

Annual meeting of the Swiss Physical Society 2018



Tuesday 28 August 2018 - Friday 31 August 2018
EPFL

Scientific Programme

The following topical sessions will be held during the conference. You can choose the appropriate topic for your contribution in the abstract submission form.

Advanced Electronic-Structure Developments and Applications

This session, organised by the NCCR MARVEL, aims at highlighting recent advances in the computational study of the properties of real materials with particular emphasis on the description of the electronic structure through advanced methods, both as far as methodological developments and applications are concerned.

We aim at bringing together computational researchers active in various fields, such as materials for batteries, halide perovskites and other materials for photovoltaics, functional oxides, electrochemical interfaces & catalysis, metal organic frameworks, two-dimensional materials, solid-state ion conductors, and others. Two invited speakers are confirmed: Giacomo Miceli (EPFL) and Wei Chen (Louvain-La-Neuve).

Contact: Alfredo Pasquarello (Alfredo.Pasquarello@epfl.ch)

Advances in Topological Materials

The objective of this session, organised by the NCCR MARVEL, is to provide an account of recent advances in materials realizing topological electronic phases (topological insulators, Dirac and Weyl semimetals, etc.). The session intends to gather both the theorists working on the subject as well as experimental researchers studying various aspects of these emerging materials (materials synthesis, photoemission spectroscopy, transport measurements). Alexey Soluyanov (ETHZ) and Ming Shi (PSI) will give invited talks.

Contact: Oleg Yazyev (oleg.yazyev@epfl.ch)

Applied Physics and Plasma Physics

Atomic Physics and Quantum Optics

Biophysics, Medical Physics and Soft Matter

Condensed Matter Physics (KOND)

The Condensed Matter section of the Swiss Physical Society encourages submission of abstracts to all related focussed sessions (see other entries in the track list). Further topics in Condensed Matter Physics e.g. magnetism, superconductivity, semiconductors, among others will be covered

by the regular KOND program.

Contact: Laura J. Heyderman (laura.heyderman@psi.ch)

Earth, Atmosphere and Environmental Physics

History of Physics

Magnetism and Spintronics at the Nanoscale

With this focus session we would like to highlight recent advances in the fabrication, measurement and control of novel functionalities in spintronic and nanomagnetic systems. We aim to bring together experimentalists and theoreticians from Switzerland and the neighbouring countries exploring magnetic properties in thin films, interfaces, and nanostructures. Harald Brune (EPFL) and Rolf Allenspach (IBM Zurich) will give invited presentations in this session.

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Nuclear, Particle- and Astrophysics (TASK)

This session is again being organised in collaboration with CHIPP.

Physics Beyond University

Most Master or PhD students and PostDocs are only exposed to academic career models during their studies. Yet the majority of physicists actually later work in non-academic positions. The section "Physics in Industry" will present a session centred on showcasing physicists careers and job-roles that reflect the variety of pathways that are open with a physics degree. Invited speakers will describe their career development and how important their physics education was in its course. Is it the generalist, specialist or practitioner skills that make them successful?

If you have studied physics, work in an industry, start-up company or other non-academic profession and would like to share your view on why a physics education is important in your position or company, please submit your contribution before the abstract submission deadline.

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SwissFEL – recent advances and future opportunities

In the last ten years, X-ray science has had an impressive growth and many developments were made due to the introduction of X-ray Free Electron Laser light sources and their unique photon properties. In comparison to synchrotron storage rings, XFELs have brought a significant improvement in time resolution (i.e. typical pulse widths below 100 fs), with an impressive increase in photon flux per pulse by several orders of magnitude.

The new XFEL facility at PSI, SwissFEL, delivers femtosecond photon pulses of spatially coherent X-rays in the wavelength range 0.1 to 7 nm (180 eV to 12.4 keV), with extremely high peak brightness. The first experiments performed in 2017 mark the beginning of the ultrafast X-ray science capabilities at this facility for the scientific community.

This session will be dedicated to present the most recent achievements in ultrafast X-ray science in selected research fields including condensed matter physics, materials science, chemistry, molecular physics, and non-linear x-ray science.

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Theoretical Physics

The session on Theoretical Physics at the annual meeting 2018 will put a special emphasis on *Computational Physics*, still welcoming contributions from all venues of theoretical physics. The aim is to present the most important developments in the field brought forward by researchers having links to Switzerland, and do so in a way that is largely accessible to all physicists.

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