

Conference Report

Swiss Snow Symposium 2025 – Chemistry on Top of the Mountains!

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This year's Swiss Snow Symposium took place from the 16th–18th of January 2025 in Saas-Almagell.



Fig. 1. Participants of the Swiss Snow Symposium 2025. Photo credit: Marie-Désirée Schlemper-Scheidt.

Upon arriving in the picturesque, snow-covered Saas-Almagell, participants (Fig. 1) kicked off the conference with registration, followed by welcome remarks from the organizers and Dr. Richard Smith, representing *Helvetica Chimica Acta*. The first invited talk was held by Dr. **Cedric Invernizzi** from Labor Spiez. Through various examples, he explored the dual-use risks and benefits in research, stressing the importance of responsibility among researchers, institutions, and editors. He also highlighted the need for ethical codes of conduct and the effective communication of research to the general public. Afterwards, it was time for the first two contributed talks of

the evening, given by **Yannick Brügger** from ETHZ and **Marie-Désirée Schlemper-Scheidt** from the University of Neuchâtel. After the coffee break, the evening's second invited talk was given by Prof. **Patrick Steinegger** from ETHZ and the Paul Scherrer Institute. He delved into the chemistry of superheavy elements in the gas phase, examining the impact of relativistic effects on single-atom creation. He also highlighted the practical challenges and explained how they developed their own experimental setup. His laboratory explores how to combine experimental data with Monte Carlo simulations to provide a more comprehensive understanding of these heavy elements. It was then time for the first conference dinner, where the participants and speakers had time to meet and discuss.

The evening session started with a talk from Dr. **Christoph Taeschler**, who began by introducing Arxada. He then compared the differences between production in an academic versus industrial setting, highlighting the complexities involved in process development. For illustration, he brought several pieces from process setups that had failed, to further demonstrate the challenges of scale up. He also discussed several important aspects, such as time-cost effectiveness, sustainability, the significance of proper risk assessment, and the crucial role of health and safety in the workplace. Then, the third contributed talk was given by **Davide Lardani**, from Adolphe Merkle Institute and the University of Fribourg. After a short break, it was time for the invited speaker Prof. **Nako Nakatsuka** from EPFL. She highlighted key challenges in biosensing, such as low target concentrations, selectivity, and sensor fouling, which complicate the commercialization process. Their solution involves the design of nanopipettes modified with aptamers with structure-switching conformations, exemplified by their application in serotonin detection. Expanding the diversity of aptamer designs for small molecules has a lot of potential for the detection of neurotransmitters, sugars, or lipids. The night ended with a fun quiz that tested participants' knowledge of Switzerland and chemistry. The quiz was designed to encourage interaction among attendees, who continued their discussions at the bar afterwards.

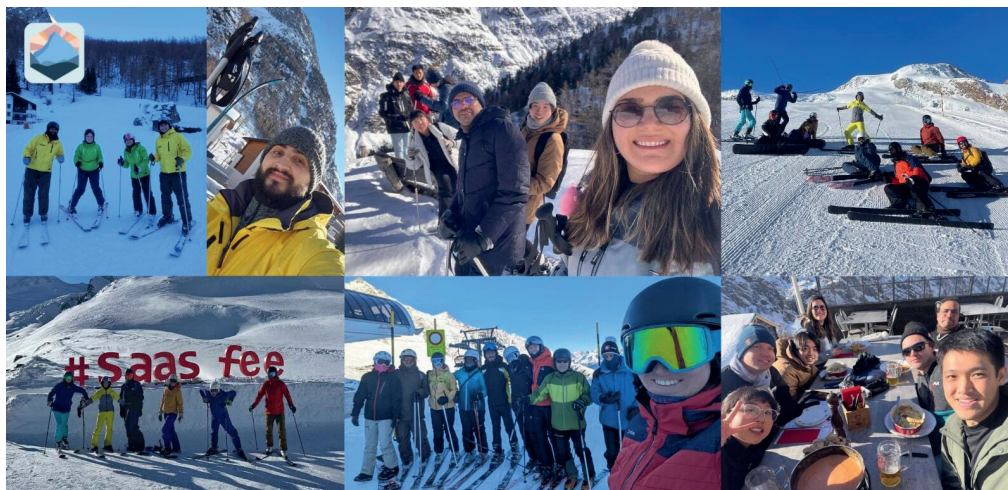


Fig. 2. Impressions from the snow activities. Photo credit: Ghewa AlSabeih, Lena Beiersdörfer, Noah Al-Shamery, Helena Solé Àvila, Konstantina Armadorou.

As per tradition, the second day of the Symposium was spent enjoying the snow on the beautiful Allalin mountain (Fig. 2). Most of the participants could be found on the slopes, while some embarked on snowshoeing or cross-country skiing adventures or relaxed in the spa. Come evening, the activities of the SSS25 started back up with an interesting workshop from Prof. **Michel Rickhaus** from the University of Geneva on the construction of clear, concise scientific figures. Following dinner, it was time for the first poster session of the evening, where 12 students presented their work. After a little break, we had the pleasure to hear from **Noah Al-Shamery**, from Nanyang Technological University of Singapore/University of Warwick, and **Jan Romano de Gea** from EPFL, with two contributed talks. The evening ended on a high note with the second poster session, with 13 posters. The science displayed on the posters was of excellent quality this year, ranging from eel-inspired batteries to synthetic methodology, and many prolific discussions sparked from the poster presentations. The second night of the symposium ended with some well-deserved networking at the bar of the hotel.

The last day of the conference started with the sixth invited talk by **Justine Charmillot** from Bloom Biorenewables. She presented their work on biomass valorisation as a renewable carbon source instead of natural gas and how they employ aldehyde-assisted fractionation as a patented chemical process technology during the refining step towards this goal. She also gave selected examples from the company's portfolio, showcasing the application of this technology in different scientific fields and markets. After the break, it was time for Prof. **Michel Rickhaus** to present his research on small molecules with encoded information, which are then super-structured into large functional assemblies. He also gave specific examples from the curvature-assisted self-assembly of carpyridines. Before the lunch break, **Lena Beiersdörfer** from ETHZ, and **Cheng Zhou** from KU Leuven presented their research as contributed talks. The afternoon session opened with the last two contributed talks, by **Bastiaan Kooij** from EPFL, and **Ayush Agarwal** from PSI and EPFL. Afterwards, the stage was set for the last invited talk of the conference, given by **Marton Kottmayer**, a Policy Office at Science Europe. His talk was centred around how to construct a pan-European research program, namely the FP10, which is the successor of the current Horizon Europe, whose goal is to achieve 'European added value' from collaboration between experts in different countries. He also gave a brief description of the 3 key institutions in EU legislation and which parameters can influence their decisions. The conference was closed with an interactive workshop, simulating the process of creating and evaluating a

proposal for a research program by the EU legislative bodies. Interestingly, it was found that multiple rounds of negotiations are needed in order to reach a final decision, just like in the real-life setting (Fig. 3).

Before heading back home, the prize ceremony, sponsored by *Helvetica Chimica Acta* and presented by Dr. Richard Smith, took place (Fig. 4). The best oral presentation prize was awarded to Marie-Désirée Schlemper-Scheidt from the University of Neuchâtel, while the two poster prizes were awarded to Miguel López Tena from the University of Geneva and Wei (Josh) Wu from EPFL. The organizing committee (Fig. 5) then officially closed the conference, thanking all the attendees for their participation and hoping to see them again next year for the SSS26!



Fig. 4. Dr. Richard Smith and the awardees of Best Talk and Best Poster Awards. Photo credit: Helena Solé Àvila.

Acknowledgements

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We want to thank all sponsors for the generous support and finally all the speakers and participants for contributing to this fantastic experience with long and enriching discussion during the whole conference.

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Fig. 3. Impressions of the talks, poster session and workshop. Photo credit: Helena Solé Àvila, Gaetano Geraci.



Fig. 5. Organizing Committee SSS25. Photo credit: Marie-Désirée Schlemper-Scheidt.