

Joint Annual Meeting of the

SWISS PHYSICAL SOCIETY

AUSTRIAN PHYSICAL SOCIETY

WITH

SWISS AND AUSTRIAN SOCIETIES FOR ASTRONOMY AND ASTROPHYSICS

June 15 - 17, 2011; EPF Lausanne



Sessions

- Applied Physics
- Atomic Physics & Quantum Optics
- Careers for Physicists
- Computational Astrophysics
- Condensed Matter Physics
- Geophysics
- History of Physics
- Large Scale Computing
- Nuclear, Particle- & Astroparticlephysics
- Plasma Physics
- Surfaces, Interfaces & Thin Films
- Theoretical Physics Today
- 100 Years Superconductivity
- Poster Session

Plenary Speakers

- Siegfried Bauer, JKU Linz: *Flexible and stretchable electronics*
- Raffaele Colombelli, Uni Paris-Sud: *Improving quantum cascade lasers with photonic band and electromagnetic engineering*
- Øystein Fischer, Uni Genève: *100 Years Superconductivity **
- Philippe Gillet, EPFL: *Physics of Planetary Sciences **
- Andre Hoang, Uni Wien: *Theory and Tools for LHC*
- Alison Lister, Uni Genève: *LHC: At the doorstep of new physics?*
- Ben Moore, Uni Zürich: *Advances in computational astrophysics **
- Jean-Marc Triscone, Uni Genève: *Novel properties at oxide interfaces*
- Martin Weitz, Uni Bonn: *Bose-Einstein condensation of photons*
- NN (for Plasma Physics)

(* = Titles are tentative.)

Public Lecture

- Michel Marthaler et al., Uni Lausanne: *Le Cervin est-il africain? or The Alps and our Planet: The African Matterhorn, a Geological Story*

Additional Events

- Award Ceremony
- General Assemblies
- Scientific Equipment and Book Exhibition
- Conference Dinner

ABSTRACT SUBMISSION DEADLINE: MARCH 15, 2011

Deadline for registration & payment: June 1, 2011

More information, abstract submission and registration:

www.sps.ch

Programmübersicht

Die Schweizer und die Österreichische Physikalische Gesellschaft (SPG und ÖPG) werden 2011 zusammen mit den Gesellschaften für Astronomie und Astrophysik (SGAA und ÖGAA) die Jahrestagung 2011 gemeinsam durchführen. Die Tagung findet vom 15. - 17. Juni 2011 an der EPF Lausanne statt.

(http://www.sps.ch/events/gemeinsame_jahrestagung_2011/)

Konferenzsprache: Englisch

Plenarsitzungen

Zehn Plenarvorträge an den drei Vormittagen berichten über die neuesten Fortschritte und Höhepunkte in ihren jeweiligen Fachgebieten:

- Siegfried Bauer, JKU Linz: *Flexible and stretchable electronics*
- Raffaele Colombelli, Uni Paris-Sud: *Improving quantum cascade lasers with photonic band and electromagnetic engineering*
- Øystein Fischer, Uni Genève: *100 Years Superconductivity* *
- Philippe Gillet, EPFL: *Physics of Planetary Sciences* *
- Andre Hoang, Uni Wien: *Theory and Tools for LHC*
- Alison Lister, Uni Genève: *LHC: At the doorstep of new physics?*
- Ben Moore, Uni Zürich: *Advances in computational astrophysics* *
- Jean-Marc Triscone, Uni Genève: *Novel properties at oxide interfaces*
- Martin Weitz, Uni Bonn: *Bose-Einstein condensation of photons*
- NN (*für Plasma Physik*)

(* = Titel sind vorläufig.)

Ein **öffentlicher Vortrag** wird am Mittwoch Abend gehalten:

- Michel Marthaler (Uni Lausanne) et al.: *"Le Cervin est-il africain?" or "The Alps and our Planet : The African Matterhorn, a Geological Story"*

Thematische Sitzungen

Diese Parallelsitzungen werden an den drei Nachmittagen abgehalten:

- Angewandte Physik
- Atomphysik und Quantenoptik
- Computergestützte Astrophysik
- Geophysik
- Geschichte der Physik
- Hochleistungsrechnen in der Physik
- Karrieren für Physiker
- Kern, Teilchen- und Astroteilchenphysik
- Oberflächen, Grenzflächen und dünne Schichten
- Physik der kondensierten Materie
- Plasmaphysik
- Theoretische Physik heute
- 100 Jahre Supraleitung

Postersitzung

Die Postersitzung beginnt am Abend des 15. Juni im Rahmen eines Apéros. Während der Mittagspausen des 16. und 17. Juni wird die Postersitzung fortgesetzt. Es wird ein Buffet zur Verfügung stehen.

Die maximale Postergröße ist A0 (Hochformat).

Händlerausstellung

Parallel zur Konferenz findet eine Ausstellung wissenschaftlicher Geräte, Apparaturen und Literatur statt. Interessierte Firmen werden in Kürze eingeladen, an der Tagung teilzunehmen. Sollte Ihre Firma Interesse an einer Teilnahme haben, jedoch von uns bis Ende Februar keine Einladung erhalten haben, wenden Sie sich bitte an das SPG Sekretariat.

Generalversammlung

Die Generalversammlungen sind für den 16. Juni 2011 geplant.

Preisverleihung

Die ÖPG vergibt folgende Preise: Physik-Preis der ÖPG (Boltzmann Preis), Roman Ulrich Sexl Preis, Viktor Hess Preis, AT&S Forschungspreis. Anton-Paar Wissenschaftspreis für Physik.

Die Zeremonie wird am 15. Juni 2011 stattfinden.

Konferenz-Abendessen

Das Abendessen wird am 16. Juni 2011 im "Chalet Suisse" in Lausanne stattfinden. Es werden Busse für den Transfer organisiert. Der Preis ist CHF 80.- pro Person (beinhaltet Apéro, Menü, Getränke und Busfahrt).

Zusätzliche Informationen für ausgewählte Sitzungen

[keine deutsche Übersetzung verfügbar]

Careers for Physicists

Physicists work not only in traditional areas of physics and their application. They have always looked for opportunities to apply physical methods and thinking to other areas. This has opened them the possibility to work in a broad range of fields not only in academic but also in industrial research. This session aims to show younger physicists the career opportunities open to them with presentations of physicists working in these areas.

Condensed Matter Physics

A general session will be open for all contributions. In addition, topical sessions will be organized for *Intersubband Physics*, *Spin and Magnetism* as well as one on *Applications of Synchrotron and Neutron Techniques in Condensed Matter*.

From Planetary to Engineering Geophysics

For the first time at the SPS, we will have sessions on the theme geophysics. It is interesting to bring together scientists using the physical principles to solve geosciences related issues. Geophysics encompasses many different areas, going from energy, resources, land planning, waste management, material sciences to planetary physics.

The topics are:

- Geophysics of the globe (plate tectonics, geomagnetism, solid state at high pressures, seismology, geodesy, ...)
- Engineering geophysics, applied geophysics (analysis of geological resources, of geomaterials, of geological hazards, of geological barriers for waste storage, monitoring of contaminated sites)
- Geophysics of limiting layers (climatology, glaciology, oceanography)
- Extra-terrestrial geophysics (external geomagnetism, cosmic rays, ...)

Philippe Gillet, renowned teacher and scientist in the disciplines of material physics and extraterrestrial matter, will address the subject of physics of planetary sciences in a plenary talk.

In a public talk on the first evening on June 15th, a perspective on the development of geological sciences will elaborate around Michel Marthaler and his stimulating question "*Le Cervin est-il africain?*", or "The Alps and our Planet : The African Matterhorn, a Geological Story", (see e.g. www.cervin-africain.ch).

Large Scale Computing

Computer simulations have reached a quality that now makes simulation-based sciences and engineering an equal partner in natural sciences along with theory and experimentation. The recently founded Swiss Platform for High-Performance and High-Productivity Computing, in short HP2C, aims at developing applications to run at the scale of the next generation of supercomputers. The projects of the platform are carried out by research groups of several Swiss universities, the ETHZ and the EPFL. In this session, review talks by members of the network will present some current activities, specifically on the following topics: Density-functional theory, ab initio molecular dynamics, three-dimensional computer models of stellar explosions, plasma physics, strongly correlated quantum systems.

Contributed talks and posters on research in these and related fields will complement the program.

Plasma Physics

This year the SPS annual meeting, organized jointly with the Austrian Physical Society, will include a session on Plasma Physics, divided into two sub-sessions. The first sub-session Plasma Physics and Fusion Technology will cover theoretical and experimental aspects of both basic plasma physics and magnetically-confined plasmas for fusion. Developments in plasma technology and diagnostics for both fusion and basic plasma physics devices will also be discussed.

The second sub-session Physics of Industrial Plasmas will be devoted to the physics of plasma processes used in industrial applications such as microelectronics, hard coatings, barrier coatings, surface modifications, etc.

This topical session is intended to provide an informal atmosphere to stimulate discussions among research groups and industries and will consist of invited and contributed presentations.

Surfaces, Interfaces and Thin Films

Four topical sessions will be organized that broadly cover the following themes. Two sessions devoted to *Molecules on Surfaces* will address phenomena like molecule-substrate and molecule-molecule interactions, supramolecular structures, reactions, electronic structure, organic semiconductor interfaces and more. The session *Spin Systems at Surfaces* will combine talks on surface and interface magnetism, and on nonmagnetic systems with strong spin-orbit interaction, like Rashba systems and topological insulators. Finally, a session on *Oxide Surfaces and Interfaces* will cover structural and electronic effects in oxide heterostructures and on oxide surfaces.

Theoretical Physics today

The dual role of theoretical physics - a toolbox for interpreting experimental data and a road towards a fundamental understanding of physical laws - is well documented by the multiple facets of research performed under this name. It is the aim of this session to offer a forum where diverse modern topics are presented to an audience that is eager to learn about progress in theoretical understanding, with a focus on both fundamental issues and methodological novelties. Several invited talks are already scheduled:

- Jean-Pierre Eckmann: *Studies of networks in space and time.*
- Joseph Brader: *Soft matter, a modern testing ground for statistical mechanics.*
- Niklas Beisert: *AdS/CFT duality and integrable spin chains.*
- Riccardo Rattazzi: *Progress in quantum field theory motivated by particle physics questions.*

Contributed talks or posters with a clear emphasis on theoretical aspects can also be accommodated.

100 Years Superconductivity

This one-afternoon session will include invited and contributed presentations related to the 100th anniversary of superconductivity. Contributions can be related to the history of superconductivity as well as to its scientific developments, milestones and commercial applications from the early days until today. In order to make it appealing to students, teachers and a broader audience we plan to organize live demonstrations, an exhibition with posters, videos and books.

Fachdidaktik Physik

Der österreichische Fachausschuss „Fachdidaktik Physik“ nimmt nicht an der Jahrestagung in Laussane teil, da der Termin der Tagung mit den Maturaterminen an den Schulen kollidiert. Stattdessen findet am 22. September 2011 ein „ÖPG-Tag“ an der Johannes Kepler Universität in Linz statt, in dessen Rahmen auch die Präsentation und Prämiiierung der Fachbereichsarbeiten erfolgen wird