CERN/ESPG 2011-003
ESPG 003
28 November 2011

EUROPEAN STRATEGY PREPARATORY GROUP

Minutes of the third meeting held on
Monday, 28 November 2011

Present: A. Aleksan, P. Braun-Munzinger, P. Chomaz, C. De Clercq, K. Desch, M. Diemoz, K. Huitu, P. Jenni, Y. Kuno, P. McBride, T. Nakada (Chairman), E. Tsesmelis (Scientific Assistant), D. Wark, A. P. Zarnecki* (telephone), F. Zwirner

* part-time

1. PROCEDURE

The minutes of the second ESPG meeting (ESPG 2011-002 / ESPG 002) were approved.

The Chairman announced that Manfred Krammer (AT) has been appointed new ECFA Chairman, effective as of 1 January 2012 for three years.

2. NEWS FROM CERN COUNCIL

Three expressions of interest have been submitted for hosting the Open Symposium in September 2012. The three venues are (in alphabetical order) at Krakow, Siófok, and Valencia. The ESPG will discuss the submitted applications and rank them according to the required technical criteria for staging the event. At its session in December 2012, Council will discuss the venues and make the choice.

The Chairman reminded the ESPG of the procedure for the update of the European Strategy. Council shall discuss the Strategy document in March 2013 to reach basic agreement and subsequently ask that the subject becomes an agenda item for the EU Council of Ministers meeting in May/June 2013, to be held in Brussels. For the official adaptation of the Strategy, there will be a special session of Council in Brussels, at the same time and place as the Council of Ministers meeting, with the attendance of some Ministers to adopt the Strategy. Ministers are expected to take note of the Strategy. The Ministerial-level meeting will be an excellent opportunity for promoting particle physics, and a series of brochures should be prepared for this unique occasion.

3. VENUE FOR OPEN SYMPOSIUM

A brief summary of the three submitted expressions of interest is given below:

- Krakow – The symposium will be organized jointly between AGH University of Science and Technology and the Henryk Niewodniczanski Institute of Nuclear Physics Polish Academy of Sciences. The venue will be at conference rooms at AGH University (Plenary and Strategy Group meetings) and at Henryk Niewodniczanski Institute of Nuclear Physics for the Preparatory Group meetings.
- Siófok – The symposium will be hosted at Hotel Azur on Lake Balaton. All conference facilities will be available at this site.

- Valencia – The National Centre for Particle, Astroparticle and Nuclear Physics proposed the city of Valencia to stage this event. The meetings will be held at the Ateneo Mercantil with meals in the neighbouring Astoria Hotel.

Selection Criteria:

- General: All venues should have minimum services available to cater for participants attending for short periods, even for a single day. The lunch break duration should be comfortable, even though this could mean extending the conference sessions to later in the evening.
- Meetings Rooms: Krakow (fine but with the room for the Plenary meeting and that for the meeting of the Strategy Group at some distance apart); Siófok (no amphitheatre-style meeting room); Valencia (fine, except the capacity is less than 500).
- Internet Access and Web-cast: Web-cast should be possible at all venues but would need to do further detailed check on WiFi availability in all conference rooms.
- Accommodation: Extensive accommodation possibilities at all sites but need to check on the individual quality.
- Access: Krakow and Valencia are most easily accessible and Siófok is a two-hour train trip from Budapest.
- Meals: Extensive possibilities for meals in Krakow and Valencia; catered lunch is included in the fee.
- Local Organization: Particle physics groups (with their secretariats exist) at both Krakow and Valencia whereas for Siofok they would need to come from Budapest.
- Fee: Krakow has the lowest registration fee, without social event.
- Risks: The ESPG noted that it is not clear whether Council will be able to provide guarantees against any risks associated with staging the symposium.

Summary: Krakow and Valencia considered equally suitable to host the Open Symposium from the accessibility point of view. Krakow offer is with a less expensive fee and larger capacity meeting room. Siófok presented a very high value for cost offer, and has the drawback of accessibility with the corresponding additional difficulties on logistics and organization. The adequate provision of WiFi in the conference rooms should be investigated.

4. ASTROPARTICLE WORKING GROUP – TOPICS & WORKING PROCEDURES (P. CHOMAZ, C. DE CLERCQ)

The ESPG heard a report on the topics and working procedures of the Astroparticle Working Group.

Astroparticle research in Europe is co-ordinated through ApPEC (Astroparticle Physics European Coordination) and EU funding is provided through ASPERA Eranet. The ApPEC-ASPERA Astroparticle Road-map was presented on 21-22 November 2011 in Paris.

The Working Group Chairs presented their plan for the European Strategy update. They propose to start with the ApPEC/ASPERA road-map (prepared by the corresponding Scientific Advisory Committee) and to solicit comments and input from the wider community through the ASPERA newsletter and particle physics channels.

There is both complementarity and overlap between astroparticle and particle physics. Astroparticle physics shares much with particle physics, including theory support, R&D for new detectors and test beams, as well as large computing systems for data management and simulation (GRID, high bandwidth networks).

Several common research topics were identified between astroparticle and particle physics, leading to a complementary effort in research and understanding, including SUSY/neutrinos related to Dark Matter; axions and strong CP problem; neutrino properties; Dark Energy, gravitation and physics beyond the Standard Model; and antimatter. Subjects of research include understanding the following:

- The high-energy universe – the physics goals of gamma-ray astrophysics and high-energy neutrinos (GeV-PeV) are related to astrophysics research.
- Dark Matter and the properties of neutrinos – direct Dark Matter experiments, the measurement of neutrino mass and the search for neutrinoless double beta decay have physics goals connected with particle physics research.
- Cosmology and gravitation – both the understanding of Dark Energy and the search for gravitational waves have physics goals connected with particle physics.
- Large underground detectors: - there is a need for dedicated infrastructure, e.g. deep underground laboratories for hosting particle detectors. The goals of this R&D detector development are strongly connected to particle physics.

For the Briefing Book, a separation on the issues to be treated between astroparticle and particle physics has to be agreed.

5. ACCELERATOR PHYSICS WORKING GROUP – TOPICS AND WORKING PROCEDURES (R. ALEKSAN)

The ESPG heard a report on the topics and working procedures of the Accelerator Physics Working Group.

Unravelling the fundamental mysteries of the Universe requires state-of-the-art accelerators that need to address various challenges at the energy frontier, at the intensity frontier and by providing a diverse tool-box of probes. This infrastructure and technology can be useful and indeed vital to many research fields and to medical/industrial developments.

To be able to build future accelerators, a strong and sustainable R&D programme is required and consists of three levels – exploratory R&D (e.g. plasma acceleration); targeted R&D (e.g. CTF3 and 20 T high-field magnets); and industrialization R&D (e.g. high-yield production of 35 MV/m superconducting cavities for ILC). Test beams play an important role in accelerator R&D and should be included as part of the Working Group deliberations.

The proposed emphasis of the Accelerator Physics Working Group is to discuss the required accelerator R&D and related infrastructure. Each of the specific facilities should be identified and motivated within one of the physics working groups and for each facility there should be coverage of identification of Key Accelerator Research Areas (KARA); identification of required related major sub-infrastructures; an assessment of the state of development with schedule; and an assessment of the remaining major issues. The work will be divided into three sub-sections: energy frontier challenges; intensity frontier challenges and the organization of accelerator R&D for high-energy physics in Europe. Each sub-section should have a contact-person within the ESPG.

In addition to this, accelerator R&D for other field of science and direct applications must be addressed explicitly.

Sources of input include ESGARD (*i.e.* EU accelerator R&D projects), TIARA, interviews of selected key people in the field of accelerators and written contributions from the community. TIARA has already produced a document on key accelerator research that is needed, and if TIARA is implemented it will take over from ESGARD.

6. THEORY WORKING GROUP – TOPICS AND WORKING PROCEDURES (K. HUITU, F. ZWIRNER)

The ESPG heard a report on the topics and working procedures of the Particle Physics Theory Working Group.

It is proposed to approach leading figures in the theory community with a set of questions. People to be approached are leaders in the lattice community, in the formal theory community, in the field of development of software tools, theorists in some representative European institutes and in the theory community outside Europe.

Details of the list of questions are given in the presentation from the Working Group and in summary focus on areas of theory that require strategic co-ordination at the European level; the projected medium-term development of theory research; the role of various European actions for theory; and what are the strengths and weaknesses of European theory *vis-à-vis* other regions.

It is expected that the update of the European Strategy will build on the analysis made for the European Strategy in 2006 and provide a more substantial evaluation and road-map of the field in Europe.

7. ESPG PLAN OF WORK UNTIL OPEN SYMPOSIUM

Guidelines for Briefing Book:

The first step is agreeing on the Table of Contents for the Briefing Book to be submitted to the Council Strategy Group. There should be correspondence with the European Strategy of 2006 and the issues specific to the update should be underlined. For the document, each Working Group should submit a document (in WORD) of not more than 25 pages in length. The Working Groups should not be making decisions on the Strategy but should be providing information and input so that Strategy Update can be drafted by the Strategy Group and approved by the Council. There should be information on global efforts. The ICFA Seminar held at CERN in October 2011 could be used as a reference for initial input for information on the global effort. The Briefing Book shall be produced after the Open Symposium and E. Tsesmelis will be the Editor.

Plan of Work until Open Symposium:

Issues and actions to be addressed by the ESPG in the short-term include:

- Discuss and agree on the Table of Contents of the Briefing Book for the January Preparatory Group meeting (Working Group).
- Liaison with the chosen venue for the Open Symposium (T. Nakada, E. Tsesmelis).
- The call for input to the wider community will be made through a dedicated Web-page. Input will be solicited as of 1 February 2012 and submissions will open on 15 April 2012. The process will open following a Press Release in the December Council meeting and an announcement in the CERN Courier. All submissions will be encouraged to go public. Before going public all submissions will first be vetted by T. Nakada and E. Tsesmelis to ensure compliance with the mandate of the update of the European Strategy.
- The programme for the Open Symposium will be on the February 2012 agenda of the ESPG. Members of the ESPG should start considering candidate speakers with a view of the ESPG deciding on the speaker list at its meeting in March 2012. It was pointed out that young people were highly represented at the 2006 Open Symposium and that this practice should again be encouraged.
- The associated issues of Technology Transfer, Outreach etc will be covered in the European Strategy Session of Council in March 2012.

8. A.O.B.

P. McBride informed the ESPG of the Intensity Frontier Workshop that will be held at Washington D.C. on 30 November – 2 December 2011. The workshop offers the possibility for the scientific community to identify the physics potential of the Intensity Frontier. Details of the workshop may be consulted at

https://twindico.hep.anl.gov/indico/conferenceOtherViews.py?view=standard&confId=648

9. DATES FOR ESPG MEETINGS

13 January 2012

13 February 2012

16 March 2012

20 April 2012

22 May 2012

12 June 2012

24 July 2012

Emmanuel Tsesmelis
E–mail: Emmanuel Tsesmelis@cern.ch

ESPG Secretariat: Council.Secretariat@cern.ch