Revision: 03/06/09

Euro-Asia Physics Summit

Where Science and Politics meet

« Physics towards Science Innovation »

March 24-26, 2010 Tsukuba (Japan)

Summary:

The Euro-Asia Summit « Physics towards Science Innovation » is an invitation to scientists, ministry and research organization representatives as well as industry leaders to identify practical actions to strengthen the scientific collaboration in physics between European and Asian-Pacific countries The ultimate goal is to boost the cooperation to the EU-Americas and Asia-America levels so as to reach a balanced partnership among the three most R&D active regions, basic to the success of any world wide project.

These actions shall concern both the identification of common scientific endeavors and the creation of supportive structures to carry out successfully this increased cooperation.

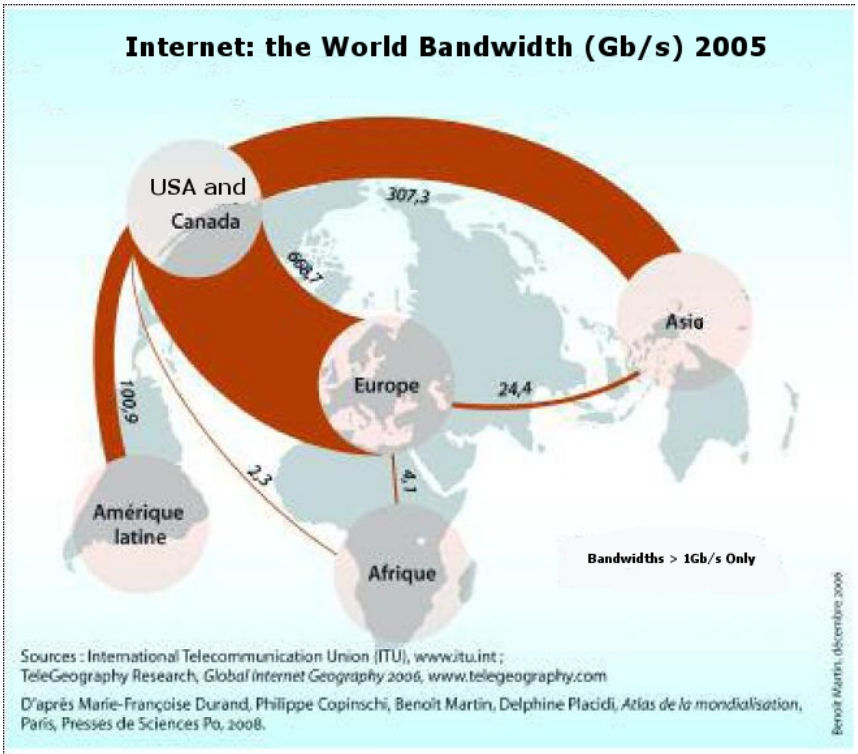
The Summit shall target both basic physics research and physics achievements that are influential to science innovations for the next 20 years. Beyond knowledge-driven researches, it shall address new material, bio-medical, environment, space, energy and information and communication physical applications.

The Summit shall provide a unique opportunity to expose policy makers, higher governmental officials as well as industry leaders the large scale projects and infrastructures planed. It shall offer scientists from various fields a rare occasion to communicate on physics related issues and to underline the societal implications of the foreseen projects.

Finally, developed and developing countries shall discuss their own needs and offers in an attempt to bridge both the knowledge and technological gaps.

Main motivations:

1. A relative weakness of the scientific cooperation (in particular in physics) between European and Asian countries in comparison to the Euro-Americas and Asian-Americas levels has been observed in many ways: number of post-docs exchanges or of coauthored patents. The map of the internet bandwidth between the 3 regions is a symbolic example of this unbalance. The main goal of this Summit is to strengthen the weaker side of the virtuous world-wide research and innovation triangle formed by the 3 pillars: North America, EU and Asia.
2. Nowadays physics research often requires the setting up of large world-wide programs whose successes depend, precisely, upon a true balance between the three main R&D regions. This Summit shall be on step in this direction.
3. Physics research provides new tools, often decisive, to other research domains, contributing to a more general scientific innovation. For example, bio-medical research has recently largely progressed thanks to MRI, synchrotron light and neutrons sources, PET, ion (hadron) therapy and isotope tracers and will soon thank to nano-materials. Similarly energy, environmental or social and human sciences are benefiting from physics advances.
4. European and Asian countries are confronted to the knowledge/digital gap issue for geographical and historical reasons. Developing countries participation to large scale international projects as well as the international support to country-level infrastructure are a sure way to establish a more homogenous scientific and technical community in our regions.



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Summit Objectives:

1. To provide a forum where research organizations and ministries could get a clear and comprehensive view of the short and long term projects so as to define with their partners bi- and multi- lateral cooperation strategies in physics.
2. In most research fields long term roadmaps have been made independently in Europe and in Asia (i.e. particle physics, laser, fusion). The summit shall provide the opportunity to identify common items to be shared. For other research fields the summit could trigger similar long term forecast.
3. Many of the ESFRI (http://cordis.europa.eu/esfri/) most wanted infrastructures in Europe are related to physics research. Similar lists exist in Asia. Discussions on possible sharing of these large scale equipments between Asia and Europe can be initiated during the summit preparation. This would definitely improve our cooperation and the overall world-wide research efficiency.
4. To propose practical means to support collaborative programs. One possibility would be the setting up of a foundation "Experimental and theoretical physics for scientific innovation" supported by public and private money.

Scientific topics and cooperation funding

A. Scientific topics

The scientific topics presented at the Summit will be selected from the following list. Let us know on which item you intend to contribute. You are also invited to propose additional topics (aseps@kek.jp)

1. Knowledge-driven Research (Theoretical and experimental Physics)

1. ***Particle physics (High-Energy Physics, Astroparticles)***
2. ***Astrophysics, cosmology***
3. ***Nuclear Physics***
4. ***Atomic/molecular physics***
5. ***Plasma, Laser/optics***
6. ***Condensed matter***
7. ***Chemical Physics***
8. ***Biophysics***

2. **Physics Research for Science Innovation**

1. ***New Materials***
   i. Nano-materials: R&D and technology platforms sharing and coordination.
   ii. Superconductivity: High Tc materials: coordination of a global material screening
2. ***Biomedical***
   i. Neuro-physics: Brain studies Magnetic Resonance Imaging (MRI) and spectroscopy)
   ii. Modelization, Simulation of diagnosis equipments
   iii. Hadron-therapy: ions beams and precise simulation of irradiation doses.

iv. High-speed alert network system based on the GRID for virus (avian flu) or tsunami; coordination and systems interoperability; Global endeavour on drug screening and discovery …
v. Bio-informatics

3. ***Environment/Energy***
   i. Energy saving with new materials, optoelectronic devices,:
   ii. Global heating: geophysics, atmosphere and marine physics; new needed measurements and simulation (supercomputers, GRID infrastructure).
   iii. Physics to solve pollution or environmental destruction issue; Carbon sequestration.
   iv. Low carbon energies
   v. Energy storage and saving
   vi. Fusion Research: fusion by magnetic confinement and other approaches (laser or ion beams).
4. ***Instrumentation: research and technology***
   i. Accelerators
      a. High energy physics: the next 20 years road-map; The next large world-wide project: technical, industrial, financial, management and political challenges; R&D infrastructures and projects sharing
      b. light sources (FEL, XFEL), Neutron sources,
   ii. Ground and space based astronomical observatories
   iii. Detectors
      a. Particle detectors
      b. NMR and 3D imaging
   iv. Very high magnetic field
5. ***Information and communication***
   i. Data GRID
   ii. Nano-electronics, quantum computer: beyond the Moore law
   iii. Robotics : help to the person, work in hostile environment
   iv. Social and Human Sciences : Global archived document scanning and storing; Open access initiative

B. **Cooperation funding**

Specific support would be needed to carry over the increased international cooperation. The management scheme of this support should be defined at the summit. One possibility would be the setting up of a Foundation, but other proposals are welcome.

Foundation example:

The “Innovation in Experimental and Theoretical Physics” Foundation, based on public and private sponsoring, would essentially support human resources, including

a. Post-Doc Fellowships
b. Short and long term researcher visit support
c. Training schools especially in the developing countries in a multi-lateral approach where several countries would team up to provide the best teaching experts and materials.

d. Joint virtual laboratories hosted by the research organizations or universities welcoming bi- or multi-lateral research teams. The joint labs would be coordinated within of a global network.
e. The contribution to research infrastructures in the developing countries (i.e. linac in Vietnam, GRID in ASEAN countries, …)
f. The participation of the developing countries to the large scale international programs (LHC, ILC, space science, mesophysics, …)
g. Global physics centers at the research frontier gathering theorists and experimentalists on specific joint projects. Beginning with, at least, one institute in Asia and one in Europe, their number could rapidly increase with satellites in each of the participating countries. They would run in a global network. Similar research centers have been successfully established in the US and Canada with some centers located abroad (China, Norway, UK).

Industry participation

Physics research is bound to technology and, simultaneously, innovation is one of the main driving forces of the current economy. Developed countries are even getting more sensitive to investment in "innovation" since they have lost some of their economical power based on labor. Developing countries may found in their international research involvement a way to speed up the training of young generations and the installation of high-tech startups.
Therefore the industry participation to the summit is of great importance:

A. The summit shall give a pedagogical presentation of the physics projects for the coming 20 years in a comprehensive and appealing way so that industry leaders have a global view on the future undertakings. The industry contribution to this activity (through the Foundation) will be discussed.

B. Large scale projects in particle physics, space science, energy research or environmental issues rely largely on the development and construction of equipments outsourced to many companies. Exposing industry leaders to these projects in their early development phase will be beneficial both to the projects and to the industrial involvement.

Participating countries

Representatives from any countries from Europe, Asia-pacific or from the former USSR are welcome to attend the Summit. Based on the yearly R&D spending ranking, we expect contributions from: Germany, France, Great-Britain, Italy, EUC research, Japan, Korea, China, India and Russia.

Summit Organization

Venue and date: Tsukuba International Congress center (Japan), March 24-26, 2010.

Summit Sessions

- Keynote: Innovation in Human Knowledge

    - Innovation in view of nature: From particle to cosmos, material and life science, …
- Innovation in Technology
    - Nano-technology, laser, superconductivity, …
- Impacts of physics research on human society
    - Medical treatment, information technology, energy and environment, …
- Physics research requires innovation
    - Accelerator, computer/network, new materials, …
- International collaboration in Physics
    - Euro-Asia collaboration history and current status, collaborations in Asia, collaborations in Europe, …
    - New projects: accelerator, space, fusion …
- Physics education and outreach
    - In developed and developing countries, …
    - Cooperation with the developing countries, bridging the knowledge/digital gap, …

General Summit Format

The summit precise format will evolve during the preparation period.

D-1	D	D+1	D+2
	Wednesday, March 24	Thursday, Mar. 25	Friday, March 26
	Welcome and official **9:00**-10:40~2*10'tks 4*20'tks	Scientific 9:00-11:00~4*30'tks	Scientific **9:00**-11:00~4*30'tks
	10:40-11:10 Break	11:00-11:30 Break	11:00-11:30 Break
	Official 11:10-12:50~5*20'tks	Scientific 11:30-13:00~3*30'tks	Scientific 11:30-13:00~3*30'tks
	12:50:14: Lunch	13:00-14:00 Lunch	13:00-14:00 Lunch
	Scientific 14:00-16:00~4*30'tks	Scientific 14:00-16:00~4*30'tks	Official 14:00-16:00~6*20'tks
	16:-16:30 Break	16:00-16:30 Break	16:00-16:30 Break
Registraton	Scientific 16:30-**18:30**~4*30'tks	Scientific 16:30-**18:30**~4*30'tks	Statement and closing 16:30-**18:00**~4*20'tks ~1*10'tks
Welcome Party	19:-21 Cocktail	Banquet	
	Total: 2 open, 9 off, 8 sci tks	Total: 15 sci. tks	Total: 7 sci, 5 off, 1 closing/statement

Total: 14* 20' official talks + 30*30' scientific/industry talks + 3*10' opening and closing talks.
Some of the talk slots can be allocated to round-tables discussions or closed-sessions.
D+3 (Saturday March27), social activities day can be organized.

Talks organization

The speakers will be:

a) Physicists in charge of large projects. They will present the scientific motivations and current status of the projects. The topics will have been selected by the IAC (International Advisory Committee)
b) High level governmental representatives from ministry, research centers or/and funding agencies. They will present the strategies and priorities given to the physics programs in their own country (one presentation per country)
c) Industry leaders will be given the opportunity to address the community.

A **poster session** will be organized so that more detailed presentations can be made available to the audience.
The **attendance** to the **open sessions** will be scientists, officials from the delegations, policy makers, industry leaders and R&D executives, official (scientific counselors) from the embassies and the press.

Closed sessions, if needed, can be organized to cover specific Asia-Europe physics projects and common strategies.
For example, one closed session could be organized before the summit for a pre-discussion on projects ready for a final agreement and one before the closing "statement" for reaching a final decision.
The closed sessions would be open to the funding agency representatives assisted by selected scientists.

Council and committees

ASEPS council (AC)

The Board council will be formed by members of the participating countries (2 per country: one scientist and one decision maker). It will be in charge of the running of the structure put in place by the Summit to develop the Euro-Asia cooperation

International Advisory Committee(IAC)

An IAC is being formed. It will advise the LOC on the setting up of the summit program and on the speaker invitations.

- Each country will manage, for its own purpose any specific bilateral event to be held aside of the summit
- Each country may setup its own **Domestic Organizing Committee (DOC)**.

Local Organizing Committee (LOC)

The local organizing committee will be in charge of the general practical organization of the summit. It will be advised by the IAC for setting up summit activities, program and specific meetings.

Intermediate ASEPS organization meetings

A kick-off meeting will be organized in Shanghai (July 24, 2009) at the Shanghai Jiao Tong University (SJTU) and a final one in Brussels (EU headquarters) (December, 2009).

Additional materials

Venue:

Epochal Tsukuba: International Congress center:
http://www.epochal.or.jp/index.html (Japanese)
http://www.epochal.or.jp/eng/ (English)

Web sites:

1. Site for the preparation of the Summit:
   - Public view: http://aseps.in2p3.fr
   - Committee members:
     http://aseps.in2p3.fr/cgi-bin/twiki.source/bin/view/ASEPSIntra/WebHome
   - to access with read/write privilege, a registration is required:
     http://aseps.in2p3.fr/cgi-bin/twiki.source/bin/view/TWiki/TWikiRegistration
   - Password forgotten:
     http://aseps.in2p3.fr/cgi-bin/twiki.source/bin/view/TWiki/ResetPassword
2. General web site for public information:
   http://aseps.kek.jp
3. Registration Indico site: (to come)

Email:

aseps@kek.jp