

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?

Physics highlighted in the new CHF 200.- banknote

The new CHF 200.- banknote shows Switzerland as a country dedicated to research, illustrated by the main element - matter. The front shows the big bang and the main elementary particles known to date from the standard model of particle physics. The fingers representing the three coordinate axes evoke the spatial dimensions in which matter extends. On the back of the bill, the free illustration of a detector and a particle collision symbolizes research in Switzerland. [\[more\]](#)



As reported [here](#), Prof. Günther Dissertori from ETHZ played a key role in its design - while also working in the CMS experiment at the Large Hadron Collider (LHC) at CERN.

Picture: The new CHF 200.- banknote. Credit: SNB.

An interview with Maurice Bourquin "The risk of thorium-based nuclear power would be acceptable"

On the occasion of our SPS/CHIPP Annual Meeting at the end of **August 2018** in Lausanne, Maurice Bourquin, former professor of physics at University of Geneva, gave a keynote lecture about the ongoing transformation of the Swiss energy system. In an interview the scientist gave on the occasion of the Annual Meeting, he explains why he still believes in nuclear power. "If you travel to China or to Africa, you can see that the worldwide need for electricity is tremendous. This additional energy should not be produced by coal, gas or oil for environmental reasons. I see no alternative but to take advantage of nuclear power", Bourquin says. The current nuclear power stations use uranium 235 or plutonium as fuel. This is not sustainable, according to Maurice Bourquin: "We have to look for an alternative fuel source. And indeed there is one: thorium."



Please find the full interview in English and German [here](#).

Picture: Prof. Maurice Bourquin. Credit: SPS

Alessio Figalli wins the Fields Medal

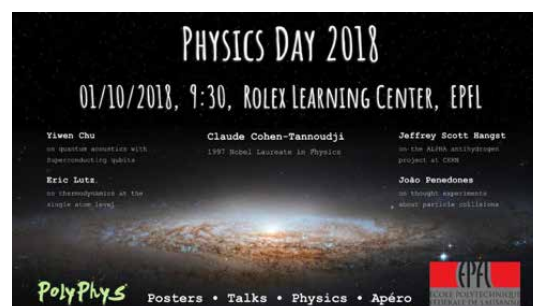
Alessio Figalli, Professor of Mathematics at ETH Zurich since 2016, was awarded the Fields Medal for his outstanding contribution to mathematical research. The International Mathematical Union awarded the Fields Medal to the Italian citizen at the International Congress of Mathematicians 2018 ([ICM 2018](#)) in Rio de Janeiro "for his contributions to the theory of optimal transport, and its application to partial differential equations, metric geometry, and probability". The [Fields Medal](#) is the most prestigious award in the field of mathematics, sometimes dubbed the Nobel of mathematics. [\[more\]](#)



Picture: Prof. Alessio Figalli. Credit: Gian Marco Castelberg/ETHZ

EPFL Physics Day - 1 October 2018, Lausanne

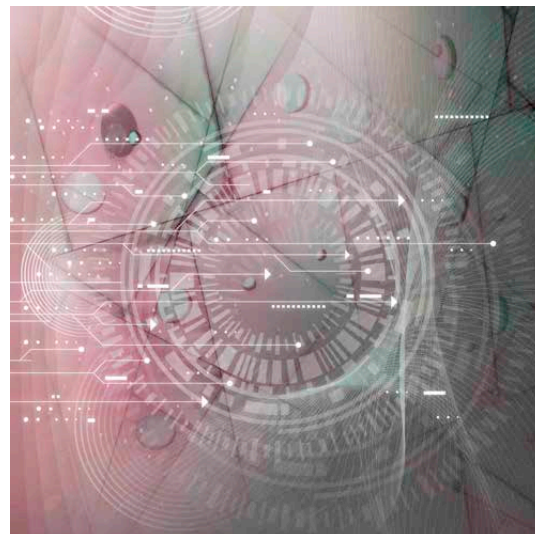
The EPFL Physics Day will take place on Monday **1 October 2018** at the Forum Rolex. It Day will feature presentations by top physicists, including the Nobel prize laureate Claude Cohen-Tannoudji. The invited speakers will cover such topics as quantum acoustics, thermodynamics at the single atom level, particle physics and the seminal CERN antihydrogen project.



You can register for the event [here](#). A standing lunch will be served to all participants during the poster session. [\[more\]](#)

Open Data and Data Management - Issues and Challenges - 29 October 2018, Bern

The SCNAT is organizing a one day event in Bern on issues related to "Open Data", with the aim to give the research community the chance to raise their concern and also the SNF and the European Commission to present their view and to inform about recent trends in this matter. The workshop should provide recommendations on how to implement the open data requirements.



In recent years, a number of changes in scientific research took place, under the umbrella of the "open science" label. Open access has essentially been introduced, and researchers from the sciences took the lead when introducing the preprint arXiv many years ago. Many researchers followed the path of open source by making their simulation codes publicly available. Presently the introduction of open data (and open data management plans) are on the horizon (or already introduced) by many European Funding Agencies.

However, the concept of "Open Data" is also widely debated. While in certain fields the full disclosure of research data is suitable and straightforward, and happens thus naturally, in others it can become a burden and possibly affect research productivity. The workshop will provide an opportunity to discuss open questions related to the implementation of the open data concept in Swiss science with representatives from all relevant funding organisations. Programme and registration: [here](#).

Credit: SCNAT

WHAT'S UP IN EUROPE?

The centenary of Emmy Noether's theorem

Emmy Noether was a force in mathematics. Her approach to algebra had profound impacts on theoretical physics. We all know Emmy Noether's fundamental theorem. Noether's "*Invariante Variationsprobleme*" was published 100 years ago in **1918** in the *Nachrichten von der Königlichen Gesellschaft der Wissenschaften zu Göttingen* [[here](#)], p.235-257 (or English translation [here](#)) and puts symmetry at the heart of physical



law. But how many of us know anything of her and her life? As young scientists look for inspirational female role models, Emmy Noether is a perfect candidate. Read more about her in this [Nature Editorial](#) or in the book by Dwight E. Neuenschwander "*Emmy Noether's Wonderful Theorem*".

Picture: German mathematician Emmy Noether. Credit: Pictorial Parade/Hulton Archive/Getty

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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