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A Perspective on Chemistry and Society

A Column on the Occasion of the 75th Anniversary of CHIMIA

Swiss Academy of Sciences - Platform Chemistry

SCNAT Platform Chemistry

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Abstract: The Platform Chemistry of the Swiss Academy of Sciences SCNAT is a small component in the Swiss network of education and research. The platform board analyses the education and research scene in Switzerland in order to identify issues that can be addressed by projects or initiatives or by coordinating efforts of others.

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Catherine Housecroft is Titular Professor of Chemistry at the University of Basel. She is co-director of a highly active research group with Professor Edwin Constable. The research group has interests in coordination, materials and interfacial chemistries with targeted applications in sustainable energy. In addition Catherine is dedicated to science education and is an internationally recognized author of undergraduate textbooks. Catherine is currently President of the Platform Chemistry.

Leo Merz is the head of the Platform Chemistry. He studied chemistry in Basel and moved to the physics department for his PhD on scanning tunnelling microscopy. He went to Japan for a Post-doc at the Tokyo Institute of Technology and back to Switzerland for research at Empa in the Molecular Surface Science lab. After a five-year journey on a sailboat, he joined the Swiss Academy of Sciences.

What is the SCNAT Platform Chemistry?

The Swiss Academy of Sciences ('SCNAT' from SCientia NATuralis) was founded 1815 as the 'Schweizerische Naturforschende Gesellschaft' (SNG). In 1901 the chemists of this society founded the Swiss Chemical Society as a section of the SNG.[1] And to this day the Swiss Chemical Society is a member organisation of the SCNAT with an excellent collaboration. The SCS is the only member society that has its head office at the House of the Academies in Bern.

The Swiss Academy of Sciences is one of the institutions in the area of 'promotion of research' with a mandate from the state. The federal law on the Promotion of Research and Innovation defines the funding of the Swiss National Science Foundation (SNSF), the Academies, Innosuisse, the Swiss Science Council, and the institutions of the ETH domain.

There, the academies are tasked with (a) early recognition of relevant topics in education, research and innovation, (b) ethics with respect to research and innovation, and (c) encouraging dialogue between science and society including politics. This includes promotion of (inter-)national collaboration, promotion of young scientists, and anything to keep the scientific disciplines healthy.

About 13 years ago, the SCNAT reorganised its structure into disciplinary platforms, one of which is the Platform Chemistry (for the other organisational units of SCNAT see scnat.ch). The SCNAT member societies in the Platform Chemistry are the Swiss Chemical Society, the Swiss Society for Food Chemistry (SFC), and the Verein Schweizerischer Naturwissenschaftslehrerinnen und -lehrer (VSN). The member societies are represented in the board of the platform to facilitate a close collaboration between them.

Projects of the Platform Chemistry

To illustrate the role of the Platform Chemistry, we take a look at some recent projects and initiatives.

The SCNAT provides support for CHIMIA, helping the journal reach as wide a chemical community as possible.

In 2018, a potential shortage of radiochemistry experts became apparent, and the platform assembled a group of experts to compile a whitepaper on education in radiochemistry in Switzerland.[2] Even the preliminary stages of the preparation of the report helped to raise the awareness of the topic and the ETH board established a radiochemistry professorship. The final white paper has been published online: chem.scnat.ch/radiochemie

Another major effort focusing on science policy has been the preparation of the Roadmap for Research Infrastructures in Chemistry 2025–2028.[3] This project was initiated by a mandate from the State Secretariat for Education, Research and Innovation (SERI). SCNAT was asked to assemble the research communities from different disciplines to elaborate roadmaps for research infrastructures similar to the earlier ones in astronomy and particle physics. This community roadmap is one of the major inputs for the universities planning and discussions with regards to national (inter-institutional) research infrastructures. This roadmap is also a basis for the national roadmap which is being prepared by SERI. The national roadmap offers a way forward for collaborative research within Switzerland, thereby facilitating partnerships and moving away from an introverted research projects.

Over the past few years, the board of the Platform Chemistry recognised the need for ethics education in the chemistry curriculum. This initiated the SCNAT Ethics Series (chem.scnat.ch/ELT) and is offered to chemistry departments across Switzerland. SCNAT invites one or several international experts on a range of topics around ethics in chemistry to tour Swiss universities. Together with the local hosts, an evening of discussions in a format like a 'world cafe' is organised and participants from master students to senior professors address issues including publishing, dual use, and scientific integrity. The next series is planned for January 2022 with Lee Penn from University of Minnesota (USA) and will address the topic of

'implicit bias'. Our aim is for the Platform Chemistry Ethics Series to serve as a catalyst, and we very much hope that universities across Switzerland will eventually integrate ethics education into their own curricula, as, for example does the NCCR MSE.

While the Platform is too small to organise major outreach activities, it has found a niche in several activities, for example, the annual Chemical Landmark which raises awareness of important historical events and sites relevant to chemistry in Switzerland. Chemistry is one of the important foundations of Switzerland's wealth. Last year, more than half of the Swiss exports were in the area of chemistry and pharma! The Chemical Landmark is awarded to sites where important milestones were achieved, or where famous chemists worked. Awards include the first chemical factory in Switzerland,[4] the workplaces of many Nobel laureates,[5,6] Kekule's laboratory in Reichenau (he worked as assistant there),[7] atmospheric chemistry and Max Perutz's work on ice crystals at the Jungfraujoch research station,[8] the invention of Ovomaltine in Bern,[9] and the discovery of the elements Yb and Gd in Geneva.[10] The next celebration will be the Chemical Landmark 2020 (postponed to November 2021); the Pharmaziemuseum Basel will be awarded a Chemical Landmark plaque as the workplace of Paracelsus. Nominations for chemical landmarks are welcome at any time: chemicallandmarks.ch

Additionally, the platform supports activities such as the VSN's experiments for schools, or exceptionally this year the 125th anniversary celebrations of HES-SO Fribourg: 125.heia-fr.ch/?cat_id=36

Apart from supporting many conferences, seminars and symposia of the member societies, the platform organises the annual Young Faculty Meeting (chem.scnat.ch/YFM). The YFM brings together young research group leaders (from senior post-doctoral associates with their own group to young professors) from Swiss institutions to network, and to exchange and discuss concepts and ideas. The one-day meeting consists of scientific talks by participants, and talks and discussions focused on, for example, fundraising, science communication, group management, outreach topics. The focus is on topics not usually covered in depth during the course of chemistry educational programs, nor in doctoral and postdoctoral training.

Apart from the YFM, the platform organises the Chemistry Travel Award together with the SCS (chem.scnat.ch/travel_award). Excellent PhD students receive support to present their work at an international conference. Currently, the Travel Award scheme has been adapted the needs of the Covid-19 pandemic and the option to visit another research group for a short project has been added. To compensate for the missed conferences in 2020, the EYCN meeting in Fribourg is also supported in January 2022.

A further highlight of the promotion of young scientists is the Prix Schläfli. The Prix Schläfli is awarded annually in the disciplines of the SCNAT platforms for 'the best Swiss PhD in natural sciences' (scnat.ch/prixschlaefli). The Prix Schläfli is one of the oldest prizes of its kind in Switzerland and is highly prestigious. Currently it consists of CHF 5,000 with a trophy, and awardees in chemistry are also invited to present their research at several Swiss institutes.

The Platform Chemistry also represents Switzerland in the IUPAC and financially supports SCS's membership in EuChemS.

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