

Foreword

This Newsletter is issued in the midst of interesting times for PESC, and, for ESF. On the one hand we have some really excellent science synergy and science strategy activities completing, running or just starting, and on the other hand, are the ongoing discussions with EUROHORCS concerning the future mission and operations of ESF (or its successor). What is as clear as ever is that progress in both research and strategy depends on moving forward and taking opportunities; the same applies to ESF and EUROHORCS.

At the more local level, since the ash-cloud escapades of the April PESC meeting, we have seen a very successful Round Table meeting, combined for the first time with the other Standing Committees; a very successful meeting of the Core Group with Exploratory Workshop convenors; and the "regular" PESC meeting in October. However, even there we cannot be normal, and everybody's thanks go to Manuel de Leon for stepping in as chair of the meeting at a day's notice. I am very pleased that Mats Gyllenberg was sufficiently recovered from his pneumonia to present the work and highlights of PESC to the ESF General Assembly on November 18th. We all wish him a full recovery.

Neil Williams

Head of Unit, Physical and Engineering Sciences

Table of contents

Important Opportunities.....	1
2010 Nobel Prize in Physics for Graphene Research.....	2
PESC October 2010 plenary meetings	3
PESC Membership issues	3
Next PESC meetings	3
Science Policy Events.....	4
What's New.....	5
PESC Scientific Highlights.....	6
Currently running activities	10
Recent Publications.....	11

Important Opportunities

Mathematics and Industry Forward Look Final Conference

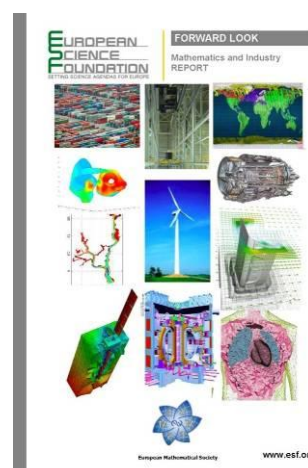
The final conference of the Forward Look will be organised under the Belgian Presidency of the European Union.  trio.be

in the presence of :

- **Antonio Tajani**, *Vice-President of the European Commission and Commissioner for Industry and Entrepreneurship*, and
- **Dr Silvana Koch-Mehrin**, *Vice-President of the European Parliament*.

Date: 2 December 2010, (9am to 1pm)

Location: Fondation Universitaire, Brussels



The report, including the recommendations and a European roadmap in mathematics and industry will be presented. The basic message of this report is that if Europe is to achieve its goal of becoming the leading knowledge-based

economy in the world, mathematics has a vital role to play. In many industrial sectors, the value of mathematics is already proven, in others, its potential contribution to competitiveness is becoming apparent. The benefits resulting from a dynamic mathematics community, interacting actively with industry and commerce, are considerable and certainly far outweigh the rather modest costs required to support such a community. Nevertheless, such benefits will not materialise unless action is taken to develop mathematics and a coordinated community of industrial and applied mathematicians needed for the future success and global competitiveness of Europe's economy and prosperity.

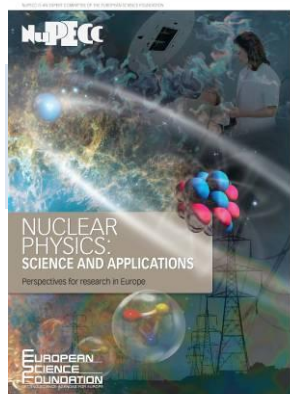
Forward Look: NuPECC Long Range Plan 2010

The Presentation Conference of the ESF Forward Look **NuPECC Long Range Plan 2010 – perspectives for nuclear physics in Europe** will be organised under the Belgian Presidency of the European Union.



Date: 9 December 2010 (1 to 4 pm)

Venue: Palais des Académies, Salle Baudouin, Brussels.



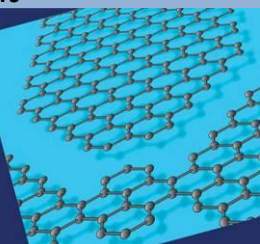
More information :
<http://www.nupecc.org>

> Contact:
Lrp2010@esf.org

The goal of this Forward Look has been to bring together the entire Nuclear Physics community in Europe to formulate a coherent plan on how to develop the field in the next decade and beyond. The Final Report resulting from the consultation of close to 6000 scientists and engineers over a period of 15 months will be presented during the conference.

ESF Research Conference in partnership with LFUI Call for Applications / Papers

Graphene Week 2011:
**Fundamental Science of
Graphene and Applications
of Graphene-Based
Devices**
ESF-LFUI Conference
Oberurgel, Austria
24-29 April 2011
Closing date: 24 January 2011



Chairs:

Vladimir Falko, Lancaster University, UK
Andre Geim, University of Manchester, UK (2010 Nobel Prize in Physics);
Karsten Horn, Fritz-Haber-Institut Berlin, DE &
Sankar Das Sarma, University of Maryland, US.

The Graphene Week 2011 conference will be devoted to science and technology of graphene, advances in its growth and chemical processing, manufacturing graphene-based devices and studies

of electronic transport, investigation of physical properties using ARPES, STM and AFM, and the emerging applications of this new material. It will also address studies of optical properties of graphene and their applications in optoelectronics, graphene manufacturing by mechanical and chemical exfoliation, synthesis on SiC, and growth on metals and semiconductors. Sessions will also cover emerging studies of nanomechanical devices incorporating graphene flakes.

The conference programme will incorporate reviews, talks, and two poster sessions. The organisers will welcome all researchers working on graphitic systems and scientists and postgraduate students, from all countries.

The full conference programme is accessible online at: www.esf.org/conferences/11350.

Closing date for applications: **24 January 2011**

2010 Nobel Prize in Physics for Graphene Research



Andre Geim



Konstantin Novoselov

Professor Andre Geim and Konstantin Novoselov won the 2010 Nobel Prize in Physics "for groundbreaking experiments regarding the two-dimensional material graphene"

The ESF Standing Committee for the Physical and Engineering Sciences congratulates the Nobel Prize winners who took part in several ESF-PESC activities:

- **PESC RNP** "Vortex Matter in Superconductors at Extreme Scales and Conditions (VORTEX)" Fellowship Grants in 2001, 2002, 2003, 2004
- **PESC RNP** "Nanoscience and Engineering in Superconductivity (NES)", Grants in 2008
- **ESF Research Conference** "Graphene Week 2009", Grants in 2007
- **ESF Research Conference** "Fundamental Science Of Graphene And Applications Of Graphene-Based Devices" (during the graphene Week 2011), Grants in 2009.

PESC October 2010 Standing Committee & Core Group meetings

Update on the 59th PESC Core Group and 32nd Standing Committee meetings

The Standing Committee met in plenary on 14-15 October 2010 following the PESC Core Group on 13-14 October, in Strasbourg.

Among the agenda items were:

- Ranking of 2010 Exploratory Workshop proposals
- Mid-term presentation of EpitopeMap, CompStar and NES
- Three RNP final reports (MISGAM, THIOX and AQDJJ), which were endorsed by the Committee
- Approval of the Forward Look on Mathematics and Industry (FLMI) Final Report
- Presentations by Professor Günther Bauer, Chair of the Expert Committee MatSEEC and Dr. Morris Aizenman, NSF Observer to PESC as well as reports from CRAF and COST MPNS
- Break-out group discussions in the context of the ESF-EUROHORCs merger process:
 - A possible model for a new committee in terms of size, structure and scientific domains;
 - Possible instruments and schemes required.

PESC Membership Issues



The following have been welcomed as new members to the Standing Committee since July 2010:

Professor Iskender Yilgör

Chemistry Department, College of Arts and Sciences, Koç University, Istanbul, Turkey

Professor James Hough

Institute of Gravitational Research, School of Physics and Astronomy, University of Glasgow, UK

Dr. Rachel O'Reilly

Department of Chemistry, University of Warwick, UK

The ESF and the PESC Standing Committee would like to sincerely thank **Professor Helen Fielding** and **Professor S. Engin Kiliç** for their contribution to the Committee's work over the past years.

Core Group Membership

The following members have recently been appointed to the Core Group.

Professor Stefan Jähnichen (Software Engineering Research Group, Fakultät IV - Elektrotechnik und Informatik, Technische Universität Berlin, Germany)

Professor James Hough (Institute of Gravitational Research, School of Physics and Astronomy, University of Glasgow, UK)

The Committee would like to thank Professor Dorothea Wagner for her commitment during her term on the Core Group.

Next Standing Committee Meeting

Upon the kind invitation of PESC Member Professor Mladen Zinic, the Croatian Academy of Sciences and Arts and the National Foundation of Science, Higher Education and Technological Development of the Republic of Croatia, the next meeting of the PESC Standing Committee will take place on:

Date: 11-12 April 2011,

Location: Dubrovnik, Croatia

A list of all forthcoming PESC meetings is available online at: <http://www.esf.org/activities/esf-meetings/physical-and-engineering-sciences-pesc>

Science Policy Events

ESF 2010 Joint Round Table meeting on “Grand Challenges and Interdisciplinarity: Opportunities for Member Organisations and ESF in the developing European Research Area”

The 2010 Joint Round Table meeting with all five Standing Committee Core Groups and Member Organisations, hosted by TUBITAK, took place in Istanbul on **17-18 June 2010**.



The two keynote presentations by Prof. Angeles Rodriguez-Pena, COST President, Spanish Ministry Science and Innovation and by Professor

Giulio Sandini, Co-Chair of the US-EU Workshop on the “the Reverse Engineering of the Human Brain” illustrated the need for scientists to work together and the crucial need for the establishment of a successful interdisciplinary model to which research leaders and funding institutions are committed.

The ensuing working group sessions addressed the issues related to interdisciplinarity and possible way forwards, which are as follows:

- A Member Organisation Forum on Peer Review
- Convening workshops to identify the needs for young researchers in contributing to interdisciplinary research and the impact it will have on their careers
- Further training in communication to ensure that contributions from different disciplines are foreseen and encouraged
- Provide time and funding for interdisciplinary learning.

> All presentations are available at: <http://www.esf.org/rt2010>

Following the success of the 2010 Round Table meeting, the ESF is considering organising a similar event in 2011 on another trans-disciplinary issue such as communication and outreach.

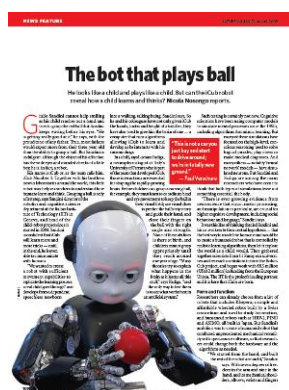
US-EU Workshop on “the Reverse Engineering of the Human Brain”

The initiative of organising a workshop on *Reverse Engineering of the Human Brain* was taken as part

of the occasional but very successful series of events organised jointly by the European Science Foundation, the US National Science Foundation (NSF), and the US Air Force Office of Scientific Research (AFOSR). In the past, these workshops have resulted in initiatives by both the NSF and ESF such as the EuroBioSAS EUROCORES Programme. While the previous events have mostly concerned PESC, this year, the interdisciplinary of the topic brought together four ESF Standing Committees (PESC, LESC, SCH and EMRC). Participants were selected amongst leading US and European scientists in the fields of engineering, neurosciences, cognitive sciences and medicine. The meeting was chaired by Professor Rahmat Shoureshi from the United States and Professor Giulio Sandini from Italy.



“Today humans interact with artificial systems by pushing, pulling, sliding, turning, dragging, and, to a limited extent, speaking and gesturing. The artificial system is “passive” and the communication language is “technological” not “natural” (it has to be learned..)”



Discussions were focused on the identification of main challenges in the field and had the aim of outlining a research roadmap for reverse engineering of the human brain in the next decades. Given the excellent multidisciplinary

coverage of participants, this complex topic was addressed from very different viewpoints providing a unique opportunity to exchange ideas and to constructively plan future activities.

2010 Strategic Workshop with the PESC Core Group and Convenors of Exploratory Workshops

On 1 September 2010, the Core Group held a strategic meeting with the convenors of 8 Exploratory Workshops (EW) supported in 2009 and early 2010. As a result of a similar meeting in early 2009, PESC had set aside some of its Strategy budget to provide selected EWs with support for follow up activities to develop the outcomes through to the next stage. Possible follow-up activities are roadmaps for future collaborations or major proposals).

This recent meeting allowed the Core Group to judge the impact of the EWs and also to gauge the merits of its follow-up support policy. The EW convenors strongly supported the EW instrument, and those that had received follow-up support were able to demonstrate meaningful added value from the initial financial contribution. See the EW “Exploring the Interactions between Carbon and Organic Chemical Cycling in Terrestrial Ecosystems” highlighted below.

Decision: The meeting with EW Convenors resulted in a clear decision to maintain PESC’s Exploratory Workshop follow-up strategy.

What’s New

2 new Forward Looks launched in September 2010



In September 2010, the ESF Governing Council recommended the launching of the following Forward Looks:

- **The Future of Quantum Science and Technology and its Applications (FARQUEST)**
- **Personalised Medicine for the European Citizen – towards more precise medicine for diagnosis, treatment and prevention of disease (EMRC-led)**

EUROCORES NEWS

Status Report on the 2010 Call for EUROCORES Theme Proposals



From the 2010 Open Call for themes, which resulted in a total of 49 proposals, 17 were identified as of relevance to PESC.

In September 2010, the ESF Governing Council approved five themes to be further developed into EUROCORES Programmes among which was the PESC theme proposal:

- **Computational Mathematics as a driving force for innovation in Europe (EuroCompMath)**

The five recommended themes have been proposed to ESF Member Organisations for a potential launch in early 2011.

EuroQUAM – Final Event

EuroQUAM Conference “Cold Quantum Matter: Achievements and Prospects”

The EuroQUAM final Conference was held in Ischgl from 12 to 17 September 2010.



As the third in a series of EuroQUAM conferences, the aim of this final event was to review progress in the field of cold quantum matter achieved during the three years of research activities, and to disseminate the results to the wider community and to the press. Over one hundred scientists involved in EuroQUAM projects attended the meeting and an extraordinary number of PhD and post-doc researchers presented their results showing that this particular field was highly attractive to young researchers.

One of the groundbreaking achievements within this programme was the realisation and study of ultracold molecules - an entirely new area of research that will lead to new developments in ultracold chemistry, quantum information and metrology.

The European scientists involved in EuroQUAM, who are already well recognised as leaders in this field, had the opportunity to exchange experiences and discuss future directions with invited colleagues from the United States and Australia.

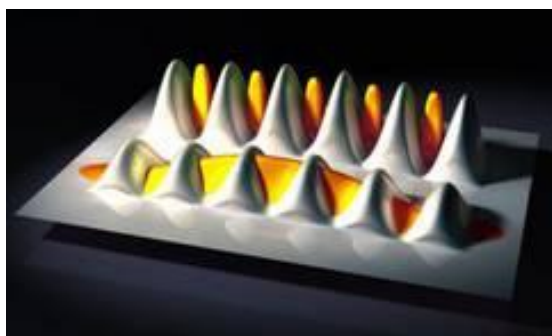
The scientific quality of the event was also demonstrated by the presence of over one hundred scientists at the event who were not directly involved in the ESF programme. Many of them expressed strong interest in joining similar initiatives in the future.

Scientific Highlights

EUROCORES EuroQUASAR

New quantum phenomenon: Pinning atoms into order

A fundamental physical phenomenon that causes atoms to build an organised structure from an initially unorganised one has been observed for the first time by physicists at the University of Innsbruck in Austria.



*Image: University of Innsbruck, Austria
Physicists can observe quantum mechanical phase transitions using ultracold atoms (yellow) in optical lattices (white surface).*

This observation was published in the 29 July 2010 issue of *Nature* and is credited to a team of researchers headed by Hanns-Christoph Nägerl, the leader of a Collaborative Research Project within the EUROCORES programme EuroQUASAR (European Quantum Standards and Metrology).

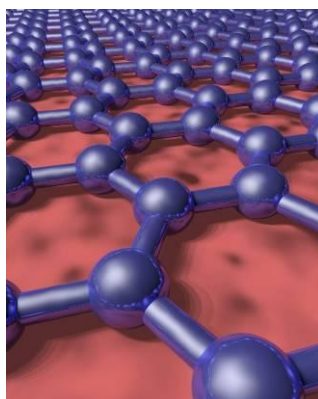
The observations rely on studying a peculiar quantum state of matter known as a Bose-Einstein condensate. In this state, a group of atoms shares the same quantum wave function, just like the photons in a laser beam; quantum phenomena become measurable. Using a Bose-Einstein condensate of cesium atoms, scientists created one dimensional structures in an optical lattice with laser beams. In these quantum lattices, or wires, the single atoms are aligned next to each other with laser light stopping them from breaking rank. "Interaction effects are much more dramatic in low-dimensional systems than in three dimensional space," said Hanns-Christoph Nägerl, explaining why such material structures, whose dimensions do not extend to 3D, are extremely interesting for physicists. The Innsbruck team has observed a transition from a superfluid (Luttinger liquid) to an insulated phase (Mott-insulator). In their experiment, they showed that for strongly interacting atoms an additional weak lattice potential was enough to pin the atoms to fixed positions along the wire. The atoms were cooled to near absolute zero.

EUROCORES EuroGRAPHENE EuroGRAPHENE Symposium

Following the launch of the EuroGRAPHENE programme in June 2010, the first meeting of all project members took place at the Institut de Science et d'Ingénierie Supramoléculaires of the University of Strasbourg on 18-19 November 2010.

The EuroGRAPHENE EUROCORES programme is currently one of the largest funding initiatives in the field of graphene research in Europe with 32 funded projects and 9 associated groups across 15 countries.





Graphene

Courtesy of V. Palermo,
ISOF, Bologna, IT

The scope of this meeting was to gather all groups involved in the EuroGRAPHENE programme and to exchange information and initiate of new collaborations. The meeting was attended by Principal Investigators and Associated Partners as well as young researchers involved in the projects. In addition, representatives from national and European Commission programmes on graphene were present, thereby providing the broader context and links between this and other ongoing European activities. This meeting provided an overview of new research projects in the area of graphene in Europe and opened up new perspectives for collaborations and networking. The main focus was on the presentation of projects and discussions on future trends and activities in this rapidly evolving field.

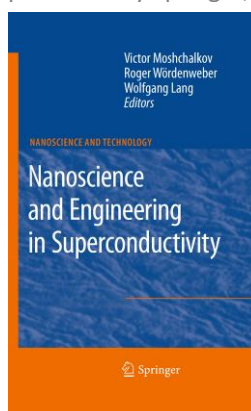
Research Networking Programme NES

Although Research Networking Programmes (RNPs), as an *à la carte* instrument, are open to non-European research agencies, it is rare that such valuable links are established. The RNP *Nanosciences and Engineering in Superconductivity* (NES), chaired by Professor Moshchalkov of the University of Leuven and running from 2007 to 2012, has achieved a tripartite link with the Japan Society for the Promotion of Science (JSPS) and the American NSF. 68 European research partners, supported by 17 Member Organisations, together with 8 Japanese partners and 9 US partners participate in the core of NES activities.

The VORTEX series of research conferences in superconductivity provide a major focus for the NES community. 130 participants from 25 countries (the 19 partner countries plus Russia, Ukraine, Serbia, Israel, Australia and Brazil) attended VORTEX VI in September 2009.

The latest achievements of the NES programme have been summarised in the recently published book:

Nanoscience and Engineering in Superconductivity published by Springer, 2010



Series: [NanoScience and Technology](#)

Moshchalkov, Victor;
Woerdenweber, Roger; Lang,
Wolfgang (Eds.)
1st Edition., 2010, XVIII, 395 p.
180 illus., Hardcover
ISBN: 978-3-642-15136-1

For emerging energy saving technologies superconducting materials with superior performance are needed. Such materials can be developed by manipulating the "elementary building blocks" through nanostructuring. For superconductivity the "elementary blocks" are Cooper pair and fluxon (vortex). This book presents new ways on how to modify superconductivity and vortex matter through nanostructuring and through the use of nanoscale magnetic templates.

The basic nano-effects, vortex and vortex-antivortex patterns, vortex dynamics, Josephson phenomena, critical currents, and interplay between superconductivity and ferromagnetism at the nanoscale are discussed. Potential applications of nanostructured superconductors are also presented in this book.

More information is available at:

<http://www.springer.com/physics/condensed+matter+physics/book/978-3-642-15136-1>.

Research Networking Programme RGLIS

2010 Fields Medal awarded to RGLIS Steering Committee Member Professor Stanislav Smirnov, University of Geneva, Switzerland



Professor Stanislav Smirnov has been awarded the 2010 Fields medal for the proof of conformal invariance of percolation and the planar Ising model in statistical physics.

Professor Smirnov took part in several ESF-PESC events in the framework of the RNPs **HCAA** (*Harmonic and Complex Analysis and its Applications*) and **RDSES** (*Phase Transitions and Fluctuation Phenomena for Random Dynamics in Spatially Extended Systems*).

He is also one of the committee members of the newly launched RNP on **Random Geometry of Large Interacting Systems and Statistical Physics (RGLIS)**

This programme aims for major international research and education collaboration in several overlapping areas of Probability Theory, Statistical Physics, Complex Analysis and Geometry such as Schramm-Loewner Evolutions, Critical and near-critical Percolation, Random Networks, Self-Interacting Random Walks, and, more generally, geometric/stochastic aspects of Disordered Systems.

RGLIS mainly supports fellowships and science meetings.

More information on www.esf.org/rglis

ESF Exploratory Workshop “Exploring the Interactions between Carbon and Organic Chemical Cycling in Terrestrial Ecosystems”

This Exploratory Workshop was held in Lancaster on 24-26 June 2009, convened by Dr. Luca Nizzetto (Norwegian Institute for Water Research, Oslo). Discussion at the workshop focused on the role of biogeochemical cycles as driving forces for the mobilisation and distribution of Persistent Organic Pollutants (POPs) - a class of widely diffuse bio-accumulating and toxic chemicals, including among others, PCBs, DDT and dioxins.

Available data and models indicate that atmospheric levels of many legacy POPs are declining slowly. This decline is primarily due to the actions taken internationally over the last two decades to reduce or eliminate major primary sources associated with production and use. However, this can drive natural environmental capacitors, such as soils, vegetation, and water bodies that became contaminated in the past, to behave as “secondary sources” re-emitting into the atmosphere. Understanding and predicting the past, current, and future trends of POPs in the environment requires accounting for the contribution of these secondary sources by understanding their link with the biogeochemical drivers.

The workshop discussion is now summarised in a feature article published in *Environmental Science and Technology* (2010, 44, page 6526–6531) - the most authoritative journal in the field.

The editorial managing office dedicated the cover of the 1st September 2010 issue and an editorial article to this contribution, which underlines its relevance. Currently the paper appears in the top 20 most read articles of the journal.



This Exploratory Workshop served as a unique and powerful discussion platform to allow for a multidisciplinary analysis of the issue. Experience has promoted a range of directly and indirectly related collaborations; additionally PESC has provided funds to promote follow-up initiatives. This contribution was presented in a workshop that took place on 20-22 October in Oslo. Partners from Norway, Switzerland, UK, and China together prepared a proposal for a large scale research project on the interactions between climate, land use and pollutant exposure and fate in China.



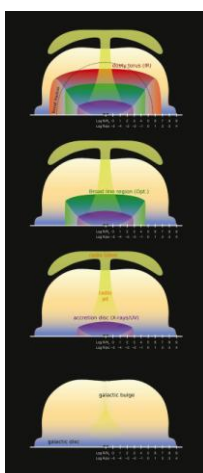
ESF Exploratory Workshop “Cosmogony of AGN: unifying approaches for the next decade”

Brindisi, Italy, 31 August – 4 September 2010

The goal of the workshop was the examination of new ways of unifying a field that covers a phenomenon that ranges from objects relatively nearby (stellar mass black holes in our own Galaxy)

to super massive black holes (SMBH) visible across cosmological distances and times.

To do so, researchers examined the phenomenon across all spectral wavelengths with the intent of establishing a working group, comprising observers and theoreticians, to study black hole astrophysics in Europe. This exploratory workshop was the first step needed for this goal to succeed.



A series of schematic, logarithmic views of an AGN-galaxy system (courtesy of A. Merloni and S. Bonoli, ESO graphics)

Active Galactic Nuclei (AGN) are the most luminous, steady sources of energy known in the Universe. An AGN is an extremely luminous central compact region of a galaxy and this region is at a much higher luminosity than the rest of the galaxy. It is generally accepted that a supermassive black hole lies at the center of these galaxies and that it is the accretion of matter onto these supermassive black holes that is the source of the energy observed in AGN. Furthermore, it is this phenomenon that we believe is the power source of quasars. A remarkable fact is that it appears that quasars (at cosmological distances), nearby AGNs, and black holes are relatively quiet such as the one at the center of our Milky Way, and stellar mass galactic black holes are members of a single class of astrophysical objects. The key that unifies these objects is the mechanism of accretion of mass onto a black hole and the associated production of relativistic jets and outflows.

Dr. Morris Aizenman attended the meeting as PESC Rapporteur and was particularly impressed by the high scientific quality of the presentations, the excellent structure of the meeting and the lively discussions that took place. In particular, the last workshop session was devoted to a discussion and description of observational facilities that have been proposed throughout the world and their use in furthering studies of AGNs.

Dr. Morris Aizenman attended the meeting as PESC Rapporteur and was particularly impressed by the high scientific quality of the presentations, the excellent structure of the meeting and the lively discussions that took place. In particular, the last workshop session was devoted to a discussion and description of observational facilities that have been proposed throughout the world and their use in furthering studies of AGNs.

More information is available at: http://astro.u-strasbg.fr/~goosmann/cosmogony_workshop.html

Currently Running Activities

EUROCORES

Bio-inspired Engineering of Sensors, Actuators & Systems (EuroBioSAS)

Project Selection Phase

See <http://www.esf.org/eurobiosas>

Graphs in Geometry and Algorithms (EuroGIGA)

Project Selection Phase

See <http://www.esf.org/eurogiga>

Molecular Science for a Conceptual Transition from Fossil to Solar Fuels (EuroSolarFuels) (LESC led)

Project Selection Phase

See <http://www.esf.org/eurosolarfuels>

Origin of the Elements and Nuclear History of the Universe (EuroGENESIS)

Start of Research and Networking phase

See <http://www.esf.org/eurogenesis>

Maximising the Impact of Graphene Research in Science and Innovation (EuroGRAPHENE)

Research and Networking phase

See <http://www.esf.org/eurographene>

Quantum Standards and Metrology (EuroQUASAR)

Research and Networking phase

See <http://www.esf.org/euroquasar>

Synthetic Biology: Engineering Complex Biological Systems (EuroSYNBIO) (LESC led)

Research and Networking phase

See <http://www.esf.org/eurosynbio>

Friction and Adhesion in Nanomechanical Systems (FANAS)

Research and Networking phase

See <http://www.esf.org/fanas>

Cold Quantum Matter (EuroQUAM)

Final Evaluation phase

See <http://www.esf.org/euroquam>

Fundamentals of NanoElectronics (FoNE)

Final Evaluation phase

See <http://www.esf.org/fone>

Self-Organised Nanostructures (SONS 2)

Final Evaluation phase

See <http://www.esf.org/sons2>

Smart Structural Systems Technologies (S3T)

Final Evaluation phase

See <http://www.esf.org/s3t>

Research Networking Programmes

30 RNPs currently active

For a complete list see

<http://www.esf.org/pesc/programmes>

RNP Mid-Term Reviews

In October 2010, three mid-term reviews were undertaken. During the PESC plenary meeting in Strasbourg, the RNP Chairs presented the work accomplished by their programmes and their planned activities:

- Mapping the detailed composition of surface-adsorbed protein layers on biomaterials and nanoparticles: An alternative approach to biocompatibility and nanotoxicity (EpitopeMap)
See <http://www.esf.org/epitopemap>
- The New Physics of Compact Stars (CompStar)
See <http://www.esf.org/CompStar>
- Nanoscience and Engineering in Superconductivity (NES)
See <http://www.esf.org/nas>

RNP Final Reviews

In October 2010, the final reviews of the following three Research Networking Programmes were conducted:

- Arrays of Quantum Dots and Josephson Junctions (AQDJJ)
See <http://www.esf.org/aqddj>
- Methods of Integrable Systems, Geometry, Applied Mathematics (MISGAM)
See <http://www.esf.org/misgam>
- Thin Films for Novel Oxide Devices (THIOX)
See <http://www.esf.org/thiox>

Member Organisations that contributed to these RNPs will be notified of the outcome shortly.

Research Conferences

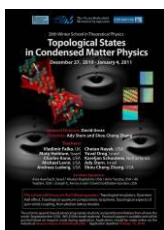
Upcoming Events in the Physical and Engineering Sciences domain:



ESF Mathematics Conference in partnership with EMS and ERCOM COMBINATORICS AND ANALYSIS

Eindhoven, Netherlands, 12-17 December 2010

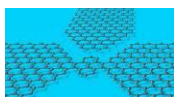
Applications **CLOSED**



ESF-IAS Winter School in Physics

TOPOLOGICAL STATES IN
CONDENSED MATTER PHYSICS:
28TH WINTER SCHOOL IN
THEORETICAL PHYSICS

Jerusalem, Israel, 27 December 2010 - 4 January 2011



ESF-LFUI Research Conference

GRAPHENE WEEK 2011:
FUNDAMENTAL SCIENCE OF
GRAPHENE AND APPLICATIONS OF
GRAPHENE-BASED DEVICES

Obergurgl, Austria, 24- 29 April 2011

Applications **OPEN** (closing date: **24 January 2011**)



ESF Mathematics Conference in partnership with EMS and ERCOM

COMPLETELY INTEGRABLE
SYSTEMS AND APPLICATIONS
Vienna, Austria, 3-8 July 2011



ESF Mathematics Conference in partnership with EMS and ERCOM

THIRD EUROPEAN SET THEORY
CONFERENCE

Edinburgh, United Kingdom, 3-8 July 2011

Applications **OPEN** (closing date: **27 March 2011**)



ESF-LFUI Research Conference

COSMOGENIC NUCLIDES
Obergurgl, Austria, 8-13 August 2011

Applications **OPEN** (closing date: **1 May 2011**)

ESF-COST High-Level Research Conference

NATURAL PRODUCTS CHEMISTRY,
BIOLOGY AND MEDICINE IV

Venue to be announced, 4-9 September 2011



ESF Research Conference

NANOCARB'11

Acquafredda di Maratea, Italy, 6-11 September 2011

Applications **OPEN** (closing date: **29 May 2011**)

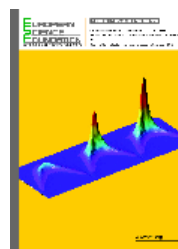
More information is available at:

<http://www.esf.org/conferences>

Recent Publications

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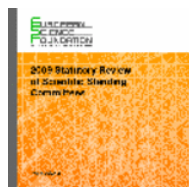
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