



**Middle European
Mathematical Olympiad
MEMO 2022
Bern, Switzerland**

Final Report



**MATHEMATICAL.
OLYMPIAD.CH**
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OLYMPIADES DE MATHÉMATIQUES
OLIMPIADI DELLA MATEMATICA

Middle European Mathematical Olympiad 2022 was hosted by imosuisse, the Swiss Mathematical Olympiad association (SMO).

Content

Editorial	3
Facts and Figures	4
Partners	4
Organization	5
Finance	6
Programme	7
Insights of the organizing committee	9
Imprint	13
Partners	13

Editorial

The Middle European Mathematical Olympiad (MEMO) is the continuation of the Austrian-Polish Mathematical Competition (APMC), held 29 times from 1978 to 2006. One of the goals of the new competition was to enable a larger number of students to gain experience in international competitions. Therefore, the teams participating in the MEMO typically differ from the teams participating in the International Mathematical Olympiad (IMO). Another goal was to help younger students prepare for some future International Mathematical Olympiad. To achieve this, students in their senior year were not eligible to be a part of the MEMO team.

The 16th Middle European Mathematical Olympiad was held in Bern, Switzerland, from 25th to 31st August 2022. We were proud to welcome 60 contestants from 10 different countries as well as 20 guests. The MEMO lasted for a week and included the individual and team competition, excursions, entertainment and sports activities. Both competitions lasted for five hours and the problems resembled the «olympic» type, typically divided into four areas: algebra, combinatorics, geometry and number theory. At the individual competition the students solved one problem from each area. The team competition test consisted of eight problems, two from each area. In the team competition, the students solved the problems together, which gave the competition a very special atmosphere.

This year's MEMO has been a successful week, with a well suited hostel and a high school next door to write the exams. We were able to offer a variety of activities for the participants: go on a hike, play games, get a glimpse of Switzerland, and have a good time together.

Throughout our experience in preparing for this event, we have learned a lot about how to organize an international competition. To avoid that every year a new set of organizers needs to start from scratch, this final report summarizes not just the achievement but in particular the challenges encountered along the way. We hope that it helps future organizers avoid challenges that we encountered and therefore use their resources more efficiently. Additionally, we, the organizers of MEMO 2022, are happy to share our experience and know-how with all future MEMO hosts - as well as beyond the purpose of this report.

On behalf of imosuisse, the Swiss Mathematical Olympiad (SMO) association, we would like to thank all of our partners and volunteers, without whom MEMO 2022 would not have been possible.

The organizing committee

Jana, Nicole and Tim



Facts and Figures

Where	Bern, Switzerland
When	Arrival day: Thursday, 25 August 2022 Opening ceremony: Friday, 26 August 2022 Exams: Saturday and Sunday, 27 and 28 August 2022 Closing ceremony: Tuesday, 30 August 2022 Departure day: Wednesday, 31 August 2022
Organizer	imosuisse, the Swiss Mathematical Olympiad (SMO) association,
Delegations	Austria, Croatia, Czech Republic, Germany, Hungary, Lithuania, Poland, Slovakia, Slovenia, and Switzerland
Contestants	60
(Deputy) Leaders	20
Total Number of Guests	80
Coordinators	17
Problem selection committee	8
Organization	8
Volunteers	31
Individual Awards	5 Gold, 9 Silver, 17 Bronze, 12 Honourable Mention
Team Awards	1 Gold, 1 Silver, 1 Bronze
Translated Languages	10
Accommodation nights	694
Meals served	2146
Media Coverage	12 articles published in 15 Swiss Medias

Partners

We are thankful for all the support we have received from our partners. Organizing MEMO 2022 would not have been possible without them.

Platinum Partner	the cognito foundation
Gold Partners	Ernst Göhner Stiftung Mathematisch-Naturwissenschaftliche Fakultät Universität Zürich
Silver Partners	SwissMAP Universität Zürich
Bronze Partners	Barbara und Robert Conza Stiftung Verena Brunner
Institutional Partners	Gymnasium Lerbermatt University of Bern Science Olympiad Switzerland (science.olympiad.ch)

Organization

Volunteers of the association imosuisse, the Swiss Mathematical Olympiad, organized the MEMO 2022. Usually, they are undergraduates, graduates, or PhDs, mainly former participants of the Mathematical Olympiad. The Association of Swiss Scientific Olympiads supported the organizing committee (OC) in fundraising, communication and other areas. Further, both, the Gymnasium Lerbermatt and the University of Bern, contributed to the event with infrastructure, personnel and expertise.

Organizers

Jana Cslovjecsek, Tim Frey, Nicole Ospelt
Organizing Committee

Communication & Finance
Accommodation & Catering
Events & Excursions
Volunteers
Goodies & Medals

Annalena Hofer
Chief Guide

Tatiana Samrowski
Fundraising

Academics

David Rusch
Head of Problem selection

Vivianne Kehl
Chair of Jury

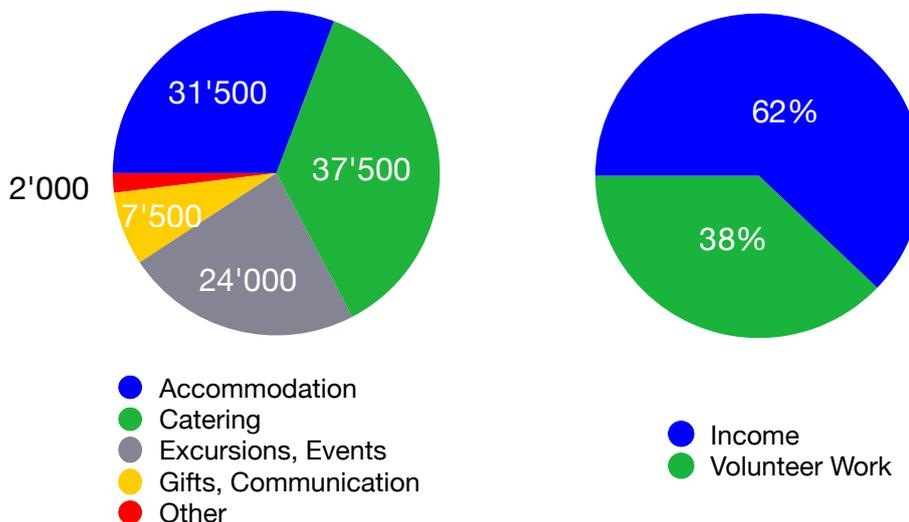
Arnaud Maret
Chief Coordinator

Finance

Expenditures

A total of CHF 102'500 was spent on MEMO 2022 (average exchange rates in August for CHF 1.00: EUR 1.03 and USD 1.04). However, this does not reflect the real efforts and costs of MEMO 2022. Almost all work carried out by the organizers and the volunteers was unpaid and does not appear in the chart below.

Of the CHF 102'500 in expenditure, 30.7% was spent on accommodation (including breakfast) and 36.6% on all other catering. 23.4% was spent on excursions, transportation, ceremonies, and other elements used for supporting events. 7.3% was spent on gifts and marketing (including t-shirts and goodies for staff and participants, medals, certificates and website maintenance). The remainder was spent on general expenses and different costs linked to the exams, jury sessions and coordinators (including infrastructure costs, exam equipment, travel costs, etc.).



Revenue

Organizing such an event would be close to impossible without the tremendous amount of work put in by the volunteers. In this case about 2'500 hours. Not only was the work of the entire organizing committee carried out by volunteers, but numerous guides, staff, invigilators and other eager helpers also contributed a huge number of unpaid hours before and during MEMO 2022. Besides this large amount of volunteer work, including pro bono services provided by the organizers, the budget was covered largely by fundraising and donations from partners (88.1% of the income, from a total of 10 foundations, companies and institutions). Participation fees of the participating countries contributed 11.9% to the income.

Programme

	Contestants	Leaders / Coordinators
Thu. 25th		
Whole Day 13:00-16:00 20:00-22:00		Arrival Lunch Diner
Fri. 26th		
7:30-09:00 09:00-13:00 13:00-14:00 17:00-18:00 18:30-19:30 19:30-22:30	Breakfast Scavengerhunt in Bern Packed Lunch (Rosengarten) Opening Ceremony Dinner	Breakfast Jury Meeting (Uni Bern) Lunch Translations (Uni Bern) Opening Ceremony (Highschool) Dinner Translations (High School)
Sat. 27th		
07:00-08:30 09:00-14:00 14:30-15:30 15:00-19:00 19:00-20:00	Breakfast Individual Competition Lunch Free time (Sports and activities) Dinner	Breakfast Q&A, Jury Meeting (High School) Lunch Correcting Dinner
Sun. 28th		
07:00-08:30 09:00-14:00 14:30-15:30 15:00-19:00 19:00-20:00	Breakfast Team Competition Lunch Free time (Sport and activities) Dinner Tichu Turnament	Breakfast Q&A, Jury Meeting Lunch Correcting Dinner
Mon. 29th		
07:30-09:00 09:30-18:00 18:00-19:30 19:00-20:00	Breakfast Excursion to Signau im Emmental Dinner Tichu Tournament	Breakfast Coordination (Uni Bern) Final Jury Meeting Dinner at Restaurant
Tue 30th		
07:30-08:00 08:00-09:00 09:00-10:30 10:30-15:00 15:00-17:00 18:00-19:00 19:00-20:00 20:00-23:00		Small Breakfast Transfer to Thun Brunch on Boat Excursion to Niederhorn Transfer to Hostel Apéro Heitere Fahne Closing Ceremony Dinner Heitere Fahne
Wed. 31th		
Whole Day 07:00-10:00		Departure Breakfast Lunch to go



Insights of the organizing committee

The official organizing committee, consisting of Jana Cslovjecsek, Tim Frey, and Nicole Ospelt, was created back in December 2021. However, the planning of MEMO 2022 itself started much earlier. In September 2018 a small group of interested people had a few discussions on this topic. Even though most of these people were not part of the organizing committee, they helped raise first ideas, write a project description, as well as create a first budget. It provided a good basis for the further development of MEMO 2022.

With the committee now nearly complete, the organization of MEMO 2022 got new energy and motivation in spring 2021. In addition to the committee, Tatiana Samrowski volunteered to do the fundraising, covering a big part of the project. During summer 2021, MEMO 2022 slowly started to take form. It was determined that the event will take place at Hostel 77 in Bern, first contacts were made to the University of Bern and the Gymnasium Lerbermatt. Around the same time, the academic committee was built around Arnaud Maret, David Rusch, and Viviane Kehl. Preparations advanced, everyone was motivated and hoping that MEMO 2022 will take place in person again.

During late fall 2021 and winter 2022, the Swiss Mathematical Olympiad association faced a few internal problems, which lead to a temporary pause in the organization of MEMO 2022. Shortly after, in March 2022 the organization was picked up again where it was left. Even though the organizing committee was now complete and in full motivation, the missing months lead to a few challenges. For example more workload in terms of hours during the remaining preparation period, as well as less time to make decisions.

Overall, this was an intensive, interesting but also fun time which allowed us to learn and grow. In the following section we collected some recommendations and challenges for the different aspects of the organization of MEMO 2022.

Overview of the Organization

The organization is a big challenge, making it sometimes hard to keep track of all the tasks required. This involves knowing what has to be done and when, as well as who could be doing which task.

- A big and difficult task is to find a good division of tasks among the different members of the OC, which allows both joint decision-making and the greatest possible individual work.
- Try to split up small tasks and delegate them to volunteers early on (excursions, scavenger hunt, sports, games, etc.).
- An up-to-date timeline including the most important deadlines is useful to keep an overview and to see which task can be delegated if someone offers to help organizing. When you do this, it is important that there is transparency in the division of tasks such that you always know who is responsible for which task.

Volunteer Management

The team that surrounded the participants and facilitated the event was quite large. It was important to us that of the 50 volunteers, about half were women.

- Find enough helpers that are willing and able to help during the whole MEMO. Since the MEMO took place in August, many potential helpers had already planned a trip, had exams or were working during that exact week.
- Some helpers cancelled at short notice due to illness, personal reasons or other.
- Start looking for helpers early enough (at least 6 months in advance) so that they can keep the period clear from other arrangements.
- Include motivated helpers in the organization and delegate small tasks to them. They could for example organize sport activities, games, scavenger hunt, etc.

- Look for helpers by sending E-Mails to universities which send the flyer to all mathematic students. Send also an E-Mail to all members of Science Olympiad in Switzerland. The most effective method proved to be ask your own friends if they are willing to help.



Infrastructure

The Gymnasium Lerbermatt hosted us over the weekend for the exams, and we were able to use rooms at the University of Bern for academic meetings on Friday and Monday. The contact with the high school worked very well, thanks to a supportive associate dean and very competent staff.

- During school hours, it is more difficult to check the rooms to ensure that all necessary equipment (clocks, chalk, etc.) is already present in rooms. It might be necessary to visit after school hours.
- Summer also means holidays for schools and semester break for universities. Therefore, plan in advance if you need to contact the institutions as they might take longer to reply.
- Usually, schools and universities already have a good IT infrastructure, which might be used. This is something that should definitely be tested beforehand, and again shortly before the event, in case there were changes.
- It is very handy to have someone within the OC living close by, for checking out the locations and staying in contact with the institutions, as multiple visits are necessary.
- While contacting the institution through a common contact is a good start, it is useful to have a direct contact to the institution for the event. In this case problems in terms of communication can be avoided or resolved quicker.

Accommodation and Catering

We stayed at the Hostel 77 in Bern, which was exclusively used by us. The crew did an amazing job hosting us slightly over capacity. They have a big common/dinning hall and two smaller common rooms upstairs, which were important for and cherished as meeting places.

- Collect information about food intolerances and make sure to keep track of who is when and where, as well as inform the kitchen about special demands or specific food intolerances.
- Book the complete accommodation, in that case they are more flexible with the eating times and that no special precautions towards other guests are needed.
- Coordinate meal times precisely with the kitchen, to prepare them for rush hours or stretched out serving times.
- Provide games and ideas for activities in the common rooms (Board games, pool, table soccer, slack line, etc.)
- Make sure that there is enough food for the meals, as well as in between, as local supermarket might be more expensive than average participants can afford.
- Get a contact and get in touch personally with them as they are a very important partner during the event.



Events

- It's the beautiful and interesting part to take pictures. So you do not have to worry about it, assign the task of photographing to several people.
- Bring a laser pointer for the closing ceremony! And test all equipment that is needed.
- Make a Plan B in case of bad weather forecast because it can change rapidly and hope for the best.
- Again: delegate single events to a person or a group of volunteers.

Materials & Design

- Try to come up with a logo and the corporate design as early as possible, since many other designs and goodies depend on it. Once this is done, you can focus on other things such as goodies and medals.
- Identifying the correct quantity of t-shirts was challenging since there were some delegations who did not specify the t-shirt sizes of their contestants and leader in time and not all helpers were known by the time the t-shirts needed to be ordered. However, you can prepare the design, talk to the producer and once you know approximately how many you need of each size (with some spare ones) you can order them without any more delay.
- Providing each helper with a new t-shirt each day would result in an excessive amount of t-shirts they would need to take home afterwards. We solved this by ordering 2-3 per person and washed them every day or every second day.

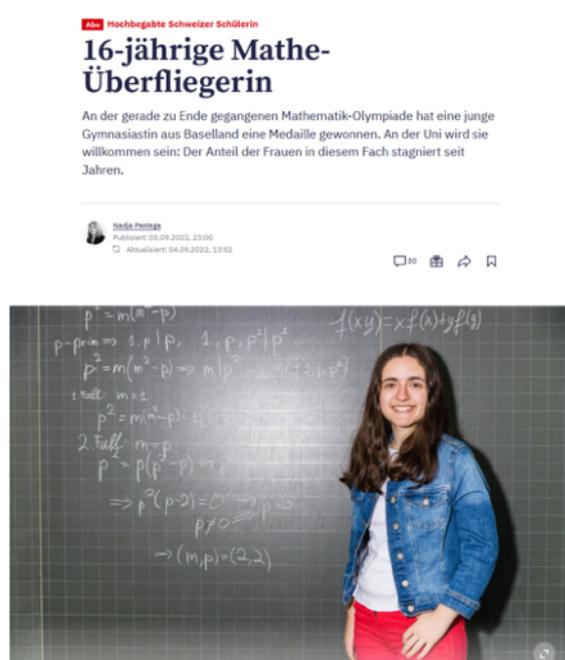


Communication and Media Relations

The communication surrounding the MEMO had the goal to create a positive image of the event in Bern. We wanted to highlight the event as an initiative encouraging young students – our future mathematicians and scientists. The challenge was to address two different groups: The MEMO community (participants, volunteers, leaders, organizers, and their friends and families) and the general public. We tried to reach the first group by publishing content before, during and after the event on our website Memo22 (olympiad.ch). We shared the content on the existing instagram account [@science.olympiad.ch](https://www.instagram.com/science.olympiad.ch). During the event, on the blog News (olympiad.ch) we gathered the latest news every day and allowed the download of pictures.

Media relations helped us to reach the general public. The response to the topics of mathematics and young student was positive: There were 12 articles published in 15 Swiss Medias. Besides two articles in National Medias, there was regional coverage, focusing on the young talents and their passion for maths.

- Build your website early; five months before the event is late. Use existing templates, for example from other Olympiads in your country.
- Share your blog content on social media; engage your host universities to share the content in order to reach more people.
- Provide pictures and make sure your audience can download these. Get additional photographers for the closing ceremony (delegation and winner photos).
- Work with people who have experience in media relations. Connect with professionals at your host universities or other Science Olympiads.



Basler Zeitung, 03.09.2022



Watson, 25.08.22, 27.08.2022

Imprint

Editorial Team

Jana Cslovjecsek
Nicole Ospelt
Tim Frey
Patricia Bieri (Proofreading)

Pictures

Moyang Zhang
Ivan Baburin

@imosuisse, Swiss Mathematical Olympiad
Middle European Mathematical Olympiad MEMO 2022
memo22.olympiad.ch
memo2022@olympiad.ch

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Mathematisch-Naturwissenschaftliche Fakultät
Universität Zürich

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