IYPT 2025 Report from the Czech Team Leader's Perspective

Karel Kolář
PROMETHEUS, spol. s r. o.
World Federation of Physics Competitions

Abstract

The 38th International Young Physicists' Tournament (IYPT) was held in Lund, Sweden, from June 29 to July 6, 2025, with 35 teams from around the world in attendance. The event combined high-level scientific discussion with cultural exchange, offering students valuable experience, new friendships, and inspiration to pursue further work in physics and research. This article brings the point of view of the Czech team and its Team Leader, from the preparation for the contest to the closing ceremony.

About IYPT

The International Young Physicists' Tournament is a unique competition that differs significantly from traditional Physics Olympiads. Rather than solving set problems on paper, students spend almost the entire year preparing solutions to 17 open-ended problems that require experimental work, theoretical understanding, and creative approaches. The competition takes the form of "Physics Fights," where teams present their solutions, defend them against opponents, and engage in intensive scientific discussions under the guidance of professional physicists.

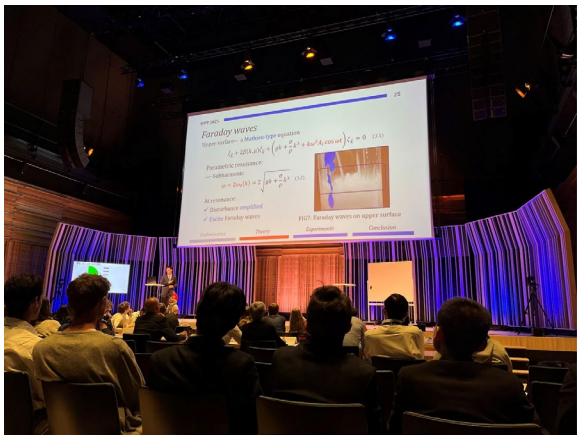

Figure 1: Final at Science Village Hall

This year's tournament was held at Lund University facilities, specifically in the Biomedical Centre (BMC) and Science Village Hall.

Competition rounds and selection process in the Czech Republic

This year, there were many changes to the rules of the competition and the national team selection in Czechia.

The first round (*okresní* or district round) asked participants to write a short article about the problem of their choice. This round is mostly individual; however, there was a small bonus for the teams. The teams for this year consisted of 3 members, and each member had to select a different problem.

The next round (*krajské* or regional round) was in the form of writing a review for the solutions of the other participants. It was, again, rated according to the individual participants' results.

The highest round (*ústřední* or central round) was held from March 25 to March 27 in Prague on the grounds of the Institute of Physics of the Czech Academy of Sciences. 7 teams of 3 participants competed against each other in Physics Fights (PF). There were 3 selective PF, and then the final PF.

Figure 2: Meeting for the selection of the Czech team

After that, the results for the Czech teams were final. However, we wanted to select the best participants for the international round among all teams. Therefore, we added a two-day meeting for selected participants who wanted to continue at the international level. There, each one from the 11 participants[1] presented the two problems they had the best solution for. After that, the important decision about the selection was made by the Czech committee.

The Czech Team

Our team consisted of 5 upper secondary school students

- Lukáš Franta (Captain) – Gymnázium Christiana Dopplera, Prague
- Kryštof Basista – Gymnázium Josefa Kainara, Hlučín
- Michal Fišer – VOŠ a Střední průmyslová škola elektrotechnická, Pilsen
- Daniel Jedlička – VOŠ a Střední průmyslová škola elektrotechnická, Pilsen
- Daniel Švaňa – Gymnázium Christiana Dopplera, Prague

Figure 3: Teams from Ukraine and Czechia after the 5th Physics Fight

[1] Two female participants were also invited; however, only male participants accepted the invitation.

The diversity of schools represented in the team proved to be a great asset – each student brought their specific knowledge and approaches to solving physics problems.

We had a few online meeting checks about the state of the problems – if they made new measurements, added more simulations, improved slides, etc. We also met for the final adjustments in Prague for one day before departure for Lund.

To the IYPT, the team was accompanied by Karel Kolář (team leader, author of this article) and Stanislav Panoš, IOC member, independent juror, and long-term head of the competition in the Czech Republic.

Journey and Arrival

Our journey began with a flight from Prague to Copenhagen, which for one of our participants meant their first flying experience. From the Danish capital, we continued by train across the impressive Øresund Bridge to Swedish Lund.

Figure 4: Final preparations during the arrival day in Lund

Upon arrival, we met our local guide, Gitansh, who proved invaluable in helping us navigate not only the competition but also Swedish culture. Accommodation at a motel near the tram line (Lund has a simple tram network consisting of a single line) proved to be a practical solution.

An interesting note: during our stay, the city's tram system experienced an outage, which we thought couldn't happen in the Czech Republic. However, an even larger outage happened in the Czech Republic just a few days later.

Competition Progress

The competition began with an opening ceremony at Science Village Hall, which was filled with local Swedish culture and created an inspiring atmosphere for the entire week. The very first Physics Fight demonstrated the high international standard of the competition – our team faced Austria and Uzbekistan.

Figure 5: After the 2nd Physics Fight with Croatia and South Africa

In the following days, our students demonstrated excellent preparation and maintained a high success rate. Each day brought

new challenges and opportunities to present months of hard work on experimental research and theoretical analyses.

The Czech Team won the 2nd PF against Croatia and South Africa. In the 3rd, there was only a small part of a point missing to beat Hong Kong.

Particularly noteworthy was the fifth Physics Fight, where teams could choose their own problem to present. Kryštof Basista selected Problem 12: "Sound Versus Fire", and his presentation was an excellent conclusion for our participation.

Cultural Programme

IYPT is not just about physics – the cultural programme was an equally important part of the entire experience. The highlight was a full-day excursion during which we visited the Viking village of Foteviken and the beautiful Falsterbo beach. This day provided students with an opportunity to rest from intensive scientific discussions and enabled the formation of new friendships.

Figure 6: Viking village of Foteviken

Our students particularly befriended the Slovak and Croatian teams, demonstrating that IYPT is not merely a scientific competition but also a platform for international cooperation and cultural exchange. These relationships, formed through shared passion for science and mutual respect, are often as valuable as any medals.

The evening spent socialising after the excursion was among the most pleasant moments of the entire stay.

Daily Life and Organisation during IYPT

From an organisational perspective, I can evaluate the event as highly successful. The food throughout the week appeared healthy and of good quality, which was particularly appreciated by the students.

The Swedish environment proved very welcoming. Local organisers paid great attention to detail, and the overall atmosphere was friendly and supportive. Students had ample time for both presentation preparation and rest whilst exploring their new surroundings.

Figure 7: Tram in Lund

Minor cultural differences – such as warnings about the dangers of Swedish and Danish train doors on our return journey – added an authentic touch to the entire experience.

Final Round

Our team had the privilege of watching the final round as spectators. The standard of presentations was exceptional and demonstrated great quality of scientific thinking and communication skills.

The last PF was reserved only for the best teams which advanced to the final. This stage changed the team's order, and the final result of the teams with the gold medal was

- 1st Singapore with the problem "Magnetic assist" – for 43.9 points in the final,
- 2nd China – "Levitating fluid" – 41.8,
- 3rd Germany – "Dripping faucet" – 38.9,
- 4th Slovakia – "Dancing slinky" – 37.9.

Observing these presentations was inspiring for our students and provided valuable insight into what they might achieve with further effort and experience.

Czech Team Results

In exceptionally strong competition from 35 teams worldwide, the Czech team achieved 15th place overall and won a bronze medal. This result is particularly significant given the high standard of this year's competition and represents an excellent achievement by our students. Our final placement is actually a better result than that of the UK, the USA, India or Switzerland.

Figure 8: Medal for the Czech team

The ceremonial prize-giving was a fitting conclusion to a week full of hard work and scientific discussions. When our students received their bronze medals, it was clear they were taking away much more than just physical recognition – they carried with them experiences, friendships, and confidence that will serve them throughout their lives.

The subsequent gala dinner and disco provided an opportunity to celebrate and reflect on achievements in a relaxed atmosphere.

Reflections

IYPT 2025 in Lund was a once-in-a-lifetime experience for all participants. A year's worth of effort and preparation returned to the students manifold in the form of unforgettable experiences, new friendships, and a sense of collective achievement.

From the team leader's perspective, I can say this was a great event. The organisation was of a very good standard, the cultural programme well-balanced, and the educational value was immense. Our students demonstrated not only scientific excellence but also the ability to represent the Czech Republic with pride and dignity.

This success continues the strong tradition of Czech students in international physics competitions and proves that Czech physics education remains at a world-class level. The bronze medal from Lund represents a collective success involving not only talented students but also their teachers, parents, and the broader educational system supporting the development of scientific talent.

Message to Future Participants

To all future participants and those interested in IYPT, we would like to convey our students' message: “Go for it with everything you've got – it's worth it!”

IYPT is not just a competition – it is a transformative experience that shapes young scientists, teaching them critical thinking, communication, and international cooperation. The preparation is demanding, but the reward in terms of knowledge, experience, and friendships far exceeds the effort invested.

We are looking forward to the IYPT 2026, which will be held in Switzerland.