professor Christoph Kratky**, Austria
- **Professor Luciano Maiani**, Italy
- **Professor Toivo Maimets**, Estonia
- **Professor Keith Mason**, United Kingdom
- **Professor Markku Mattila**, Finland
- **Mr François Meyer**, Luxembourg
- **Professor Milan Mogus**, Croatia
- **Professor Tamás Németh**, Hungary
- **Professor Ivan Netuka**, Czech Republic
- **Professor Pär Omling**, Sweden
- **Professor Jaromír Pastorek**, Slovak Republic
- **Professor Rafael Rodrigo Montero**, Spain
- **Professor Nikola Sabotinov**, Bulgaria
- **Professor João Sentieiro**, Portugal*
- **Professor André Syrota**, France
- **Professor Nüket Yetis**, Turkey

Nominations from Greece and Iceland are pending.

* Members of the Governing Council Steering Committee

Observers:
- **Professor Jüri Engelbrecht**, ALLEA
- **Dr John Smith**, EUA
- **Mr Seán O'Reagain**, European Commission

Appendix 3

Finance and Audit Committee, Science Advisory Board, Standing and Expert Committees and Boards

Finance and Audit Committee

- **Mr Martin Hynes,** Director, Irish Research Council for Sciences, Engineering and Technology (IRCSET), Dublin, Ireland
- *France:* **Mr François Chambelin**, Director of General Administration and Finance, Institut National de la Recherche Agronomique (INRA), Paris, France
- *Germany:* **Mr Jurij von Kreisler**, Head of Budget and Accounting Division, Deutsche Forschungsgemeinschaft (DFG), Bonn, Germany
- *Italy:* **Dr Nicoletta Palazzo**, Technologist, Division of European Activities and Relations, Consiglio Nazionale delle Ricerche (CNR), Genova, Italy
- *United Kingdom:* **Dr Peter Fletcher**, Head of Education and Innovation Division, Science and Technology Facilities Council (STFC), Swindon, United Kingdom
- *Group 1:* **Mr Christos Charalambous**, Financial Manager, Research Promotion Foundation, Nicosia, Cyprus
- *Group 2:* **Mgr Tatiana Kluvankova-Oravska**, Deputy Director, Institute of Forecasting, Slovak Academy of Sciences, Bratislav, Slovak Republic

- *Group 3:* **Dr Jiri Rákosník**, Deputy Director, Institute of Mathematics, Academy of Sciences of the Czech Republic, Prague, Czech Republic
- *Group 4:* **Dr Benno Hinnekint**, Director of the Fund for Scientific Research – Flanders, Brussels, Belgium
- *Group 5:* **Professor Peder Andersen**, University of Copenhagen, Institute of Food and Resource Economics, Frederiksberg, Denmark

Group 1: Cyprus, Greece, Portugal, Spain
Group 2: Bulgaria, Lithuania, Poland, Romania, Slovakia, Turkey
Group 3: Austria, Croatia, Czech Republic, Hungary, Slovenia, Switzerland
Group 4: Belgium, Ireland, Luxembourg, Netherlands
Group 5: Denmark, Estonia, Finland, Iceland, Norway, Sweden

Science Advisory Board

Independent members

- **Professor Raimo Väyrynen (Chair)**
  (Political Sciences)
  Finnish Institute of International Affairs, Helsinki, Finland
- **Professor Jean-Pierre Bourguignon**
  (Mathematics)
  Institut des Hautes Études Scientifiques, Bures-sur-Yvette, France
- **Professor Judith Howard**
  (Structural Chemistry)
  Science Laboratories, Department of Chemistry, University of Durham, United Kingdom
- **Professor Amélie Mummendey**
  (Social Psychology)
  Prorektorin für den Aufbau der Jenaer Graduierten-Akadem, Friedrich-Schiller-Universität Jena, Germany
- **Professor Giuseppe Novelli**
  (Genetics)
  Dipartimento di biopatologia e diagnostica per Immagini, Università di Roma – Tor Vergata, Rome, Italy
- **Professor Bozena Kaminska-Kaczmarek**
  (Molecular Biology)
  Laboratory of Transcription Regulation
  Department of Cell Biology, Nencki Institute of Experimental Biology, Warsaw, Poland
- **Professor Anders Tunlid**
  (Microbial Ecology)
  Section of Microbial Ecology, Department of Ecology, Lund University, Sweden

Standing Committee Chairs

- **Professor Reinhart Ceulemans** (Botany)
  Life, Earth & Environmental Sciences (LESC)
  University of Antwerpen, Department of Biology, Research Group of Plant and Vegetation Ecology, Wilrijk (Antwerpen), Belgium
- **Professor Sir Roderick Floud**
  (Economic History)
  Social Sciences (SCSS)
  Gresham College, London, United Kingdom
- **Professor Liselotte Højgaard**
  (Clinical Physiology)
  European Medical Research Councils (EMRC)
  Clinical Physiology, Nuclear Medicine & PET, Rigshospitalet, University of Copenhagen, Denmark
- **Professor Mats Gyllenberg**
  (Mathematics)
  Physical and Engineering Sciences (PESC)
  Department of Mathematics and Statistics, Rolf Nevanlinna Institute, University of Helsinki, Finland
- **Professor Milena Zic-Fuchs**
  (Philosophy)
  Humanities (SCH)
  Department of English Language, Faculty of Philosophy, University of Zagreb, Croatia

Standing Committees

Standing Committee for the European Medical Research Councils (EMRC)

- **Professor Liselotte Højgaard**
  (Chair)
  University of Copenhagen Copenhagen, Denmark
- **Dr Anne Bisagni Faure***,
  Institut National de la Santé et de la Recherche Médicale (INSERM), Paris, France
- **Professor Jacques Boniver**, Université de Liège, Liège, Belgium
- **Professor Roger Bouillon***, Katholieke Universiteit Leuven Leuven, Belgium
- **Professor Carsten Carlberg**, University of Luxembourg, Luxembourg
- **Professor Stéphanie Clarke**, Hosek Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne, Switzerland
- **Professor Anna Czlonkowska**, Institute of Psychiatry and Neurology, Warsaw, Poland
- **Professor Constantinos Deltas**, University of Cyprus, Nicosia, Cyprus
- **Professor Albert Gjedde**, University of Copenhagen, Copenhagen, Denmark
- **Professor Catherine Godson**, University College Dublin, Dublin, Ireland
- **Professor Zita Ausrele Kucinskiené**, University of Vilnius, Vilnius, Lithuania
- **Dr Jona Freysdottir Landspitali**, University Hospital Reykjavik, Iceland
- **Professor Hans Lassmann**, Vienna University, Medical School, Vienna, Austria
- **Professor Marcel Levi**, University of Amsterdam, Amsterdam, Netherlands
- **Professor Andrew Margioris**, University of Crete, Heraklion, Greece
- **Professor Markus Müller**, Medical University of Vienna, Vienna, Austria
- **Dr Giovanni Pacini***, ISIB – CNR, Padova, Italy
- **Dr Mark Palmer***, Medical Research Council, London, United Kingdom
- **Professor Kresimir Pavelic**, University of Zagreb, Zagreb, Croatia
- **Professor Bogdan Petrunov**, National Centre of Infectious and Parasitic Diseases, Sofia, Bulgaria
- **Dr Miguel Angel Piris Pinilla**, Fundacion Centro Nacional Investig. Oncologicas Carlos III, Madrid, Spain
- **Dr Katarína Poláková**, Slovak Academy of Sciences, Bratislava, Slovak Republic
- **Dr János Réthelyi**, Semmelweis University, Budapest, Hungary
- **Professor Joaquim Ribeiro**, University of Lisbon, Lisboa, Portugal
- **Professor Martin Röllinghoff***, Erlangen-Nuremberg Universität, Erlangen, Germany
- **Professor Simona-Maria Ruta**, "Carol Davila" University of Medicine, Bucharest, Romania
- **Professor Uros Skaleric**, University of Ljubljana, Ljubljana, Slovenia
- **Professor Stig Slørdahl***, Norwegian University of Science and Technology, Trondheim, Norway
- **Professor Josef Syka***, Charles University, Prague, Czech Republic
- **Professor Tuula Tamminen**, University of Tampere, Tampere, Finland
- **Professor Haluk Topaloglu**, Hacettepe Children's Hospital, Ankara, Turkey

- **Professor Raivo Uibo**, University of Tartu, Tartu, Estonia
- **Professor Mats Ulfendahl**, Karolinska University Hospital, Stockholm, Sweden
- **Professor Isabel Varela-Nieto***, Universidad Autonoma, Madrid, Spain
- **Dr Emmanuelle Wollman**, CNRS, Paris, France

* The delegate is also a Core Group member

Observers:

Canadian Institutes of Health Research (CIHR)
- **Alain Beaudet, Ottawa, Canada**

World Health Organisation
- **pending**

Institut Pasteur
- **Nadia Khelef**, Paris, France

Israel Academy of Sciences and Humanities
- **Arnon Nagler**, Jerusalem, Israel

Academy of Sciences of Moldova
- **Stanislav Groppa**, Chisinau, Moldova

Health Research Council of New Zealand
- **Robin Olds**, Auckland, New Zealand

Nederlandse organisatie voor wetenschappelijk onderzoek (NWO)
- **Edvard Beem**, The Hague, Netherlands

The Wellcome Trust
- **Nicola Perrin, London**, United Kingdom

Fogarty International Center, National Institutes of Health (NIH)
- **Roger Glass**, Maryland, USA

ESF contact:
- **Dr Stephane Berghmans**, Head of the Medical Sciences Unit
  emrc@esf.org

Standing Committee for the Humanities (SCH)

- **Professor Milena Zic-Fuchs** (Chair), Faculty of Philosophy, University of Zagreb, Zagreb, Croatia
- **Professor Petter Aaslestad**, Faculty of Arts, Norwegian University of Science and Technology, Trondheim, Norway
- **Professor Maria Ågren**, Department of History, Uppsala University, Uppsala, Sweden
- **Professor Dilek Barlas**, University of Koç, Sariyer - Istanbul, Turkey
- **Dr Andrea Bozzi***, Istituto di Linguistica Computazionale (ILC), CNR, Pisa, Italy
- **Professor Rajko Bratoz**, Faculty of Philosophy, University of Ljubljana, Ljubljana, Slovenia
- **Professor Raymond Brulet**, Faculté de Philosophie et Lettres, Université Catholique de Louvain, Louvain-La-Neuve, Belgium
- **Dr Helena Buescu**, Faculty of Letters / Center for Comparative Studies, Universidade de Lisboa, Lisboa, Portugal
- **Professor Ewa Dahlig-Turek***, Institute of Arts, Polish Academy of Sciences and Humanities, Warsaw, Poland
- **Dr José María Faraldo Jarillo**, Faculty of Geography and History, Universidad Complutense de Madrid, Madrid, Spain
- **Professor Peter Funke***, Seminar für Alte Geschichte, Westfälische Wilhelms – Universität, Münster, Germany
- **Professor Kostas Gouliamos**, European University Cyprus, Nicosia, Cyprus
- **Dr Róbert H. Haraldsson**, University of Iceland, Reykjavík, Iceland
- **Professor Margaret Kelleher**, Foras Feasa, National University of Ireland Maynooth, Maynooth, Ireland
- **Professor Sophia Kremydi**, National Hellenic Research Foundation, Athens, Greece
- **Professor Kristin Kuutma***, Institute of Cultural Research and Fine Arts, University of Tartu, Tartu, Estonia
- **Professor Ulrike Landfester***, Kulturwissenschaftliche Abteilung, University of St. Gallen, St. Gallen, Switzerland
- **Professor Bohuslav Mánek**, Pedagogical Faculty, University of Hradec Králové, Hradec Králové, Czech Republic
- **Professor Ruta Marcinkeviciene**, Faculty of Humanities, Vytautas Magnus University, Kaunas, Lithuania
- **Professor Claudine Moulin***, Fachbereich II Germanistik, Universität Trier, Luxembourg
- **Professor Bernhard Palme**, Institut für Alte Geschichte und Altertumskunde, Universität Wien, Wien, Austria
- **Professor Ilie Parvu**, Faculty of Philosophy, Universitatea din Bucaresti, Bucharest, Romania
- **Professor Csaba Pléh**, Center for Cognitive Science, Budapest University of Technology and Economics, Budapest, Hungary
- **Professor François-Joseph Ruggiu***, Centre Roland Mousnier, Université de Paris-Sorbonne (Paris IV), Paris, France
- **Professor Hanne Ruus**, Institut for Scandinavian Studies and Linguistics, Copenhagen University, København K, Denmark
- **Professor Naomi Segal***, Institute of Germanic & Romance Studies School of Advanced Studies, University of London, London, United Kingdom
- **Professor Matti Sintonen**, University of Helsinki, Helsinki, Finland
- **Professor Ineke Sluiter**, Department of Classics, University of Leiden, Leiden, Netherlands
- **Professor Marko Tadic**, Faculty of Humanities and Social Sciences, University of Zagreb, Zagreb, Croatia

* The delegate is also a Core Group member

Observers:

European Commission
- **Dr Andreas Obermaier**, DG Research Directorate "Science, Economy and Society", Brussels, Belgium

COST
- **Dr Marc Caball**, Humanities Institute of Ireland, University College Dublin, Dublin, Ireland

Israel Academy of Sciences and Humanities
- **Professor Benjamin Isaac**, Faculty of Humanities, Tel Aviv University, Herzlia, Israel

National Science Foundation (NSF)
- **Professor Myron P. Gutmann**, Arlington, United States

National Endowment for the Humanities NEH
- **Professor James Leach**, Washington DC, United States

Social Sciences and Humanities Research Council of Canada (SSHRC)
- **Ms Carmen Charette**, Ottawa, Canada

Subject Representative Anthropology
- **Professor Gísli Pálsson**, Faculty of Social Sciences, University of Iceland, Reykjavik, Iceland

Advisory Expert ERIH
- **Professor Alain Peyraube**, CNRS, Paris, France

ESF contact:
- **Dr Nina Kancewicz Hoffman**, Head of the Humanities and Social Sciences Unit
  humanities@esf.org

Standing Committee for Life, Earth and Environmental Sciences (LESC)

- **Professor Reinhart Ceulemans** (Chair) Department of Biology, University of Antwerpen, Belgium
- **Professor Isabel Ambar**, Departamento de Fisica, Universidade de Lisboa, Portugal
- **Dr Hans Brix***, Department of Biological Sciences, Aarhus University, Denmark
- **Professor Nigel Brown**, College of Science and Engineering, University of Edinburgh, United Kingdom
- **Professor Constantin Doukas***, Department of Historical Geology and Palaeontology, University of Athens, Greece
- **Professor Arnold J.M. Driessen**, Department of Molecular Microbiology, University of Groningen, Netherlands
- **Professor Olivier Francis*,** Department of Physics, University of Luxembourg, Luxembourg
- **Dr Jean-Henri Hecq**, Département des sciences et gestion de l'environnement/Océanologie, Université de Liège, Belgium
- **Professor Alan G. Jones**, School of Cosmic Physics, Dublin Institute for Advanced Studies, Ireland
- **Dr T. Hefin Jones***, Cardiff School of Biosciences, Cardiff University, United Kingdom
- **Dr Aslihan Kerç**, Department of Environmental Engineering, Marmara University, Istanbul, Turkey
- **Professor Kit Kovacs**, Norwegian Polar Institute, Tromsø, Norway
- **Dr Jan Kraic**, Slovak Agricultural Research Center, Division of Applied Genetics and Breeding Research, Piestany, Slovak Republic
- **Professor Juozas Kulys**, Department Chemistry and Bioengineering, Lithuanian Science Foundation, Lithuania
- **Dr Sonja Lojen***, Department of Environmental Sciences, Jožef Stefan Institute, Ljubljana, Slovenia
- **Professor Georgi Markov**, Institute of Zoology, Bulgarian Academy of Sciences (BAS), Sofia, Bulgaria
- **Professor Jan Motlik**, Department of Reproduction and Development, Institute of Animal Physiology and Genetics, Libechov, Czech Republic
- **Professor Paavo Pelkonen**, Faculty of Forest Sciences, University of Joensuu, Finland
- **Dr Pilar Perez***, Departamento de Microbiologia y Genetica, Consejo Superior de Investigaciones Científicas (CSIC), Salamanca, Spain
- **Professor Marianne Popp**, Department of Chemical Ecology and Ecosystem Research, University of Vienna, Austria
- **Dr Mihai Emilian Popa**, Laboratory of Palaeontology, University of Bucarest, Romania
- **Professor Czeslawa Rosik-Dulewska**, Institute of Environmental Engineering, Polish Academy of Sciences, Zabrze, Poland
- **Professor Michel Salzet***, Laboratoire de Neuroimmunologie des Annélides, Université des Sciences et Technologies de Lille, France
- **Professor Giuseppe Scarascia-Mugnozza***, Department of Agronomy, Forestry and Land Use (DAF), Agricultural Research Council of Italy (CRA), Roma, Italy
- **Professor Mark Stitt***, Max Planck Institute for Molecular Plant Physiology, Golm, Germany
- **Professor Andreas Strasser**, Department of Geosciences, University of Fribourg, Switzerland
- **Dr Jan Tavernier**, VIB Department – Medical Protein Research, Flanders Institute for Biotechnology, Ghent University, Belgium
- **Professor Tanel Tenson**, Faculty of Science and Technology, University of Tartu, Estonia
- **Professor Đurdica Ugarkovic**, Department of Molecular Biology, Ruder Boškovic Institute, Zagreb, Croatia
- **Professor Wolfgang Weisser**, Institut für Ökologie, Friedrich-Schiller-Universität Jena, Germany

* The delegate is also a Core Group member

Observers:

Marine Board-ESF

- **Mr Lars Horn**, Div. Strategic Priorities, Marine Resources and Environment, The Research Council of Norway, Oslo, Norway

ESF-PESC

- **Professor Isabel Moura**, Chemistry Department, New University of Lisbon, Monte de Caparica, Portugal

ESF Polar Board

- **Professor Carlo Alberto Ricci**, Dipartimento di Scienze della Terra, Università di Siena, Italy

ESF-ESSC

- **Professor Jean-Pierre Swings**, Institut d'Astrophysique et Géophysique, Université de Liège, Belgium

Israel Academy of Sciences and Humanities

- **Professor Giora Simchen**, Department of Genetics, The Hebrew University, Israel

ESF contact:

- **Dr Paul Egerton**, Head of the Life, Earth, Environmental and Polar Sciences Unit lesc@esf.org

Standing Committee for Physical and Engineering Sciences (PESC)

- **Professor Mats Gyllenberg** (Chair) Department of Mathematics and Statistics, University of Helsinki, Finland
- **Dr Salim Belouettar***, Laboratoire de Technologies Industrielles, Centre de Recherche Paul Henri Tudor, Luxembourg
- **Professor Valentina Dagiene**, Programming Methodology Department, Institute of Mathematics and Informatics, Vilnius University, Lithuania
- **Professor Kenneth Dawson**, Department of Chemistry, University College Dublin, Ireland
- **Professor René de Borst**, Department of Mechanical Engineering, Eindhoven University of Technology, Netherlands
- **Professor Joris Degrieck**, Department of Materials Science and Engineering, Ghent University, Belgium
- **Professor Manuel de León***, Instituto de Ciencias Matemáticas, CSIC, Madrid, Spain
- **Professor Olle Eriksson** Department of Physics, Uppsala University, Sweden
- **Professor Wolfgang Ertmer**, Institute of Quantum Optics, University of Hannover, Germany

- **Professor Stavros C. Farantos**, University of Crete and Institute of Electronic Structure and Laser, FORTH, Iraklion, Crete, Greece
- **Professor Charles André Hirlimann**, International Affairs, CNRS-INP, Paris, France
- **Professor Stefan Jähnichen***
  Software Engineering Research Group, Fakultät IV – Elektrotechnik und Informatik, Technische Universität Berlin, Germany
- **Professor Heli Jantunen**, Microelectronics and Materials Physics Laboratories, University of Oulu, Finland
- **Professor Zsolt Kajcsos**, Research Institute for Particle and Nuclear Physics, Budapest, Hungary
- **Professor Maria Kaminska***, Institute of Experimental Physics, University of Warsaw, Poland
- **Professor Ulrich Langer**, Institute of Computational Mathematics, Johannes Kepler University Linz, Austria
- **Professor Luc Lemaire**, Département de Mathématiques, Université Libre de Bruxelles, Belgium
- **Dr Pasquale Lubrano**, Department of Physics, Istituto Nazionale di Fisica Nucleare (INFN – Perugia), Italy
- **Professor Enn Mellikov**, Department of Materials Science, Tallinn University of Technology, Estonia
- **Professor Marcela Morvova**
  Department of Astronomy, Physics of the Earth and Meteorology, Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovakia
- **Professor Isabel Moura**, Departamento de Quimica, Universidade Nova de Lisboa, Portugal
- **Professor Ole John Nielsen**, Department of Chemistry, University of Copenhagen, Denmark
- **Dr Christos Panayiotou**
  Department of Electrical and Computer Engineering, University of Cyprus, Nicosia, Cyprus
- **Professor Radovan Stanislav Pejovnik**, Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia
- **Professor Kenneth Ruud***, Department of Chemistry, University of Tromso, Norway
- **Professor Susan-Resiga**, Department of Hydraulic Machinery, POLITEHNICA University of Timisoara, Romania
- **Dr Ivanka Stateva**, Institute of Astronomy, Bulgarian Academy of Sciences, Bulgaria
- **Professor Sauro Succi***, Institute for Applied Mathematics, CNR, Rome, Italy
- **Professor Milan Tichy**, Department of Surface and Plasma Science, Charles University Prague, Czech Republic
- **Mrs Malgorzata Tkatchenko**, Directrice du centre de recherche de Fontenay-aux-Roses, Commissariat à l'Énergie Atomique (CEA), Fontenay-aux-Roses, France
- **Professor Hubert van den Bergh**, Institut de Chimie Physique, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
- **Professor Iskender Yilgör**
  Chemistry Department, College of Arts and Sciences, Koç University, Istanbul, Turkey
- **Professor Mladen Zinic**, Organic & Biochemistry Department, Rudger Boskovic Institute, Zagreb, Croatia

Cyprus, United Kingdom (STFC) nominations pending

* The delegate is also a Core Group member

Observers:

ESF Standing Committee for Life, Earth and Environmental Sciences (LESC):
- **Dr. Aslihan Kerç**, Department of Environmental Engineering, Faculty of Engineering, Marmara University, Istanbul, Turkey

European Commission
- **Dr Renzo Tomellini**, Materials Unit, Directorate-General for Research, European Commission, Brussels, Belgium

European Materials Research Society (EMRS)/European Materials Forum (EMF)
- **Professor Gabriel Crean**, Commissariat à l'Énergie Atomique (CEA), France

European Mathematical Society
- **Professor Ari Laptev**, Department of Mathematics, Imperial College London, United Kingdom

European Research Consortium for Informatics and Mathematics – ERCIM:
- **Nomination pending**

European Space Sciences Committee (ESSC)
- **Professor Jean-Pierre Swings**, ESSC Chair, Institut d'Astrophysique et Géophysique, Université de Liège, Belgium

Committee on Radio Astronomy Frequencies (CRAF)
- **Dr Axel Jessner**, CRAF Chair, Max-Planck-Institut für Radioastronomie, Germany

Israel Academy of Sciences and Humanities
- **Professor Joseph Klafter**, School of Chemistry, Tel Aviv University, Ramat Aviv, Israel

Academy of Sciences of Moldova
- **Professor Leonid L. Kulyuk**, Institute of Applied Physics, Academy of Sciences of Moldova

US National Science Foundation
- **Dr Morris Aizenman**, Directorate for Mathematical & Physical Sciences, National Science Foundation, Arlington, USA

Materials Science and Engineering Expert Committee (MatSEEC) – Liaison to PESC
- **PESC Member Professor Radovan Stanislav Pejovnik**, Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia

Nuclear Physics European Collaboration Committee (NuPECC)
- **Professor Günther Rosner**, NuPECC Chair, Department of Physics and Astronomy, University of Glasgow, United Kingdom

Nominations pending: United Kingdom (STFC and EPSRC), Iceland

COST Liaisons:

COST CMST – Chemistry and Molecular Sciences and Technologies – Liaison:
- **Professor Venceslav Kaucic**, National Institute of Chemistry, Ljubljana, Slovenia

COST ICT – Information and Communication Technologies – Liaison:
- **Professor Michael Ansorge**, University of Applied Sciences Western Switzerland – Fribourg

COST MPNS – Materials, Physical and Nanosciences – Liaison PESC Member
- **Professor Zsolt Kajcsos**, Research Institute for Particle and Nuclear Physics, Budapest, Hungary

ESF contact:
- **Mr Neil Williams**, Head of the Physical and Engineering Sciences Unit pesc@esf.org

Standing Committee for the Social Sciences (SCSS)

- **Professor Sir Roderick Floud** (Chair)
  Provost, Gresham College, London, United Kingdom
- **Mr Adrian Alsop***,
  The Economic and Social Research Council (ESRC), United Kingdom
- **Professor Frédéric Antoine**, Catholic University of Louvain, Belgium
- **Professor Arsen Bačić,** Faculty of Law, University of Split, Croatia
- **Professor Tommy Bengtsson**, Department of Economic History, Lund University, Sweden
- **Professor Éric Brian***, School for Advanced Studies in the Social Sciences (EHESS) and National Centre for Scientific Research (CNRS), Paris, France
- **Professor Maria Rosaria Carli***, Institute of Studies on Mediterrean Societies (ISSM-CNR), Italy
- **Professor Daniel David**, Department of Clinical Psychology and Psychotherapy, Babes-Bolyai University and Vice-President of the Ministry of Education Research and Innovation (CNCSIS), Romania
- **Professor Galin Gornev**, Institute of Sociology, Bulgarian Academy of Sciences, Bulgaria
- **Professor Akile Gürsoy**, Department of Anthropology, Yeditepe University, Turkey
- **Professor Pieter Hooimeijer**, Department of Human Geography and Urban and Regional Planning, Utrecht University, Netherlands
- **Professor Rainer Kattel**, Institute of Humanities and Social Sciences, Tallinn University of Technology, Estonia
- **Professor Lise Kjølsrød***, Department of Sociology and Human Geography, University of Oslo, Norway
- **Dr Lisbeth B. Knudsen**, Department of Sociology, Social Work and Organisation, University of Aalborg, Denmark
- **Professor Sabine Krolak-Schwerdt**, Faculty of Humanities, Arts and Educational Sciences, University of Luxembourg, Luxembourg
- **Professor Algis Krupavicius**, Policy and Public Administration Institute, Kaunas University of Technology, Lithuania
- **Professor Volkmar Lauber**, Department of Political Science, University of Salzburg, Austria
- **Professor Luisa Lima**, Lisbon University Institute (ISCTE), Portugal
- **Professor Silvia Miháliková**, Institute of European Studies and International Relations, Comenius University, Slovak Republic
- **Professor Pauli Niemelä**, Department of Social Sciences, The University of Eastern Finland, Finland
- **Dr Javier Esparcia Pérez**, Department of Geography, University of Valencia, Spain
- **Professor Pasqualina Perrig-Chiello***, Institute for Psychology, University of Bern, Switzerland
- **Professor Manfred Prenzel***, School of Education, Technical University of Munich, Germany
- **Professor Slavko Splichal**, Faculty of Social Sciences, University of Liubljana, Slovenia
- **Professor Patrick Paul Walsh**, SPIRe and Geary Institute, University College Dublin, Ireland
- **Professor John Yfantopoulos***, National Centre for Social Research, Greece

Belgium, Cyprus, Czech Republic, Hungary, Iceland, Poland nominations pending

* The delegate is also a Core Group member

Observers:

COST Domain Committee "Individuals, Societies, Culture and Health"
- **Dr Laura Alipranti**

European Commission
- **Dr Dimitri Corpakis**

International Social Science Council
- **Dr Heide Hackmann**

Norwegian Social Science Data Services (NSD)
- **Mr Bjørn Henrichsen** (Advisory Expert)

Israel Academy of Sciences and Humanities
- **Professor Asher Koriat**

National Science Foundation, United States
- **Dr Judith Sunley**

Social Sciences and Humanities Research Council, Canada
- **Ms Sylvie Paquette**

ESF contact:
- **Dr Nina Kancewicz-Hoffman**, Head of the Humanities and Social Sciences Unit
  scss@esf.org

Expert Committees and Boards

European Polar Board (EPB)

- **Professor Carlo Alberto Ricci** (Chair)
  National Programme for Research in Antarctica, Earth and Science Department, University of Siena, Italy
- **Professor Susana Agustí Requena**, Council for Scientific Research, Marine Technology Unit, Department of Natural Resources, Mediterranean Institute of Advanced Studies, Barcelona, Spain
- **Dr Yves Frenot**, French Polar Institute Paul Emile Victor, Brest, France
- **Dr Magnus Friberg**, Swedish Research Council, Department of Research Funding, Swedish Research Council, Stockholm, Sweden
- **Dr Margarita Yela González**, General Direction of Programmes and Transfer of Knowledge, Ministry of Science and Innovation, Madrid, Spain
- **Professor Aleksander Guterch**, Division VII Earth and Mining Sciences, Institute of Geophysics, Polish Academy of Sciences, Warsaw, Poland
- **Professor Philippe Huybrechts**, Research Foundation Flanders, Earth System Sciences & Department of Geography, Free University of Brussels, Belgium
- **Dr Gérard Jugie**, National Centre for Scientific Research, France (CNRS), France
- **Dr Heidi Kassens**, German Research Foundation, Leibniz-Institute for Marine Sciences (IFM-GEOMAR), University of Kiel, Germany
- **Professor Antoine Kies**, National Research Fund, Faculty of Science, Technology and Communication, University of Luxembourg, Luxembourg
- **Professor Kari Laine**, Academy of Finland, Department of Botany, University of Oulu, Finland
- **Professor Karin Lochte**, Helmholtz Association, the Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Germany
- **Dr Harald Loeng**, Research Council of Norway, Institute of Marine Research, Bergen, Norway
- **Dr Naja Mikkelsen**, The Commission for Scientific Research in Greenland, Geological Survey of Denmark and Greenland (GEUS), Copenhagen, Denmark
- **Professor Nicholas Owens**, Natural Environment Research Council (British Antarctic Survey), United Kingdom

- **Professor Christo Pimpirev**, Bulgarian Antarctic Institute, University of Sofia, Bulgaria
- **Dr Sergey Priamikov**, Arctic and Antarctic Research Institute (AARI), Russian Federation
- **Professor Pavel Prošek**, Czech National Centre of Polar Investigations, Faculty of Science, Department of Geography, University of Masaryk, Brno, Czech Republic
- **Professor Andreas Richter**, Austrian Science Fund, Department of Chemical Ecology and Ecosystem Research, University of Vienna, Austria
- **Professor Christian Schlüchter**, Swiss National Science Foundation, Institute of Geological Sciences, University of Bern, Switzerland
- **Dr Magnus Tannerfeldt**, Swedish Polar Research Secretariat, Department of Zoology, University of Stockholm, Sweden
- **Professor Jean-Louis Tison**, National Fund for Scientific Research, Sciences Faculty, Free University of Brussels, Belgium
- **Professor Rein Vaikmäe**, Institute of Geology at Tallinn, University of Technology, Tallinn, Estonia
- **Dr Dick van der Kroef**, Council Earth and Life Sciences, Netherlands Organisation for Scientific Research, The Hague, Netherlands
- **Professor Gonçalo Vieira**, Foundation for Science and Technology, Geographical Studies Center, University of Lisbon, Portugal

ESF contact:

- **Dr Paul Egerton**, Head of the Life, Earth, Environmental and Polar Sciences Unit epb@esf.org

Marine Board – ESF

- **Mr Lars Horn** (Chair) Research Council of Norway (RCN), Norway
- **Mr Antoine Dosdat**, French Research Institute for Exploitation of the Sea (Ifremer), France (Vice-Chair)
- **Professor Edward Hill**, National Oceanography Centre, Southampton (NOCS), United Kingdom (Vice-Chair)
- **Professor Jan Mees**, Fund for Scientific Research – Flanders (FWO), Belgium (Vice-Chair)
- **Dr Beatriz Morales-Nin**, Council for Scientific Research (CSIC), Spain (Vice-Chair)
- **Mr Geoffrey O'Sullivan**, Marine Institute, Ireland (Vice-Chair)
- **Dr Sevcan Colpan Polat-Beken**, The Scientific and Technological Research Council of Turkey (TÜBITAK), Turkey (Vice-Chair)
- **Professor Jean-Marie Beckers**, National Fund for Scientific Research (FNRS), Belgium
- **Dr Guiseppe Cavarretta**, National Research Council (CNR), Italy
- **Professor Kirsten Christoffersen**, The Council for Independent Research I Natural Sciences (FNU), Denmark
- **Professor Joao Coimbra**, Centre of Marine and Environmental Research (CIMAR), Portugal
- **Dr Alessandro Crise**, National Institute of Oceanography and Experimental Geophysics (OGS), Italy
- **Professor Jean-Marie Flaud**, National Centre for Scientific Research (CNRS), France
- **Professor Georgios Georgiou**, Cyprus Oceanography Centre, Cyprus
- **Professor Peter Haugan**, University of Bergen (UiB), Norway
- **Professor Carlo Heip**, Royal Netherlands Academy of Arts and Sciences (KNAW), Netherlands
- **Dr Peter Herzig**, Leibniz Institute of Marines Sciences (IFM-GEOMAR), Germany
- **Dr Kyösti Lempa,** Academy of Finland, Finland
- **Professor Karin Lochte**, Association of National Research Centres (HGF), Germany
- **Mr Tore Nepstad**, Erlend Moksness, Institute of Marine Research (IMR), Norway
- **Dr Kostas Nittis**, Hellenic Centre for Marine Research (HCMR), Greece
- **Dr Gregorio Parrilla**, Spanish Institute of Oceanography (IEO), Spain
- **Dr Vasile Patrascu**, National Institute for Marine Research and Development "Grigore Antipa", Romania
- **Professor Mario Ruivo**, Ricardo Santos, Science and Tecnology Foundation (FCT), Portugal
- **Dr Slawomir Sagan**, Institute of Oceanology of the Polish Academy of Sciences (IO-PAN), Poland
- **Dr Tarmo Soomere**, Eesti Teaduste Akadeemia/ Estonian Academy of Sciences, Estonia
- **Dr Josef F. Stuefer**, Netherlands Organisation for Scientific Research (NWO), Netherlands
- **Professor Michael Thorndyke**, Swedish Institute for the Marine Environment, Sweden
- **Professor Bodo von Bodungen**, German Research Foundation (DFG), Germany
- **Dr Mike Webb**, Natural Environment Research Council (NERC), United Kingdom

ESF contact:

- **Dr Niall McDonough**, Head of the Marine Sciences Unit marineboard@esf.org

European Space Sciences Committee (ESSC)

- **Professor Jean-Pierre Swings** (Chair), Institut d'Astrophysique et de Géophysique, Liège, Belgium
- **Professor Heiko Balzter**, CERES, Leicester, United Kingdom
- **Professor Doris Breuer**, DLR-IPR, Berlin, Germany
- **Professor Jørgen Christensen-Dalsgaard**, DPA, Aarhus University, Aarhus, Denmark
- **Dr Gilles Clément**, CERCOS, Toulouse, France
- **Dr Ian Crawford**, School of Earth Sciences, University of London, United Kingdom
- **Professor Hans Jörg Fecht**, Universität Ulm, Germany
- **Professor Olivier Francis**, Department of Physics, Luxembourg, Luxembourg
- **Professor Eigil Friis-Christensen**, NSI-TU Denmark, Copenhagen, Denmark
- **Professor Matt Griffin**, School of Physics and Astronomy, University of Cardiff, United Kingdom
- **Professor Hanns-Christian Gunga**, Zentrum für Weltraummedizin, Berlin, Germany
- **Professor Vinciane Lacroix**, École Royale Militaire, Brussels, Belgium
- **Dr Michael Lebert**, IBPB-Universität Erlangen, Erlangen, Germany
- **Professor Pieternel Levelt**, KNMI, De Bilt, Netherlands
- **Professor Per Barth Lilje**, Institute for Theroretical Astrophysics, University of Oslo, Norway
- **Dr José Miguel Mas-Hesse**, Centro de Astrobiologia, Torrejon de Ardoz (Madrid), Spain
- **Professor Gregor Morfill**, MPI für extraterrestrische Physik, Garching, Germany

- **Professor Jouni Pulliainen**, FMI, Arctic Research Centre, Sodnakylä, Finland
- **Professor Mathias Schardt**, Joanneum Research, Graz, Austria
- **Professor Sami Solanki**, MPI für Sonnensystem-forschung, Katlenburg-Lindau, Germany
- **Dr Jordi Torra**, DAM-Universidad de Barcelona, Spain
- **Professor David Vaughan**, NERC-BAS, Cambridge, United Kingdom
- **Professor Frans von der Dunk**, Black Holes B.V. & College of Law, Leiden, Netherlands
- **Dr Frances Westall**, LPCE-CNRS, Orléans, France

ESF contact:
- **Dr Jean-Claude Worms**, Head of the Space Sciences Unit essc@esf.org

Committee on Radio Astronomy Frequencies (CRAF)

Members:
- **Dr Axel Jessner** (Chair), Radio Astronomy Observatory Effelsberg, Max-Planck Institut für Radio Astronomie, Germany
- **Professor Roberto Ambrosini**, Istituto di Radioastronomia, INAF, Bologna, Italy
- **Dr Rafael Bachiller**, Observatorio Astronomico Nacional IGN, Madrid, Spain
- **Dr Gilles Butin**, Institut de Radio Astronomie Millimétrique, IRAM, St. Martin d'Hères, France
- **Dr Karel Jiricka**, Astronomical Observatory, Ondrejov, Czech Republic
- **Professor Michael Lindqvist,** Onsala Space Observatory, Onsala, Sweden
- **Dr Hans van der Marel**, Netherlands Foundation for Research in Astronomy, Dwingeloo, Netherlands
- **Dr Christophe Marqué**, Observatoire Royal de Belgique, Département de Physique Solaire, Belgium
- **Dr Christian A. Monstein**, Radio Astronomy Group, Institute of Astronomy, ETH Zürich, Switzerland
- **Dr Jouko Ritakari**, Metsähovi, Radio Observatory, Kylmaelae, Finland
- **Dr Peter Thomasson**, University of Manchester, Jodrell Bank Observatory, United Kingdom
- **Dr Adrian Tiplady**, SKA South Africa, Johannesburg, South Africa
- **Dr Gudmund Wannberg**, EISCAT Scientific Association, Kiruna, Sweden

Observers:
- **Dr Vladislavs Bezrukovs**, Ventspils International Radio Astronomy Center, Ventspils, Latvia
- **Dr André Deschamps**, Observatoire de Paris, LERMA, Paris, France
- **Professor Luis Manuel dos Santos Rocha Cupido**, Centro de Física dos Plasmas, Instituto Superior Técnico, Lisbon, Portugal
- **Dr Wim van Driel**, Observatoire de Paris, GEPI, Meudon, France
- **Dr Istvan Fejes**, FOMI Satellite Geodetic Observatory, Budapest, Hungary
- **Dr Hayo Hase**, representing the International VLBI Service, Bundesamt für Kartographie und Geodäsie, Observatorio Geodésico TIGO, Universidad de Concepción, Chile
- **Dr A. A. Konovalenko**, National Academy of Sciences, Department of Decameter Radio Astronomy, Kharkov, Ukraine
- **Dr Ibrahim Küçük**, Erciyes, University, Faculty of Arts and Sciences, Department of Astronomy and Space Sciences, Kayseri, Turkey
- **Dr Marat Mingaliev**, Special Astrophysical Observatory, Nizhnij Arkhyz, Russia
- **Dr J. P. V. Poiares Baptista**, ESTEC, Noordwijk, Netherlands
- **Professor J. H. Seiradakis**, Aristoteleion University of Thessaloniki, Department of Physics, Section of Astrophysics, Astronomy and Mechanics, Thessaloniki, Greece
- **Dr Harry Smith**, University of Oxford – Astrophysics Group, Oxford, United Kingdom
- **Dr Jerzu B. Usowicz**, Torun Centre for Astronomy, Department of Radio Astronomy, Poland
- **Dr Thomas E. Gergely**, National Science Foundation, Arlington, United States

Secretary:
- **Pietro Bolli,** Osservatorio Astronomico di Cagliari, Istituto Nazionale di Astrofisica, Capoterra, Italy

Frequency Manager:
- **Position vacant**

ESF contact:
- **Mr Neil Williams,** Head of the Physical and Engineering Sciences Unit pesc@esf.org

Nuclear Physics European Collaboration Committee (NuPECC)

- **Professor Guenther Rosner** (Chair) Department of Physics & Astronomy, University of Glasgow, United Kingdom
- **Dr Faiçal Azaiez**, IPN Orsay, France
- **Dr Maria José Borge**, Insto. Estructura de la Materia, CSIC, Madrid, Spain
- **Dr Angela Bracco**, INFN and University of Milano, Milan, Italy
- **Professor Gheorghe Cata-Danil**, "Horia Hulubei" National Institute of Physics and Nuclear Engineering (NIPNE), Bucharest, Romania
- **Professor Philippe Chomaz**, IRFU, CEA, Gif/Yvette, France
- **Dr Roman Čaplar**, University of Zagreb, Zagreb, Croatia
- **Dr Jan Dobes**, Nuclear Physics Institute, Academy of Sciences of the Czech Republic, Rez (Prague), Czech Republic
- **Professor Ana Maria Eiró**, Centro de Física Nuclear da Universidade de Lisboa, Portugal
- **Dr Jens Jørgen Gaardhøje**, Niels Bohr Institute, Copenhagen, Denmark
- **Dr Sotirios Harissopulos**, National Centre for Scientific Research "Demokritos", Athens, Greece
- **Professor Paul-Henri Heenen**, Université Libre de Bruxelles, Belgium
- **Professor Tord Johansson**, Department of Physics and Astronomy, Uppsala University, Sweden
- **Dr Ari Jokinen**, Department of Physics, University of Jyväskylä, Finland
- **Professor Klaus Jungmann**, K.V.I., University of Groningen, Netherlands
- **Professor Bernd Krusche**, Department of Physics, University of Basel, Switzerland
- **Dr Eugenio Nappi**, INFN, Sezione di Bari, Italy
- **Professor Paul Nolan**, Oliver Lodge Laboratory, University of Liverpool, United Kingdom
- **Professor Thomas Peitzmann**, Buys Ballot Laboratorium, Utrecht, Netherlands

- **Professor Achim Richter**, European Center for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy
- **Dr Dieter Röhrich**, Institutt for fysik og teknologi, University of Bergen, Norway
- **Dr Christelle Roy**, IPHC, Strasbourg, France
- **Professor Horst Stöcker**, Gesellschaft für Schwerionenforschung (GSI), Darmstadt, Germany
- **Professor Hans Ströher**, Institut für Kernphysik, Forschungszentrum Jülich, Germany
- **Professor Jan Styczen**, The Henryk Niewodniczanski, Institute of Nuclear Physics, Polish Academy of Sciences, Cracow, Poland
- **Professor Jochen Wambach**, Institute for Nuclear Physics, Technische Hochschule, Darmstadt, Germany
- **Professor Eberhard Widmann**, Stefan Meyer Institute for Subatomic Physics, University of Vienna, Austria
- **Dr György Wolf**, RMKI.KFKI, Budapest, Hungary

NuPECC contact:
- **Gabriele-Elisabeth Körner**, NuPECC Scientific Secretary sissy.koerner@ph.tum.de

ESF contact:
- **Mr Neil Willams**, Head of the Physical and Engineering Sciences Unit pesc@esf.org

Materials Science and Engineering Expert Committee (MatSEEC)

- **Professor Günther Bauer** (Chair), Institut für Halbleiter- und Festkörperphysik, University of Linz, Austria
- **Professor Neil Alford**, London Centre for Nanotechnology, Department of Materials, Imperial College London, United Kingdom
- **Dr Patrick Bressler**, Director, Brussels Office, Fraunhofer Gesellschaft, Brussels, Belgium
- **Professor Anne Borg**, Department of Physics, Institutt for fysikk, Norwegian University of Science and Technology, Trondheim, Norway
- **Professor Joao Pedro Conde**, Department of Chemical and Biological Engineering, Instituto Superior Tecnico, Technical University of Lisbon, Portugal
- **Dr Urs Dürig**, Zürich Research Laboratory, IBM Research GmbH, Rüschlikon, Switzerland
- **Professor Agustin R. Gonzalez-Elipe**, Consejo Superior de Investigaciones Cientificas (CSIC), Instituto de Ciencia de Materiales de Sevilla, Spain
- **Professor Hermann Grimmeiss**, Division of Solid State Physics, Lund University, Sweden
- **Dr David J. Jarvis**, European Space Agency, ESTEC-GAP, Noordwijk, Netherlands
- **Professor Anke Rita Kaysser-Pyzalla**, Scientific Director, Chief Executive, Helmholtz-Zentrum Berlin für Materialen und Energie GmbH, Berlin, Germany
- **Professor Krzysztof Jan Kurzydlowski**, Faculty of Materials Science and Engineering, Warsaw University of Technology, Poland
- **Professor Roberto Lazzaroni**, Service de Chimie des Matériaux Nouveaux, Faculté des Sciences, Université de Mons Hainaut, Mons, Belgium
- **Professor Risto Nieminen**, COMP/Laboratory of Physics, Helsinki University of Technology, Espoo, Finland
- **Professor Eva Olsson**, Department of Microscopy and Microanalysis, Applied Physics, Chalmers University of Technology, Gothenburg, Sweden
- **Professor Radovan Stanislav Pejovnik**, Dean, Department of Inorganic Technology and Materials, Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia
- **Professor Francesco Priolo**, National Center MATIS, CNR-INFM, Department of Physics and Astronomy, University of Catania, Italy
- **Professor Eckhard Quandt**, Lehrstuhl für Anorganische Funktionsmaterialien, Technische Fakultät Christian-Albrechts-Universität zu Kiel
- **Professor Dierk Raabe**, Department of Microstructure Physics and Metal Forming, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany
- **Professor Anne-Christine Ritschkoff**, VTT Technical Research Centre of Finland, Applied Materials, Strategic Research, Finland
- **Professor Robert Singer**, Head, Institute of Science and Technology of Metals, University of Erlangen-Nürnberg, Germany
- **Dr Constantin Vahlas**, Centre Interuniversitaire de Recherche et d'Ingénierie des Matériaux (CIRIMAT), Toulouse, France
- **Professor Paul Van Houtte**, Department of Metallurgy and Materials Engineering, Faculty of Engineering, Katholieke Universiteit of Leuven, Heverlee, Belgium

Observers:
- **Dr Martyn Chamberlain** (European Commission), Unit G3 – Industrial technologies – Materials, Research Directorate-General, European Commission
- **Dr Renzo Tomellini** (European Commission), Research DG RTD G3 "Materials" – Industrial Technologies, European Commission
- **Professor Hans Jörg Fecht** (European Space Sciences Committee – ESSC), Institute of Micro and Nanomaterials, Faculty of Engineering and Computer Sciences, Ulm University, Germany

ESF contact:
- **Dr Ana Helman** Science Officer ahelman@esf.org

Appendix 4

ESF Office

Directorate and Heads of Units

Chief Executive

- **Professor Marja Makarow**
  Chief Executive
  Tel: +33 (0)3 88 76 71 16
  Email: ceo@esf.org

Department of Science and Strategy Development

- **Dr Marc Heppener**
  Director of Science and Strategy Development
  Tel: +33 (0)3 88 76 71 02
  Email: mheppener@esf.org

Corporate Science Strategy Development

- **Dr Carole Moquin-Pattey**
  Head of Unit
  Tel: +33 (0)3 88 76 71 73
  Email: cmoquin-pattey@esf.org

Corporate Science Operations

- **Dr Farzam Ranjbaran**
  Head of Unit
  Tel: +33 (0)3 88 76 21 68
  Email: franjbaran@esf.org

Humanities and Social Sciences

- **Dr Nina Kancewicz-Hoffman**
  Head of Unit
  Tel: +33 (0)3 88 76 71 15
  Email: nhoffman@esf.org

Life, Earth, Environmental and Polar Sciences

- **Dr Paul Egerton**
  Head of Unit
  Tel: +33 (0)3 88 76 71 74
  Email: pegerton@esf.org

Marine Sciences

- **Dr Niall McDonough**
  Head of Unit
  Tel: +32 (0)2 59 34 01 63
  Email: nmcdonough@esf.org

  Marine Board – ESF
  Wandelaarkai 7
  8400 Ostend, Belgium
  Tel: +32 (0) 59 34 01 63
  Email: marineboard@esf.org

Medical Sciences

- **Dr Stephane Berghmans**
  Head of Unit
  Tel: +33 (0)3 88 76 71 73
  Email: sberghmans@esf.org

Physical and Engineering Sciences

- **Mr Neil Williams**
  Head of Unit
  Tel: +33 (0)3 88 76 71 21
  Email: nwilliams@esf.org

Space Sciences

- **Dr Jean-Claude Worms**
  Head of Unit
  Tel: +33 (0)3 88 76 71 88
  Email: jcworms@esf.org

Conferences

- **Ms Benita Lipps**
  Head of Unit
  Tel: +32 (0)2 533 20 22
  Email: blipps@esf.org

  ESF Conferences Unit
  149 avenue Louise, Box 14
  Tour Generali, 15th Floor
  1050 Brussels, Belgium
  Tel: +32 (0)2 533 2020
  Email: conferences@esf.org

Communications

- **Ms Shira Tabachnikoff**
  Head of Unit
  Tel: +33 (0)3 88 76 71 32
  Email: stabachnikoff@esf.org

Department of Administration and Finance

- **Mr David Weber**
  Director
  Tel: +33 (0)3 88 76 71 50
  Email: dweber@esf.org

Department of Human Resources

- **Ms Catherine Lux**
  Director
  Tel: +33 (0)3 88 76 21 56
  Email: clux@esf.org

European Science Foundation
1 quai Lezay-Marnésia
BP 90015
67080 Strasbourg cedex
France
Tel: +33 (0)3 88 76 71 00
Fax: +33 (0)3 88 37 05 32
www.esf.org

▸ A complete list of ESF staff members is available at:
www.esf.org/contacts

Cover

- Western honey bee.
  © Matthias Kabel
- Granular neuronic cells from a mouse cerebellum
  © Inserm, P. Dournaud
- A Nenets couple on Yamal Peninsula
  © Piers Vitebsky
- Earth's city lights
  © NASA

Page 10

- Patient at hospital
  © Rigshospitalet, Denmark
- Nestin protein
- BAZ1A staining of human small intestine
  © Human Protein Atlas

Page 12

- The Swing
  © Ronald Noë
- The Vasco de Gama bridge, Lisbon, Portugal
  © Noémia Costa Dias
- Woman and man as folding diagram
  © Todd Davidson/Illustration Work/Corbis

Page 14

- *Vanessa cardui* butterfly
  © François Rieg
- Melting icebergs on a lagoon
  © Olgeir Sigmarsson, CNRS
- Hurricane Rita in the gulf of Mexico
  © ESA

Page 16

- Illustration of the concept of the nanoparticle-protein Corona
- Graphene
  © V. Palermo ISOF, Bologna.
- Callahan-Hoffman-Meeks minimal surface

Page 18

- Drawing by Lévi-Strauss, "carnet de voyage" (Brazil, 1935-1939)
  © Claude Lévi-Strauss
- Large-scale demonstration (unemployment), 13 January 1998, Paris
  © Corbis Sygma
- Street kids
  © Unesco

Page 20

- Common seal
  © Bas Korman
- Dumbo octopus
  © David Shale
- Front view of an oil platform on the ocean
  © brasil2/iStockphoto

Page 22

- Scene of Antarctica, Adélie Land, close to Dumont d'Urville station
  © D. Ruche, IPEV
- Ice landscape
  © D. Ruche, IPEV.
- Concordia Station, Dome C, Antarctica
  © K. Pierre – IPEV

Page 24

- NGC 6543 (Cat's Eye Nebula)
  © Chandra X-Ray Observatory – NASA
- Our Sun
  © SOHO/Extreme Ultraviolet Imaging Telescope (EIT) – NASA/ESAT
- ESA's ENVISAT satellite, carrying the MERIS sensor
  © ESA

Page 26

- A Radio telescope
  © COST
- The 76-m diameter Lovell Telescope at Jodrell Bank Observatory, UK.
  © Ian Morison, Jodrell Bank Observatory
- Gravitational waves.
  © Max-Planck-Institut für Radioastronomie

Page 28

- X-ray image of neutron star
  © School of Physics, University of Edinburgh

Page 29

- Microchip on a finger
  © iStockphoto

Published by the European Science Foundation
September 2010
Graphic design: Dans les villes
Printing: IREG, Strasbourg
ISBN: 978-2-918428-21-3

European Science Foundation 1 quai Lezay-Marnésia • BP 90015 • 67080 Strasbourg cedex • France
Tel: +33 (0)3 88 76 71 00 • Fax: +33 (0)3 88 37 05 32 • **www.esf.org**