

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.

NOBEL PRIZES

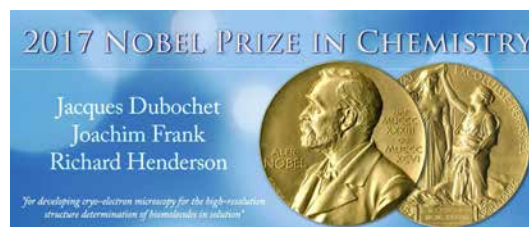
Nobel Prize in Physics

What better news to start this Newsletter than the announcement of the Nobel Prize in Physics, awarded on **3rd October 2017** to [Rainer Weiss](#), [Barry C. Barish](#) and [Kip S. Thorne](#) (USA) "for decisive contributions to the LIGO detector and the observation of gravitational waves". Congratulations to all three of them. Read also the last news item of this Newsletter regarding gravitational waves. [\[more\]](#)



Nobel Prize in Chemistry - one more Nobel in Switzerland

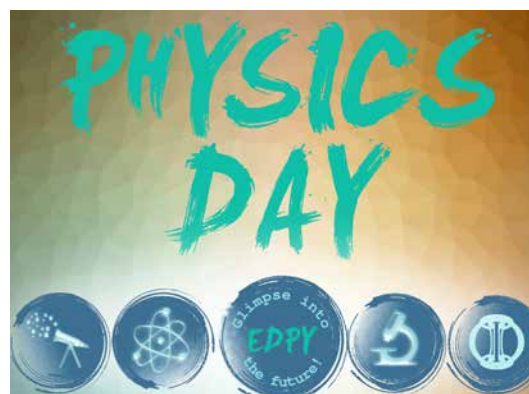
On **4 October 2017**, the Nobel Prize in Chemistry was awarded to [Jacques Dubochet](#) from the UNIL, together with [Joachim Frank](#) (USA) and [Richard Henderson](#) (UK) "for developing cryo-electron microscopy for the high-resolution structure determination of biomolecules in solution", demonstrating how "physical" methods have heavily contributed in the recent years to the development of structural biology. Congratulations to all three of them. [\[more\]](#)



WHAT'S UP IN SWITZERLAND?

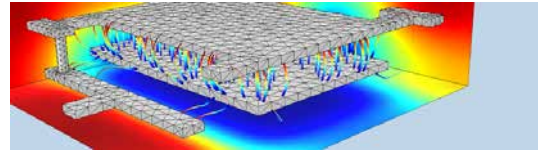
Event - Physics Day at EPFL

The [EPS Young Minds](#) in Switzerland are organizing a [Physics Day](#) at the Forum Rolex at EPFL on **16 October 2017**. It's an event thought for PhD students from all Swiss universities. It will feature top scientists including Nobel prize laureate Stefan Hell on super resolution microscopy, as well as presentations on quantum telescopes, extreme plasmas, and the future of LHC. One poster session will provide the opportunity to share and discover the different facets of physics research in Switzerland. Prizes will be awarded to the three best contributions. Please note that contributions from outside EPFL can benefit from a travel grant upon request : [contact the organizers](#). The event is free, but [registration](#) is mandatory.



Condensed Matter Physics - COMSOL webinar on capacitive and resistive devices modeling

If you want to learn how to model capacitive and resistive devices using a multiscale approach, then tune into the webinar offered free of charge by [COMSOL](#) on **18 October**



2017 3-4pm. The software allows you to simulate a wide spectrum of electromagnetic systems, including the electric fields of capacitive devices and the magnetic fields and induced currents of motors and generators. This webinar will focus on when and how to couple electrical circuits to 2D and 3D space-dependent models. It will include a live demonstration of building a model of a resistor-capacitor (RC) network, in which the capacitor is modeled in space and the power supply and resistor are coupled through the Electrical Circuit interface. Using this multiscale approach, one can not only visualize the electric field around the capacitor, but also investigate its dynamic charging response. [\[more\]](#)

Atomic Physics and Quantum Optics - Invitation to the 10th anniversary of LTF at the University of Neuchâtel

On **26 October 2017**, the Time&Frequency Laboratory ([LTF](#)) of University of Neuchâtel will celebrate its 10th anniversary. The official ceremony "*Temps et lumière à l'UniNE*", with



participation of representatives of the Canton, federal state secretariat SERI, and METAS, features a retrospective on 10 years of activities on time and frequency metrology and ultrafast lasers, as well as a round table discussion with industry. A public evening lecture "*La mesure du temps: passé, présent et avenir*" by Christophe Salomon, ENS Paris and CNRS France, followed by an aperitif will close the day. The event is free of charge, open to all public, and will be held in French language. Detailed program and registration [here](#).

Workshop - "Internet der Dinge - Geräte, Protokolle, Muster, Plattformen und Beispiele"

The next phase of the Internet begins to take shape: a world full of intelligent devices, equipped with actuators and sensors, connected to the Internet, to exchange information without human interference. This is the so-called Internet of Things (IoT). [NTB](#) proposes a 2 day workshop **7-8 November 2017 at NTB Campus Buchs** designed for engineers, project managers and managers who want to get a quick overview of the topic. Upon registration - the costs are 1250CHF for the 2 days. [\[more\]](#)

INTERNET
OF THINGS



The State Secretary for Education, Research and Innovation Mauro Dell'Ambrogio talks about International Collaboration

The importance for Swiss Science in general, and Physics in particular, to be fully integrated in the European Research was highlighted after the vote of the 09/02/2014. The scientific community and the political authorities have worked hand in hand to develop a solution which safeguarded the place of Swiss Science in the European landscape. In the shortly upcoming issue 53 of the [SPG Mitteilungen](#), we have the pleasure to have an editorial of [Mauro Dell'Ambrogio](#), State Secretary for Education, Research and Innovation on this topic.



Physics in Industry - SATW publication on critical metals

A new short publication by the [SATW](#) shows how Switzerland may react to the threat of shortages in critical metals. The increasing



use of precious and special metals in modern technologies such as electric mobility, energy production and storage as well as information and communication creates new challenges for industry. The publication shows that these challenges do not reside in a lack of data but rather in information flows that are difficult to read and in the obstacles faced by companies in acquiring individual information. There is further often a dearth of knowledge regarding strategies on how to handle resource scarcities. [\[more\]](#)



Event - Inauguration of IBM Research - Zurich Lab as EPS Historic Site

On 26 September 2017, the [IBM Research – Zurich laboratory](#) was honored the distinction of [Historic Site](#) by the European Physical Society ([EPS](#)). It is the first industrial lab to make it on the list, joining 35 other sites including three in Switzerland (CERN, Einstein House, University of Geneva). In a ceremony at the lab in Rüschlikon, Rüdiger Voss, president of the EPS, and Alessandro Curioni, the director of the IBM lab, unveiled the plaque. [\[more\]](#)



WHAT'S UP IN EUROPE?

Outreach - The "Up to University" project has been launched in January 2017

A consortium of European companies, research centres, universities, and education networks started the Up to University project ("[Up2U](#)") that aims at creating a bridge between high school students and higher education, academia, and research. The goal of the initiative is to develop a platform called "Up2Universe" that includes a set of technological tools that will facilitate sharing information, experiences as well as formal and informal learning content. The [IT department of CERN](#) is part of this collaboration.

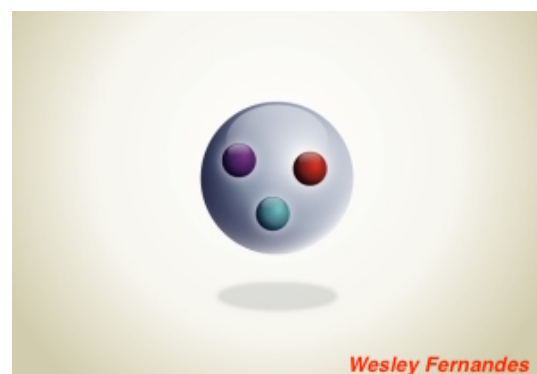


This summer CERN scientists together with [Margherita Boselli](#) from [Physiscope](#) at the University of Geneva performed a pilot experiment to assess how these tools could be integrated into the existing outreach programs. The experiment involved a 16-year-old student from the UK who visited and performed hands-on activities at Physiscope and CERN facilities (see picture). Collected results are very encouraging and details will be presented in the near future. More pictures of the experiment on the student's [Twitter Moment](#).

WHAT'S UP IN THE WORLD?

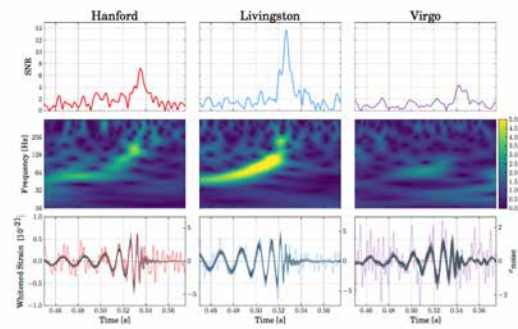
Particle Physics - New measurements find proton to be smaller than thought

The discrepancy between the size of the proton extracted by different technics has been puzzling physicists for the past few years. A new measurement, using very accurate spectroscopic measurements of regular hydrogen, found that the radius of the proton is about 4% smaller than previously thought. [\[more: Science, Nature\]](#)



Astrophysics - First simultaneous observation of gravitational waves by three detectors

On **August 14 2017** the two [LIGO](#) and the [VIRGO](#) detectors observed for the first time all together a gravitational wave event. Two black holes of about 30 and 25 solar masses coalesced and gave rise to a black hole of 52 solar masses. 3 solar masses have been radiated away in form of gravitational waves. Thanks to VIRGO the event could be localized much better in sky as would have been possible with the two LIGO detectors only. However, no electromagnetic signals have been observed. [\[more\]](#)



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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