

Dear Reader,

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, and follow this [link](#) if you want to add a person to our mailing list.

If you wish to give your contribution with news or suggestions, please do not hesitate to contact me at: margherita.boselli@cern.ch

Kind regards,

Margherita Boselli

WHAT'S UP IN SWITZERLAND?

SPS Focus: "Impact of Physics on Swiss Society"

The **second issue** of the [SPS Focus](#) has been distributed. This issue presents an overview of the impact of physics on the **Swiss society** and a comprehensive study of the influence of physics on the Swiss economy, for research and for the society as a whole. The study was carried out with the support of [SCNAT](#) and is based on statistical data from Eurostat, evaluated by IMSD, a company offering consulting services in data science and science communication, on the one hand, and on the subjective assessments of many SPS-experts from their daily work in physics on the other.

SPS Focus is a publication series of the Swiss Physical Society where a single topic is presented and placed in focus for a broader audience including physicists, scientists in general and interested public. [The first issue](#) of the series was published in July 2021 and focused on Nuclear Energy Generation.

Swiss Maturity Reform 2023

The SPS has issued a statement (soon available on the [SPS webpage](#)) concerning the **Swiss Maturity Reform 2023** (you can consult the dedicated websites in [German](#) or [French](#)). Main issues are the integration of Computer Science as new compulsory discipline and measures to ensure a true strengthening - and not weakening, as it would happen with the current proposal - of the MINT (Mathematics, Informatics, Natural Sciences and Technologies) disciplines.

We kindly ask all those, SPS members or not, who wish to do so and feel concerned to help influence this reform to ensure the future of Swiss MINT education, being key for a participatory society, for sustainable development, and for scientific innovation and competitiveness of the country.

Great success of the first "Women in Physics Career Symposium"

On July 1 a successful **first edition of the "Women in Physics Career Symposium"** took place as a satellite event of the SPS Annual Meeting. The event gathered together about 75 scientists, both female and male. Motivated by the final goal of improving the gender equality in physics in Switzerland, the



organizers of the symposium connected women in physics at different career stages, organized inspirational talks from other women who walked the same path, and initiated a professional and mentoring network of peers.



Looking forward to the organization of the second edition, a [nice summary](#) of the 2022 "Women in Physics Career Symposium" has been written by the University of Zurich.

Image: Attendees in the "Women in Physics Career Symposium". Credits: Paul Scherrer Institute / Marc Janoschek).

João Ferreira from the University of Geneva receives the Cogito award for: "Teaching quantum with IHop>"

Teaching quantum mechanics, in particular to young students, is a very challenging task and a PhD student from the University of Geneva, João Ferreira, has come up with an interesting concept: a board game, **HOP**. [João got the Cogito award](#) to conclude this project and present it in Swiss schools where it could potentially be used by teachers to introduce quantum mechanics in their curricula.

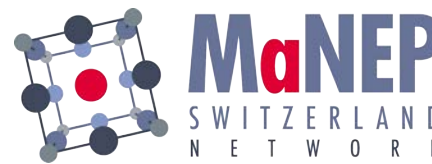


In this game, the board is a crystal lattice of atoms, and each player begins with an electric contact on the board from which electrons will start to move. The winner is the player who succeeds in sending an electron on the contact of the opponent inducing a short-circuit. The game rules introduce the players to important elements of quantum mechanics.

Image: Portrait of João Ferreira. Credits Adam Alexander.

2022 Swiss Workshop on Materials with Novel Electronic Properties (SWM)

The [2022 Swiss Workshop on Materials with Novel Electronic Properties](#) is currently ongoing in Les Diablerets and it is the thirteenth edition of a series of **Swiss Workshops organized by MaNEP**, formerly the Swiss National Centre of Competence in

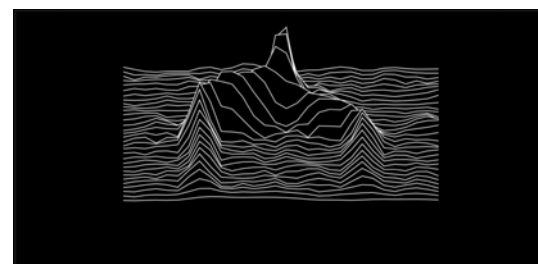


Research (NCCR) on Materials with Novel Electronic Properties and now a Network at the Swiss level.

This meeting brings together researchers working in Switzerland in the field of Materials with Novel Electronic Properties. The workshop is to act as a forum promoting research and applications in this area.

Exciting new findings in the field of topology and open quantum systems

A team of physicists from ETH Zurich, led by Dr. Tobias Donner and Prof. Tilman Esslinger of the Institute for Quantum Electronics, recently released [very interesting findings in a quantum gas coupled to an optical resonator](#). They observed a particle current without applying a periodic drive, the quantum analogue of a pump working without any cyclic motion applied to it. In their setup, atoms were trapped in a laser field and they observed a motion induced by the periodical winding of the synthetic crystal between different structures. They demonstrated that the pumping potential experienced by the atoms is formed by the self-consistent cavity field interfering with the static laser field driving the atoms.



These results have been published in [Nature](#) and pave the way to the realization of exotic states of quantum matter.

Image: Experimental frequency spectra of photons leaking from the cavity. As time progresses (top to bottom), the system evolves from a single configuration into two

distinctly different ones, reflected in the splitting into two peaks. Credits: ETH Zurich / Alexander Baumgärtner.

WHAT'S UP IN THE WORLD

Olivia Newton John and Max Born

Those working in optics certainly know the world-famous book "Principles of Optics" written by Emil Wolf and Max Born and first published in 1959, only one year before the invention of laser.

Not many people know that Max Born had a gifted granddaughter, the famous pop-singer **Olivia Newton-John, who died on 8 August 2022**. In 2015, Emil Wolf wrote a [very interesting article](#) about his colleague Born for the *SPS Communications*, where he tells a nice anecdote about Olivia.

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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