swiss physical society

Newsletter, 30 January 2020

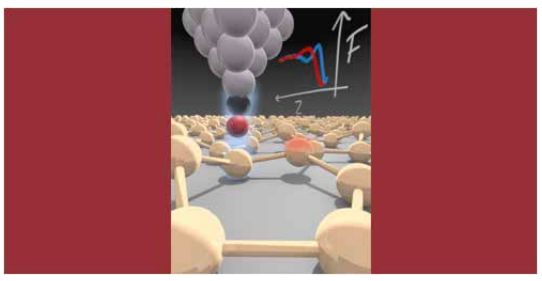
Dear Reader,

You scientists shape this newsletter.

This newsletter is intended for all SPS members, researchers, industries, students, interested specialists and physics friends. Feel free to share this Newsletter within your community. If you would like to share some news with us, please contact Celine.Lichtensteiger@UniGe.ch.

WHAT'S UP IN SWITZERLAND?

University of Basel team measures the arrangement of atoms in material silicene



Silicene consists of a single layer of silicon atoms. In contrast to the ultra-flat material graphene, which is made of carbon, silicene shows surface irregularities that influence its electronic properties. Now, physicists from the University of Basel have been able to precisely determine this corrugated structure. As they report in the journal PNAS, their method is also suitable for analyzing other two-dimensional materials. [More]

Image: University of Basel, Department of Physics.

Swiss High-School Students Internship Programme at CERN

CERN invites high-school students (16-19 years old) to come to CERN for two weeks to gain practical experience in science, technology and innovation, to strengthen their understanding of science and to develop skills in a high-tech environment. A Swiss HSSIP programme for students enrolled in Swiss high schools and secondary schools will be offered for the first time in **autumn 2020**.

If you are excited about science, technology and innovation and would like to work at CERN for two weeks in an international environment, then apply for this internship at CERN, where you will gain fascinating insights into the world of particle physics and modern research. [More]

Image credit: CERN

International Masterclass in Particle Physics for Swiss High-School Students

"Discover the world of quarks and leptons with data from the Large Hadron Collider"

In **February/March 2020**, the International Particle Physics Outreach Group (IPPOG) will hold its sixteenth international Masterclass in Particle Physics. Every year, some 14,000

students come to one of 200 universities and research centres in over 50 countries to explore the world of elementary particles. In Switzerland, under the patronage of the Swiss Institute of Particle Physics (~~CHIPP~~), the University of Bern, University of Geneva, University of Zurich together with ETHZ, and EPFL in Lausanne are offering interested students the opportunity to participate. Interested high-school students and their physics teachers in Switzerland can participate in French on **27 February 2020** in **Lausanne** or on **13 March 2020** in **Geneva**, respectively in German on **3 March 2020** in **Bern** or **20 March 2020** in **Zurich**. More details on the event and on how to register in German, French, and Italian.

Symposium in memory of Jean-Pierre Blaser

*ETH Zürich - **29 Februray 2020***

Jean-Pierre Blaser was the founding director of the Paul Scherrer Institute (PSI) and before that of the Swiss Institute for Nuclear Research (SIN). He died on 29 August 2019 at the age of 96. The memory symposium in Zurich proposes several lectures about the technical, scientific and historical developments at the SIN and during the early years at the PSI. Registration needed by **24 February 2020**. [More]

Jacob Bernoulli: What a great mathematician notes down

A theme evening on the edition work on Jacob Bernoulli's "Meditationes" with Martin Mattmüller

From the completion of his theology studies until a few months before his death, Jacob Bernoulli (1654-1705) wrote down everything that concerned him under the title "Meditationes" in a notebook that has now been completely edited for the first time. Martin Mattmüller, the editor of the recently completed digital edition, will use examples to show how an important scholar recorded his ideas in his scientific notebook. Bernoulli-Euler-Zentrum Basel, **12 February 2020**, 18h. [More]

Henrik Rønnow elected Chair of ENSA

In the beginning of **December 2019**, the European Neutron Scattering Association (ENSA) elected EPFL's Professor Henrik Rønnow, who is also member of the SPS Board, as its new Chair, replacing Professor Christiane Alba-Simionesco from the Lund Institute of Advanced Neutron and X-Ray Science. The SPS Board congratulates Henrik Rønnow and wishes him all the best in his new task. [More]

Picture: Henrik Rønnow

WHAT'S UP IN EUROPE?

Launch of ESA mission Solar Orbiter with Swiss STIX instrument

Solar Orbiter is a mission led by the European Space Agency (ESA) to observe our closest star, the Sun. The launch from Cape Canaveral, USA, is foreseen on the morning of **6 February 2020** (CET). The Spectrometer/ Telescope for Imaging X-rays (STIX) is one of the 10 instruments on board and was developed in Switzerland by the Fachhochschule Nordwestschweiz (FHNW).

[More]

Image: ESA

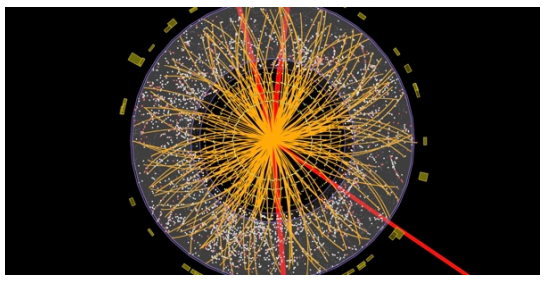
Call for nominations for EPS Distinctions & Awards

The Europpean Physical Society promotes scientific excellence. The following four distinctions are now open for nominations: the EPS Edison Volta Prize, to be awarded in 2020 for outstanding achievements in physics research; the EPS Gero Thomas Medal, to be awarded in 2020 for outstanding contributions to the EPL; the EPS Fellows, to recognise your peers for their exceptional contributions to the EPS and physics; and the EPS Achievement Award, for excellent contributions to the development of EPS Divisions, Committees, Activities. Please send nominations no later than **15 February 2020** directly to David LEE.

JOBS FOR PHYSICISTS

Online event selection using machine learning techniques with the ATLAS experiment

PhD student position - University of Bern



The successful candidate will become member of the ATLAS collaboration at CERN's Large Hadron Collider and will be involved in exploiting machine learning techniques for energy reconstruction and trigger selection based on calorimetry and tracking information. Using advanced computational intelligence models, a significant improvement of the online triggering efficiency is expected, which will be of high value in the search for rare events that enable new insight in the understanding of the Standard Model and in searches for new physics beyond the Standard Model. [more]

Image: ATLAS experiment

Theoretical and experimental quantum physics

4 PhD student positions - IBM Research - Zurich

Specific topics offered are

- Multi-qubit gates for the efficient exploration of Hilbert space with superconducting circuits (exp) - with Stefan Filipp

- Charge noise and coherence of hole spins in group-IV QD devices (exp) - with Andreas Fuhrer

- Understanding and engineering microscopic sources of noise in solid-state quantum devices (theo) - with Clemens Müller

- Gate-based sensing of spin qubits (exp) - with Gian Salis

The positions will be partially funded through the European Project QUSTEC - Quantum Science and Technologies at the European Campus, providing additional secondment and networking opportunities. More information can be found at IBM, Eucor and the European commission. Applications will have to go through the QusTec system, if interested please contact the prospective supervisor prior to applying. Application deadline is **9 March 2020**.

Image: IBM

The Swiss Physical Society (SPS) unites persons interested in physics from university, schools, research, development and industry. The SPS promotes the scientific exchange of ideas in Switzerland and with its international environment.

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