

# Conference Report

## There and Back Again: The International Chemistry Olympiad 2023

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**Abstract:** The 2023 edition of the International Chemistry Olympiad, a world-wide chemistry competition for high-school students, was held in Zürich, Switzerland. The Swiss delegation earned an honourable mention.

### International Chemistry Olympiad

In the annual International Chemistry Olympiad (IChO), high-school students from around the world gather to measure their skills in chemistry against those of their peers. Every year brings us to a new and exciting country, with a newly assembled delegation of students to tackle this challenge. And so, with happy anticipation, we set out to attend the 2023 International Chemistry Olympiad in as exciting a place as Zürich can very well manage to be. In sharp contrast to the past few years, it has been possible to assemble the better part of a thousand people in one location again. Thus, the event could actually be held in person once again.

### The Making of a Delegation

As every year, the Swiss delegation brought four highly talented high school/Gymnasium students from across the country together. Vivian Michael Huber (Allgemeine Gewerbeschule Basel), Andrin Hauenstein (Kantonsschule Uster), Sabine Isabelle Neuhaus (Berufsbildungszentrum IDM Thun) and Alex Martinetti (Centro professionale tecnico Lugano-Trevano) formed the Swiss delegation.

For years now, the Swiss national organisation (SwissChO) has also invited students from Liechtenstein to enter their qualifying rounds and offered to lead a delegation should a student qualify. With a suitable candidate entering the competition this year, a delegation from Liechtenstein was also present for the first time since 2012, in the person of Merlin Vogt (Liechtensteinisches Gymnasium).

These five students made their way to the IChO through three stages of national qualification rounds. From a 1 h multiple choice entry exam to the daunting task of both a practical and theoretical exam in the finals. Through these three stages, the four most capable students were selected from over 450 who entered the first stage, to represent Switzerland this year.<sup>[1]</sup>

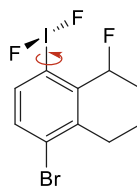
### Same Procedure as Every Year

With International Chemistry Olympiads having been held annually since 1968, the basic mechanism is well established. Upon



The Swiss delegation to the 2023 International Chemistry Olympiad. Left to right: Andrin Hauenstein, Sabine Isabelle Neuhaus, Alex Martinetti, Vivian Michael Huber. Picture: Luca Ferrari, IChO 2023.

arrival, the delegations are split. The participants are entertained, shown the sites, and allowed to put a last-minute shine on their skills. Meanwhile, the mentors engage in readying the exams. These exams are the result of hours of work by dedicated teams. Each task often builds on a theme in some way related to the host country, from early chemical development to most recent findings. Developing a task that both tells a story, is demanding yet solvable and separates students according to their strengths and skills is considered a high art. A single subtask, taken from the theoretical exam is given here:



The rotation of the marked C–I bond can be regarded like a chemical reaction. The rotational barrier has been determined to be  $EA = 30 \text{ kJ mol}^{-1}$ , while the rotation constant is  $k = 2500 \text{ s}^{-1}$  at 228 K. Determine the rotation constant in units of  $[\text{s}^{-1}]$  at room temperature (298 K).<sup>[2]</sup>

Both the theoretical and practical exam were now examined and heatedly debated by the assembled delegations, to arrive at the final version ready for translation. The fruits of this effort are then presented to the students, to be brooded over and solved within the allotted time. After corrections and the inevitable, occasionally heated, debates over said corrections, the delegations are reunited once again. A grand closing ceremony and great feast then round out the event. This basic formula recurs every year, so much so that veterans find themselves comfortable quite quickly. However, the excitement of the new and unknown quickly overtakes every time to create a lasting and distinct memory of the event.

### The Full Cycle

The students not only take home the lasting memory from such an event, but the beginning of an international network, new friendships and in case of Sabine Neuhaus, an honourable mention award. Some might be young enough to attend the event again the next year while others might join their national organisation to help bring the Olympic feeling to next year's participants. And in due time, they themselves might join their delegation again as mentors.

### Having Olympiads at all

While great expertise in leading a delegation is found in many delegations, organising an International Chemistry Olympiad is a challenge far greater in magnitude and complexity.<sup>[3]</sup> The fact that a new national organisation tackles this challenge of hosting an International Chemistry Olympiad every year enables us all to go to new places, repeat our old mechanism, solve new problems with friends both old and new and generally have a good old time. As we had this year in Zürich.

Received: September 15, 2023

- [1] SwissChO press release: <https://chemistry.olympiad.ch/de/news/news/diese-vier-jungen-talente-repraesentieren-die-schweiz-an-der-internationalen-chemie-olympiade-in-zuerich>, accessed 15th Sept. 2023.
- [2] Rephrased, from Problem 4.9 of the theoretical exam, which can be found at: <https://www.icho2023.ch/problems>, accessed 15th Sept. 2023.
- [3] D. Egger, *CHIMIA* 2023, 77, 800, <https://doi.org/10.2533/chimia.2023.800>.