



International Physicists' Tournament
6 Rue des Frères Lumière
68350 Mulhouse, France

<https://iptnet.info/>

International Physicists' Tournament

Activity Report 2023/2024

What is the IPT?

The International Physicists' Tournament (IPT) is a competition format in which teams of six dedicated physics students compete in creativity, critical thinking, presentation skills, teamwork and debating.

Our mission is to inspire young minds and nurture scientific talent. By participating in the IPT, students gain invaluable skills in research, critical thinking, teamwork, and public speaking, which are essential for their academic and professional development. The tournament not only promotes scientific excellence but also fosters international collaboration and understanding among participants.

The debating component is uniquely represented by the Physics Fights, where teams present solutions to complex physics problems, then actively critique and improve upon each other's answers, essentially "fighting" to demonstrate the best understanding of the physics involved, all while being judged by a jury based on their analysis and presentation skills.

The event started in 2009 and it has since grown to encompass numerous countries spanning multiple continents. It was initially inspired by the International Young Physicists' Tournament (IYPT) and follows a similar model. The IPT takes place annually, in spring, at different universities around the world.

Official website of the IPT: <https://iptnet.info/>

Instagram: https://www.instagram.com/the_ipt_official/

YouTube channel: https://www.youtube.com/@ipt_official

Executive Committee (execom) in 2023/2024



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President: Anastasiia Vasylichenkova

Secretary: Alberto Rolandi

Treasurer: Kyrylo Gerashchenko

Execom members: Aakash Bhat, Matheus Pessoa, Vladimir Vanovski, Nikolay Lysenko, Mathieu Suter, Maja Milas, Jeanne Bernard, Christos Andrikopoulos.

The 2023/2024 season calendar and key projects

Secretary election

At the Decision Assembly 2023 ([minutes of the meeting](#)), the Secretary position election was delayed to allow time for interested execom members to nominate for this position.

Two candidates were nominated for the position: Kyrylo Gerashchenko and Alberto Rolandi.

In May 2023, the candidates shared their resumes and motivation statements with the Decision Assembly members via email. In June 2023, the IPT president set up a secret online ballot on the IPT website. After 10 days, the ballot is closed and the results are shared with the Decision Assembly and execom members: Alberto got 8 votes and Kyrylo got 3 votes. A delayed vote description [is available](#).

Problem list announcement

The problem committee, led by the IPT Secretary, worked through the long list of problem proposals in June and July 2024. The problems were discussed in light of the level of academic challenge, balance between the research topics and educational effect. The shortlist of the problems was voted by the wide IPT communities, who have communicated the opportunity to vote through the national representatives and the IPT newsletter. The final list was proofread by the problem committee and announced on social media and the IPT newsletter. The problems were permanently and publicly available on the IPT website and on the [IPT 2024 edition website](#).

Renaming the third role from Reviewer to Moderator

In December 2024, the discussion of the naming and the purpose of the third role in the Physics Fight resulted in a vote for the new name and characterisation for the role. The online ballot took place on the IPT websites, with 8 votes for and 2 votes against. The updated clause 2.6.3 reads as

“The principal goal of the Moderator is to stimulate and moderate the discussion between the Reporter and the Opponent, and later between the Reporter team and the Opponent team, to help the Reporter and the Opponent stay focused on the problems and to help the audience and the jurors understand the problem and the proposed solution as well as



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possible, The Moderator starts with a monologue, in which they: (a) Briefly summarize the discussion between the Reporter and the Opponent, (b) Specify which discussion topics should be considered closed and why, (c) Specify which discussion topics should be further explored and why, (d) Lay out a framework for further discussion. The Moderator moderates the ensuing discussion, in particular, they decide who participates in the discussion and how long the participants are allowed to speak- with the right to cut a speech if the Moderator decides that it does not adhere to the discussion framework. The Moderator also decides in which order participants are allowed to speak in the discussion. The Moderator should not introduce their own results unless it is absolutely necessary to highlight a crucial physical aspect of the problem that has not been mentioned before. The Moderator should be respectful to the Reporter and the Opponent and their teams, to appreciate the strengths of their arguments, and to make room for a constructive critique of the weak points. The Moderator should also make sure that there is a fair representation of the views expressed by the Reporter, the Opponent, and their teams."

The execom has updated the IPT website and guideline materials.

Update of the weighting of individual grades when calculating the total score

In the same online ballot, the Decision assembly voted on the change of the averaging procedure in the score calculations. The proposal was submitted between two approaches, with symmetric and asymmetric weight distribution, reducing the impact of the extreme grade on the teams' performance. The results of the polls were 5 voters for and 5 voters against, so the IPT president, according to clause 1.1.8 of the IPT Rules, had a decisive vote on the matter. The updated clause 2.8.2 of the IPT Rules reads as follows:

"Each jury member shows integer marks from 1 to 10. To reduce the impact of biased extreme grades for odd and even numbers of jurors in a similar manner, the following weighted average is applied. The lowest grade is discarded for 5 or more jurors. For nine or more jurors, the additional number of discarded grades on each side is $[(\text{number of jurors}-1)/4-1]$, where $[x]$ is the integer part of x . For the remaining list of the grades, the grades on the lowest and highest tails are accounted for in the average with a weight equal to $1-(\text{number of jurors}-1)/4-1$, where x is the fractional (decimal) part of x . For clarity, please refer to the table below."



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	lowest	lowest after trim	2nd lowest after trim	central	2nd highest	highest
5	0	1	1	1	1	1
6	0	0,75	1	1	1	0,75
7	0	0,5	1	1	1	0,5
8	0	0,25	1	1	1	0,25
9	0	0	1	1	1	0
10	0	0	0,75	1	0,75	0
11	0	0	0,5	1	0,5	0
12	0	0	0,25	1	0,25	0
13	0	0	0	1	0	0

Preselection to the IPT 2024

The preselection was scheduled for the IPT 2024. 22 teams have registered for the IPT 2024 while only 21 slots were available due to hosting limitations at the ETH Zurich. The preselection was scheduled, However, only 21 teams submitted their reports to the preselection submission deadline, and team Bangladesh did not comply with the deadline and did not respond to the follow-up communication with any clarifications. The preselection teams therefore, proceeded as qualified for the IPT 2024.

Scoring sheet redesign

The execom working group, encouraged by the positive feedback from the IPT 2023, has updated the design of the grading sheets at the IPT, to streamline them with the grading criteria and to reflect the changing role of the Moderator. The updated grading sheet is available in [high res format](#).



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Fight: Room: Round: Jury: _____

(Name SURNAME)

Reporter:

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Speech Debate Presentation Bonus(s1)

Speech / 6		Speech		Debate		Presentat*		Bonus(s)	
0 1 2 3 4 5 6		0 1 2 3 4 5 6		0 1 2 3 4 5 6		0 1 2 3 4 5 6		0 1 2 3 4 5 6	
Qualitative phenomena explanation				Experiments and/or numerical simulations					
Properly used the literature				Correct treatment of data (relevant experiments, error estimations)					
Constructed/proposed appropriate models									
Investigated the role of main parameters				Comparison between theory and data.					

Debate ____ / 2					nothing → well done 0 1 2			nothing → well done 0 1 2					
Insightful explanations to the questions								Made clear and meaningful conclusions					
Acknowledged mistakes or weaknesses of their work								Team work					

Presentation __ / 2		nothing → well done 0 1 2			nothing → well done 0 1 2		
Slide quality (structure, content)		Speech quality, English, timing					

Note:

Opponent:

+ + + =
Speech Debate Presentation Bonus(s1)

Speech / 5		Speech		Debate		Presentat		Bonus(s1)					
		0	1	2	3	4	5	0	1	2	3	4	5
Good understanding of physics of the problem AND of the solution presented by the Reporter						Proposed relevant points to improve and discuss							
Pointed out pros & cons of the report						Enriched the audience's report understanding							

Debate ____ / 3		nothing → well done 0 1 2 3				nothing → well done 0 1 2 3					
Clarifying questions						Relevant topics and prioritization					
Focused on the report						Team work					

Presentation ____ / 2				nothing → well done			nothing → well done		
				0 1 2			0 1 2		
Slide quality (structure, content)							Speech quality, English, timing		

Note:

Reviewer:

+ + + =
Speech Debate Presentation Bonus(s1)

Speech / 4					Speech					Debate					Presentational Bonus(x1)														
					0	1	2	3	4											0	1	2	3	4					
Evaluation of the report (strong/weak points)										Summed up the solutions and what discussion brought to understand and improve it																			
Evaluation of the opposition																													

Debate ____ / 4		nothing → well done 0 1 2 3 4	nothing → well done 0 1 2 3 4
Clarifying questions		Directed the discussion between the reporter and the opponent to the crucial physics aspects of a problem	
Moderated the discussions			

Presentation __ / 2		nothing → well done 0 1 2			nothing → well done 0 1 2		
Slide quality (structure, content)		Speech quality, English, timing					

IPT 2024 event

The competition itself is designed for a period of seven days. In 2024, this was the week of April 1-7. The tournament schedule consists of 4 selective fights, semifinals and final. The three best teams then went through to the final round, which was open to the public and streamed on the [IPT YouTube channel](#).



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Teams from twenty nations took part in IPT 2024. These were Brazil, England, Canada, Colombia, Croatia, Denmark, France, Germany, Greece, India, Iran, Italy, Mexico, Poland, Spain, Sweden, Ukraine, Russia (Team IPT, without national identification), the United States of America and Switzerland. The team from Iran was unable to take part in the competition itself because some team members were unable to obtain a visa to enter Switzerland in time, despite our active endorsement and support of the participants with the immigration office. A second team from Poland came as a replacement team, as Poland won last year's competition. Poland therefore had a team from Warsaw and Krakow. The students from Russia took part under the neutral flag of the IPT.

Venue

The event was hosted at the ETH Zurich for the physics fights, education, social events and ceremonies. The attendees were accommodated in the Zurich Youth Hostel and the Hotel Meininger. Most of the catering was provided by SV-Service of ETH.

IPT 2024 Schedule from Monday April 1st till Sunday April 7

Time	Monday 1/4	Tuesday 2/4	Wednesday 3/4	Thursday 4/4	Friday 5/4	Saturday 6/4	Sunday 7/4
08:00		Breakfast and Transfer to ETH	Breakfast and Transfer to ETH		Breakfast and Transfer to ETH	Breakfast and Transfer to ETH	
09:00		Opening (HG F30)		Breakfast and Transfer to ETH			Breakfast
10:00		Jury Meeting (HG F30)	Physics Fight 3 (HG F21, F22, F33.5, F26.1, F33.1, G26.1, G26.5)		Semi Finals (HG G3 and G5)	Final Audimax (HG F30)	Check-Out and Departure
11:00		Physics Fight 1 (HG F21, F22, F33.5, F26.1, F33.1, G26.1, G26.5)		Zurich City Tour			
12:00				Lunch ETH Main Building	Lunch ETH Main Building	Lunch ETH Main Building	
13:00							
14:00		Lunch ETH Main Building	Physics Fight 4 (HG F21, F22, F33.5, F26.1, F33.1, G26.1, G26.5)		Lab Visit D-PHYS	Closing Ceremony Audimax	
15:00	Arrival + Check-In (Airport and Youth Hostel)	Physics Fight 2 (HG F21, F22, F33.5, F26.1, F33.1, G26.1, G26.5)	Group Picture	Individual Excursions	Announcing Final (HPV G4)	IOC Meeting 2 (HG G26.1)	
16:00					IPT Conference (HPV G4)		
17:00					Move to Main Building		
18:00	Dinner Youth Hostel	Dinner ETH Main Building	Dinner ETH Main Building	Dinner ETH Main Building	Dinner ETH Main Building	Gala Dinner ETH Höggerberg	
19:00	Drawing (Hotel Saal 3)	IOC Meeting 1 (Hotel Seminarraum 4)	Announcing Semifinals (HG F30)				
20:00							
21:00							

The event started with the Opening Ceremony and featured addresses from the President of the IPT, Anastasiia Vasylenkova, the President of the LOC, Mathieu Suter, and the Rector of ETH Zurich, Günther Dissertori. After the first four rounds of competition, it was determined which of the teams could move on to the semi-finals. These were the teams from Italy, Brazil and Team IPT for one semi-final and the teams from the United States, Germany and Poland (Warsaw) for the second semi-final.



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In addition to the physics competitions, participants were offered guided tours of the city on Thursday and were given free time to explore Zurich and the surrounding area. On Thursday afternoon, participants were also able to take part in an exclusive excursion to the Paul Scherrer Institute in Villingen. The laboratories of the Physics Department of ETH Zurich were open to our visitors on Friday afternoon.



The IPT Conference took place on the Hönggerberg campus of ETH Zurich. There were two parallel sessions, in a hybrid format, with both online and in-person presenters. The IPT conference hosted 21 talks, giving the opportunity to non-finalists, national selection participants and guests to present their IPT solutions too. The best talks of the conference were also acknowledged during the closing ceremony.

The recipients of the best talk awards are: Luka Čučuković from Croatia (Peculiar Echo), Daryna Sych from Ukraine (Anti-bubbles), Lucas Heck from Brazil (Alcohol sound check).



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The final, which took place in the ETH Audimax, was between Italy, France and Germany. The team from Germany won. The scores earned in the final are as follows: Germany 53.3 points, Italy 46.2, and France 49.5. The broadcasting was kindly assisted by the media team of the IPT. The [broadcast](#) gathered around 4,300 unique viewers. At the Awarding ceremony, the IPT 2024 participants received the address from the EPS president Prof Mairi Sakellariaou. Her talk covered the activities of the EPS in promoting physics education and research, and especially those for university students.



Decision Assembly 2024

During the IPT week, there were two meetings for the IPT governing body - the Decision Assembly. They were hosted in a hybrid format. The strategic plans, best practices, and changes in rules were discussed there. The topics raised were the feedback on the guidance of the newly introduced Moderator role, and newly designed scoring sheets. The grading weights were discussed and voted to remain unchanged. The change to the semifinal structure was voted to reduce the pressure of the preselections and let more teams



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experience the educational and competitive effect of the semifinals. The updated clause 2.10.3 of the IPT Rules reads as:

“The semifinals consist of PFs carried out simultaneously. In the case that there are 18 or more teams, one is held between the teams that ranked 1st, 6th and 7th, another one between the teams that ranked 2nd, 5th and 8th, and the third one between the teams that ranked 3rd, 4th and 9th. If there are less than 18 teams, one semifinal is held between teams that ranked 2nd, 5th and 6th, the other one between teams that ranked 3rd, 4th and 7th.”

The Decision assembly also approved the execom plans for a two-round preselection procedure (for an enhanced educational effect) and for different deadlines for teams with and without national representatives (to avoid last-minute registrations). The [minutes](#) are available.