



ТУРНИР ЮНЫХ ФИЗИКОВ

Организационный комитет

113639, Москва, а/я N 18

тел.: 316-65-16 факс: 292-65-11 для YPTMA

YOUNG PHYSICISTS' TOURNAMENT

Organizing Committee

P.O.Box N 18, Moscow, 113639, USSR

tel.: (095) 316-65-16 fax: (095) 292-65-11 for YPTMA

Young Physicists' Tournament

The Young Physicists' Tournament (YPT) is a team competition of high-school students in their ability to solve complicated physics problems, to present solutions of these problems in a convincing form, to defend them, to participate in scientific discussions - "Physics Fights" (PF).

YPT has been held in the USSR since 1979. It has become a traditional form of work with high-school students (aged 14-17) at the Physics Department of Moscow State University.

The Tournament consists of three stages:

Stage 1. Team competition by mail.

Any school team may participate in the competition by mail. As a rule there is a list of tasks consisting of 17 problems in physics. They must be interesting and rather complicated. Students are welcome to present their own tasks. A particular feature of the Tournament is a multi-level character of the problems. High school or college students, scientists and even scientific institutes may try to solve such problems and noteworthy results can be obtained at any level. The problems are stated in a general form, as an outline. Enough possibilities are left for creative initiative to specify the problem, to choose ways of solution, to handle the details.

Stage 2. Selective "Physics Fights" (scientific discussions).

The participants of the Tournament present their solutions in the form of a scientific discussion, that is they defend the obtained solution in public before fault-finding rivals, interested audience and impartial Jury.

Stage 3. The final round of the Tournament.

At the Finals the results of the competition are discussed and the winner is announced. Physical mini-competitions are also carried out.

The IV-th International Young Physicists' Tournament.

The Tournament was held in Moscow, 1991, 22nd - 28th of July at the Physics Department of Moscow University and in the hotel "Olympiets".

Seven teams participated in the competitions:

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| 1. CSFR | team leaders: | Dr. KAROL MACAK
Dr. MILAN VRABLIK |
| 2. Hungary | team leaders: | Dr. ZSUZSA RAJKOVITS
Prof. LAJOS SKRAPITS |
| 3. The Netherlands | team leaders: | Dr. HANS JORDENS
Dr. MARIO van der HEIJDE |
| 4. Poland | team leader: | Dr. BOGUSLAW LANUSZNY |
| 5. United Kingdom | team leaders: | Dr. STEPHEN MARTIN
Dr. NANCY ALDERSON
Dr. MICHAEL HADDEN |
| 6. USSR (MSU) | team leader: | Dr. SERGEY VARLAMOV |
| 7. USSR (United) | team leader: | Dr. VLADIMIR AFANASYEV |

The observers of the tournament were:

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|------------------------------|---------------|---|
| 8. European Physical Society | | Prof. JOSEPH DEPIREUX
Mrs. SUZANNE FABRY |
| 9. France | team leaders: | Prof. JEANNE STOLIAROFF-PIPIN
Dr. JEAN STOLIAROFF-PIPIN
Dr. CHRISTINE LEYGNAC |
| 10. Italy | team leaders: | Dr. JANNINA ROKKETI
Dr. MARIA MEZZABOTTA
Prof. FRANCESCO MANTONI |

The members of the Organizing Committee:

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|-----------------------------|---------------------------|
| Academician GEORGY ZATSEPIN | the president of YPT |
| Dr. EVGENY YUNOSOV | the vice president of YPT |
| Dr. MICHAIL NIKOLAEV | the secretary of YPT |
| Ms. ELENA BRAGINA | |
| Dr. TATYANA KORNEYEVA | |
| Prof. VALENTIN LOBYSHEV | |
| Dr. SERGEI PAVLOV | |
| Dr. EVGENY YAKOVLEV | |
| Dr. LIDIA ZOTOVA | |

The Jury:

USSR: Prof. SERGEY CHUDINOV the chairman of the Jury
Dr. VLADIMIR AFANASYEV
Dr. ANDREI ANDRIANOV
Dr. YURIY DIK
Dr. ALEXANDER KOROTKOV
Prof. RUNAR KUZ'MIN
Dr. VADIM MANAKIN
Prof. GEORGY PUSTOVALOV
Dr. ZOYA SAVILOVA
Dr. ALEXANDER SHAIKIS
Prof. ANDREI SKLYANKIN
Dr. SERGEI VARLAMOV
Dr. LEVAN YANOVSKIY
Prof. ALEXEI YAROV
Dr. ALEXANDER ZILBERMAN

CSFR : Dr. KAROL MACAK

Hungary : Prof. LAJOS SKRAPITS

The Netherlands : Dr. HANS JORDENS

Poland : Dr. BOGUSLAW LANUSZNY,

United Kingdom : Dr. STEPHEN MARTIN,

European Physical Society : Prof. JOSEPH DEPIREUX.

The Program of the IV-th International Young Physicists' Tournament.

- 22.07.91 Arrival day.
Excursions to the Kremlin.
- 23.07.91 Opening of the IV-th International YPT.
Excursions around Moscow.
Meeting of the team leaders.
- 24.07.91 The presentation of the tasks to the team leaders.
The first round of the Tournament.
PF # 1 (tasks: 1, 2, 3, 7, 10).
Group 1: USSR (United), The Netherlands, USSR (MSU).
Group 2: Poland, UK.
Group 3: CSFR, Hungary.
- 25.07.91 The second round of the Tournament.
PF # 2 (tasks: 4, 6, 9, 11, 14).

Group 1: CSFR, UK, USSR (United).

Group 2: The Netherlands, Poland.

Group 3: USSR (MSU), Hungary.

The third round of the Tournament.

PF # 3 (tasks: 5, 8, 15, 16).

Group 1: UK, Hungary, Poland.

Group 2: USSR (United), The Netherlands.

Group 3: USSR (MSU), CSFR.

26.07.91 Excursions.

27.07.91 The Finals of YPT.

Final PF (tasks: 4, 5, 16).

Closing of the IV-th International YPT.

Boat trip on the Moskva-river.

Closing party.

28.07.91 Departure day.

The results of the YPT.

Teams	Rate (SmR)	Points (SmP)	Place
Hungary	9	159	1
Poland	8	152	2
USSR (United)	8	143	2
USSR (MSU)	7	152	3
The Netherlands	7	140	3
UK	6	138	4
CSFR	6	133	4

On the possibilities of the V-th Tournament.

The participants of the YPT consider March - April of 1992 (the period of the Easter holidays) to be the best time of the V-th YPT. The possible country of the YPT is Italy (Ravenna). The list of the preliminary tasks will be sent to the teams by the 15-th of September, 1991. The final variants of tasks by the 20-th of October, 1991.

The Rules of the V-th YPT.

To participate in the YPT, a team should send an application with the name of the country and approximate number of participants (team leaders, students, observers - the "participation fee" is different for each group of participants).

The Team:

The team consists of five high school students: a captain and four team members. The numerical strength of the team may be enlarged on the agreement with the Organizing Committee.

Drawing lots. Every team draws lots to obtain the number.

List of Competitions of YPT.

1. Preliminary "Physics Fights" (# 1, 2, 3).
2. Final Physics Fights.
3. Contest of captains.
4. Contest of spectators.
5. Presentation of teams.
6. Contest of the Jury.

Preliminary PF.

Here is the scheme of preliminary PF schedule for nine teams in accordance with their numbers:

Group and Jury	I	II	III	I	II	III	I	II	III
	11	2	2 33	7	8	99	5	6	4
Teams	4	5	6	2	3	1	7	8	9
	7	8	9	6	4	5	3	1	2

The same scheme can be used for eight or seven teams. In this case two-team PF are held in groups III and II. Analogous schemes are worked out for any number of competing teams.

The Rules of the Physics Fights (PF).

Usually three teams take part in PF and it consists of 3 contests. Each team one after another participate in the PF as Reporter, Opponent and Reviewer.

PF regulations.

1. Opponent's challenge: the opponent chooses a problem for the reporter from the list of YPT problems. At the beginning of every contest the opponent sets YPT-problems for the reporter from the list of YPT-problems given beforehand. The reporter can decline the task (without explanation of reasons). In this case the opponent sets another YPT-problem from the same list. Each team can decline the task only once.

2. Reporter's speech (15 min.).

The reporters (one or several team members) give an account of the

main ideas and conclusions for the solution of the given YPT-problem. It is desirable to use pictures, slides, photos prepared beforehand and demonstrate some experiments (if the problem is experimental).

3. Opponent's questions and reporter's answers (8 min.).

4. Opponent's speech (8 min.).

In his speech the opponent expresses his opinion on the main ideas of the report and makes critical remarks on it. He points out the mistakes and inaccuracies in understanding of the problem and in the methods of its solution. Criticism must be concerned with the report only. The speech is not an account of opponent's own solution.

5. Reporter - Opponent polemics (8 min.).

The solution of the reporter is discussed. The reporter answers the questions of YPT participants, but opponent team has priority in the discussion.

6. Reviewer's questions to the reporter and the opponent and their answers (8 min.).

7. Reviewer's speech (8 min.).

The reviewer briefly mentions the main positive features of the report and the most significant points in the criticism of the opponent.

8. Free discussion (5 min.).

In concluding polemics Opponent's speech and review can be discussed. The opponent and reviewer can, if necessary, present their own solutions of the problem briefly.

9. The Jury's questions to the teams (4 min.).

10. The Jury's marks for the PF (1 min.).

11. Remarks of the Jury members, if necessary (5 min.).

Limitation. Every team member can come out as a Reporter, Opponent or Reviewer only once.

Judgement.

The Jury of PF consists of five or more members of the International Jury of YPT and the team leaders, whose teams participate in the PF. YPT referee sees to the execution of PF rules and time limitation, regulates team's activity during the discussion and polemics. The Jury gives marks to the report, opponent speech, review and additional speaking on the problem. In concluding remarks the Jury sums up the result of discussion, emphasizes strong and weak points of the problem solution.