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Early motivation

When all important data is published online, it cannot be easily lost. Otherwise information loss is a serious threat to organizations like the IYPT, especially due to the fact that the main work is done by an LOC, which changes every year. To give an example, trying to find out the final team ranking of the IYPT 1993 proves to be a nearly impossible task. This information is not available online anywhere. One could only try to find out who was responsible for this IYPT and contact this person directly. However, a few years from now that may not be possible anymore, because even the responsible persons might not have the data any more. Data archiving is a responsibility which has to be centralized.

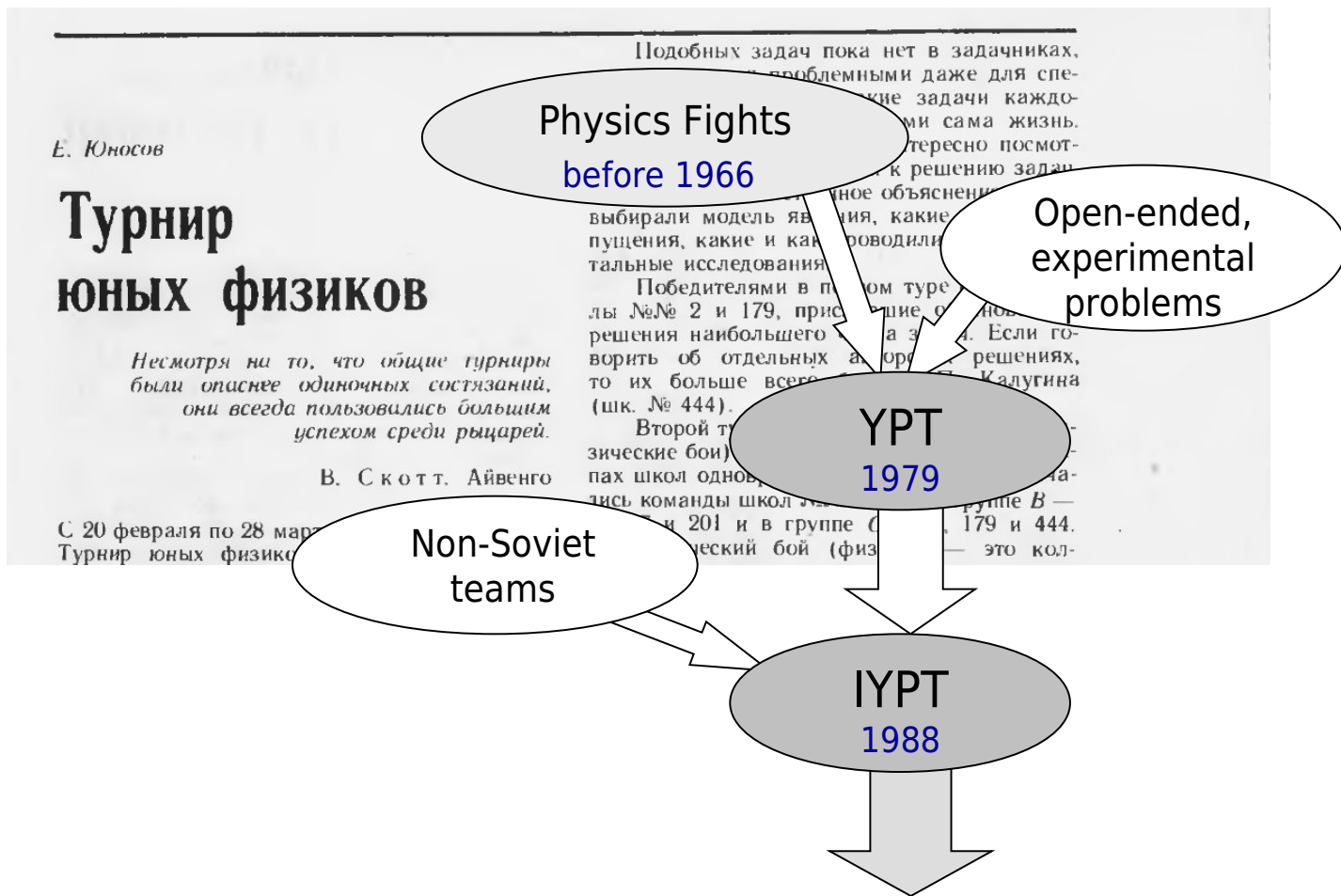Georg Hofferek
about data loss (2007)

7 out of 10*

* number of fully or partly discontinued
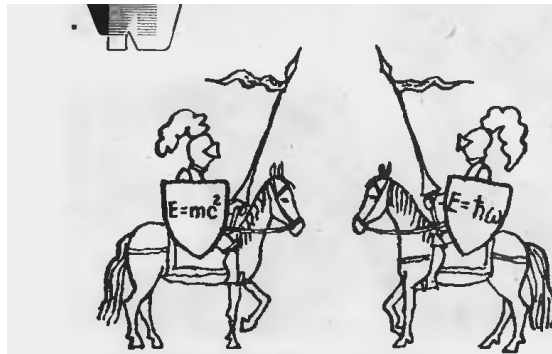local webpages, in 1997—2006

1979—2011

*Young Physicists'
Tournament* (1980)
by Evgeny Yunosov

Physics Fights
before 1966

**Open-ended,
experimental
problems**

YPT
1979

**Non-Soviet
teams**

IYPT
1988

Е. Юносов

Турнир
юных физиков

*Несмотря на то, что общие турниры
были опаснее одиночных состязаний,
они всегда пользовались большим
успехом среди рыцарей.*

В. С к о т т. Айвенго

С 20 февраля по 28 мар[...]
Турнир юных физико[...]

Подобных задач пока нет в задачниках,
[...] проблемными даже для спе-
[...]кие задачи каждо-
[...]ми сама жизнь.
[...]тересно посмот-
[...]к решению задан[...]
[...]ное объяснени[...]
выбирали модель яв[...]ния, какие[...]
пущения, какие и как[...] роводили[...]
тальные исследования[...]

Победителями в п[...]ом туре
лы №№ 2 и 179, прис[...]шие, о[...]ов[...]
решения наибольшего [...]а з[...]. Если го-
ворить об отдельных а[...]ор[...] решениях,
то их больше всег[...] [...]. Калугина
(шк. № 444).

Второй т[...]
зические бои)[...]
пах школ одно[...]
лись команды школ [...] [...]руппе *B* —
[...] и 201 и в группе [...] 179 и 444.
[...]еский бой (физ[...] — это кол-

1981: the logo is designed

Ниже мы приводим условия некоторых задач заочного конкурса с краткими комментариями к ним.

Задача «Свеча». Свеча, сгорая, светит и греет. Измерить теплоту сгорания парафиновой свечи.

Простота формулировки задачи и возможность проявить свои экспериментальные способности вызвали живой интерес будущих физиков, и почти все школы прислали решение этой задачи. Наиболее интересной была признана работа И. Алексеева и Д. Свириды (с. ш. № 179) *).

Задача «Колебания». Большая нагруженная пробирка плавает в воде в вертикальном положении и может совершать колебания вверх — вниз (рис. 1). Рассчитайте период колебаний пробирки и измерьте его. Объясните расхождение между теорией и экспериментом.

Теоретический расчет периода колебаний

III Московский турнир юных физиков

1982
first publication

1990
today's version

1982: solutions submitted to journals

Prob. No. 3 (1981)
Prob. No. 8 (1981)

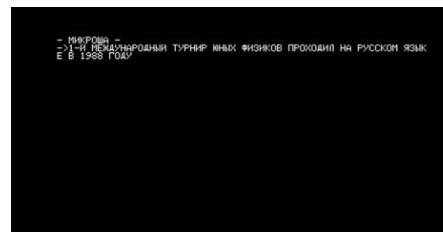Soviet popular science journal *Kvant*

1988: numerical simulation in a Report
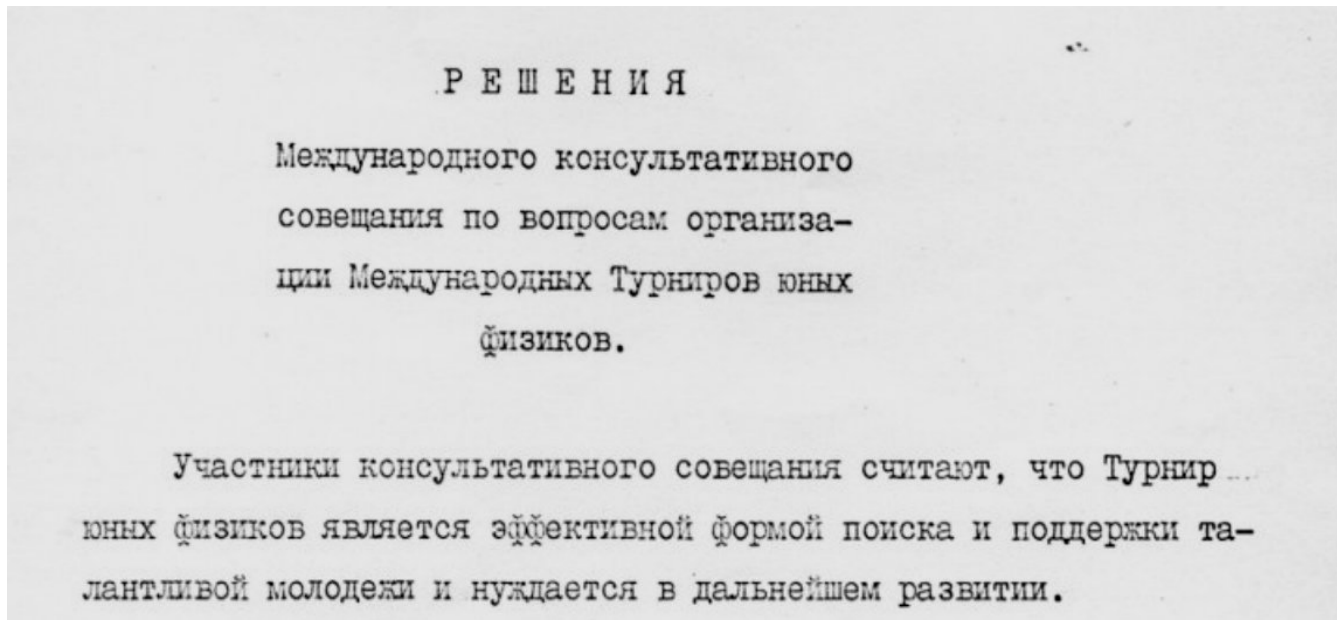
1.77 MHz CPU
32 Kb RAM

"It was a really impressive presentation — it included computer simulation of ocean surface."
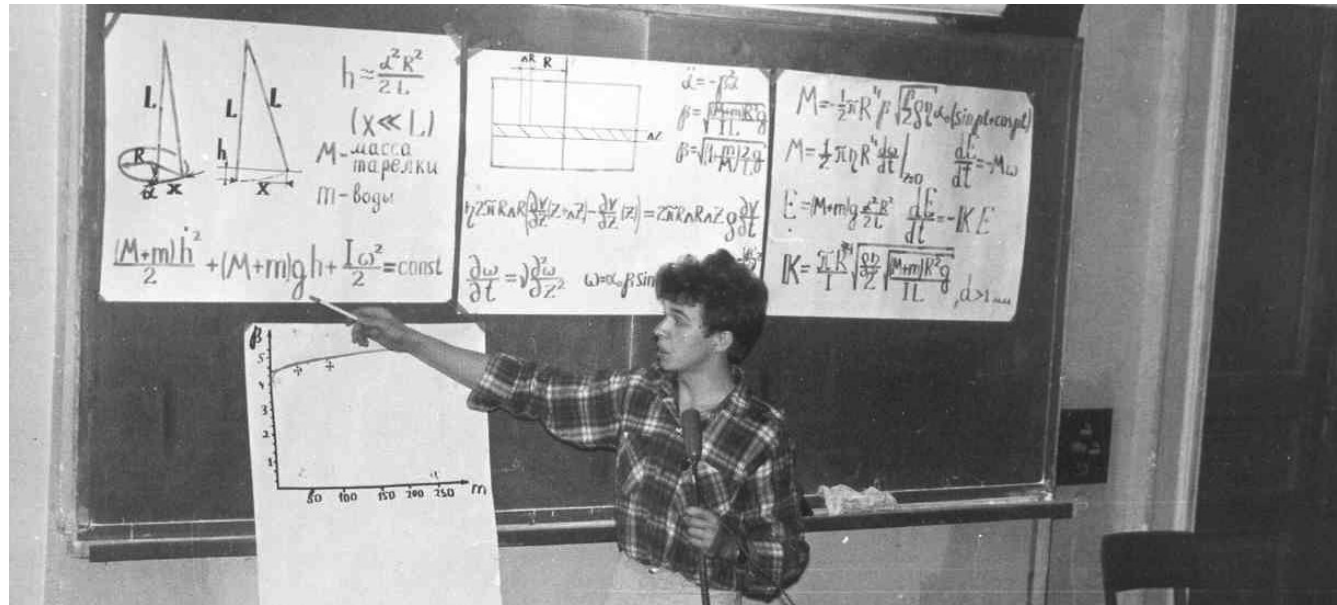
1989: IOC minutes

Р Е Ш Е Н И Я

Международного консультативного совещания по вопросам организации Международных Турниров юных физиков.

Участники консультативного совещания считают, что Турнир ... юных физиков является эффективной формой поиска и поддержки талантливой молодежи и нуждается в дальнейшем развитии.

April 3—5, 1989

"Consultative meeting appeals to UNESCO with a hope to obtain assistance and support and requests sending an observer to the III International YPT."

1992: laptop for visual aids

"It was considered a *gesture of desperation* if someone wrote with a chalk on blackboard. "

1992
Dutch team brings "laptop with a transparent LCD"

Sources

15. "The electron".
An electron, having velocity V =   mps, moves near a metal ball with impact parameter D . The radius of the ball is a few centimeters. The charge of the ball varies as
$q(t) = q \cos \omega t$, where $q =$ Coulombs, $\omega =$ s. Draw the dependence of the scattering angle   of the electron on D.
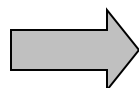
?

??

$q_0 = 10^{-3}\ C$

$q_0 = 10^{-3}C$

$q_0 = 10^{-3}\ C$

q=10 C

qo = 10 Кл

$q_0 = 10^{-8}\ Кл$

$q = 10\ coulombů$

I5. "Электрон".
Электрон, имеющий скорость $3 \cdot 10^5$ м/с пролетает с прицельным параметром d мимо металлического шарика, радиусом в несколько сантиметров. Заряд шарика меняется со временем по закону $q(t) = q_0 \cos \omega t$, где $q_0 = 10^{-3}$ Кл, $\omega = 10^8$ с$^{-1}$. Постройте зависимость угла отклонения электрона φ от прицельного параметра d .

Sources

Czechoslovak team
leader in 1988:

The winners of the previous seven IYPT:
1. 1988: Poland and Soviet Union

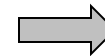Hungarian team
leader after ca. 1990:

The winners of the IYPT
1988: Poland and Soviet Union

Polish team
leader in 1989:

"No Polish team in 1988"

Participant, "winning"
Soviet team in 1988:

"Not winners, no competition at all"

Late account, 2004:

В 1988 г. был проведён первый всесоюзный и международный турнир. В нём приняли участие команды из союзных республик, Чехословакии, Венгрии и другие.

Hungarian team
leader, 1989:

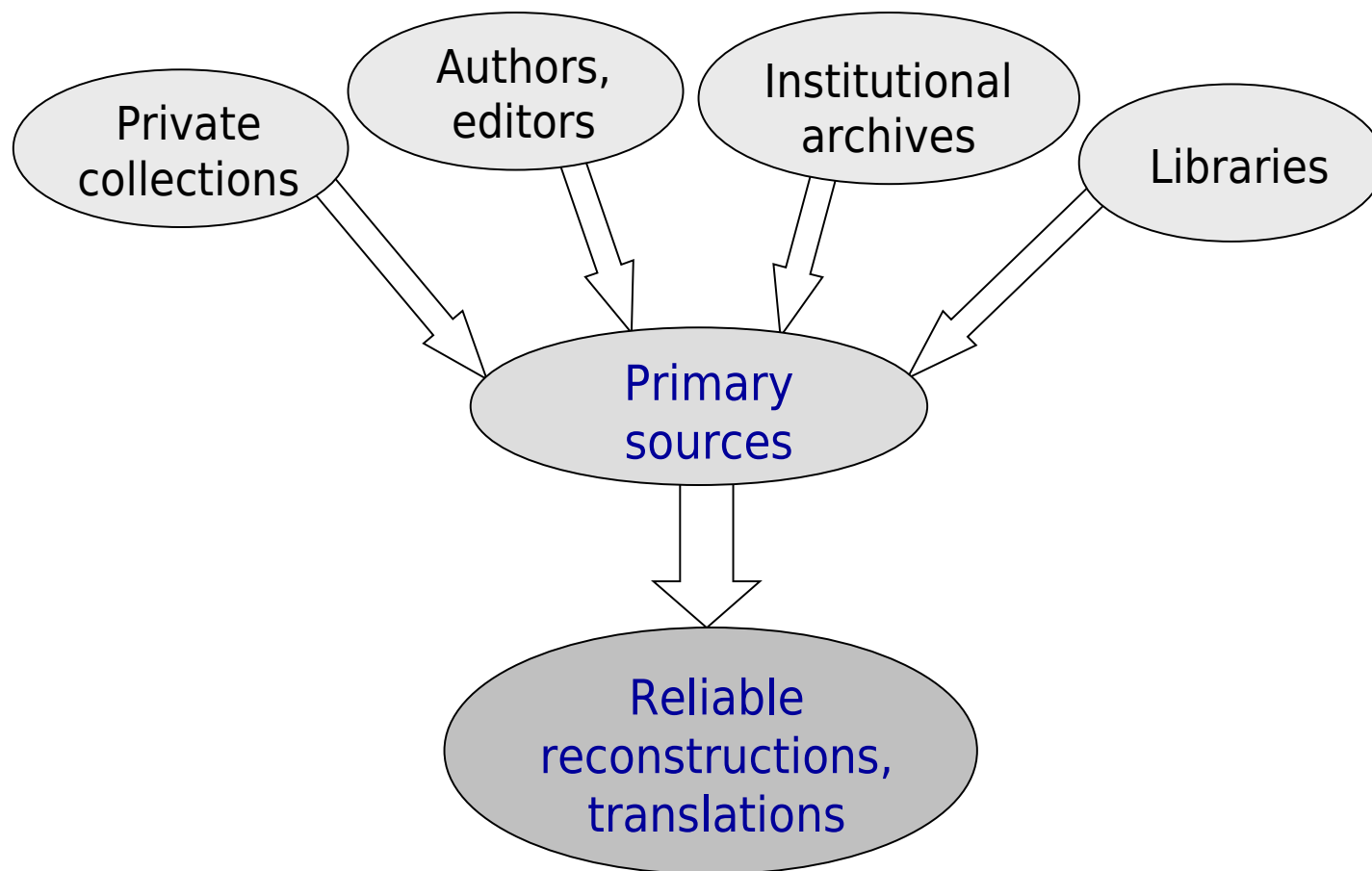"No Hungarian team in 1988"

Czechoslovak team
leader in 1988:

1. mezinárodní TMF za účasti družstev BLR, ČSSR a SSSR.

Bulgarian team
members in 1988:

"Yes, we were there in 1988"

A careful
reconstruction is
necessary :-)

How the Archive works
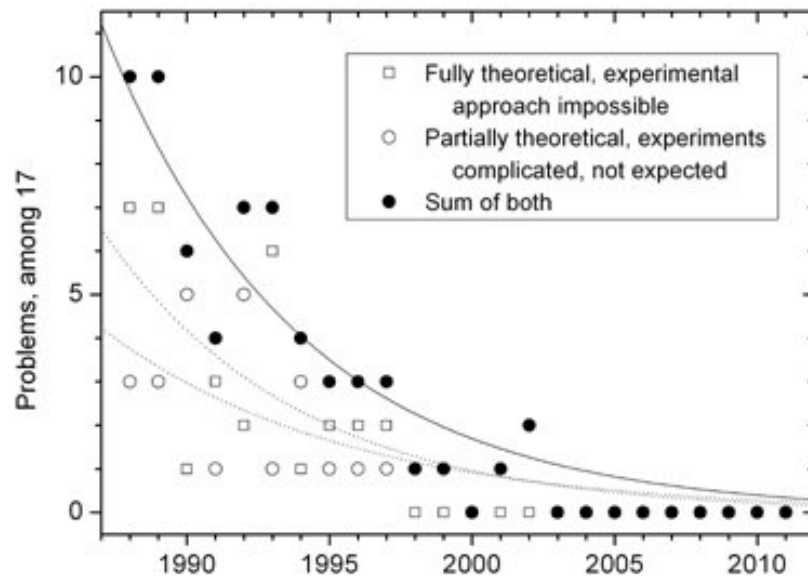
In the Archive...

- Translated, restored problems for 1988—1993
- Translated, restored problems for 1979—1987 (in progress)
- Restored factfiles (teams, results, regulations) from 1988+
- Preprint *Detailed history of IYPTs in 1988—1993*
- Preprint *Origins and history of YPT in 1979—1987* (in progress)
- The logo: artist, timeline, hi-res scans

- 450+ authentic solutions from 1981+
- Photos from 1979+, videos from 1996+
- 400+ items on each year from 1979 onwards:

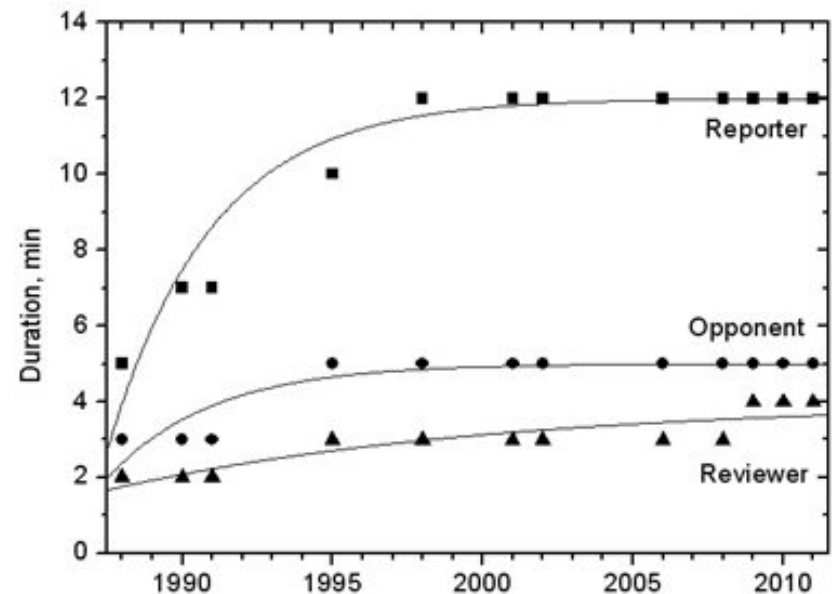books, articles, documents, manuscripts, media, interviews, more

IYPT in the long run

Fully theoretical problems
gradually phased out

Stage performance
gradually made longer

IYPT's highlights

Long-term educational influence
- Interviews with former participants, professional feedback

Center of competence
- Problems, ideas, expertise for an audience outside the IYPT

G. Planinsic. *Eur. J. Phys.* 30, 6, S133-S140 (2009)

Relevance
- Papers by students in professional, peer-reviewed journals
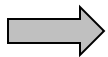- Theses, research papers focused on the IYPT

Impact
- Mainstream media coverage of the IYPT
- Governmental, professional awards for the IYPT

IYPT solutions

- Archive is not a journal
- Original slides, written reports with no further review
- 450+ solutions in full online access
- Requests received for the submissions after the 24th IYPT
- An online call for contributions works
- Most visited section! (web access analytics)

Cooperation with IYPT Journal, IYPT Book

Coordination for professional submissions

- Before: each team worked on their own manuscript
- Now: a few teams interested in co-authorship

- Coordination of efforts is easier, if initial materials are indexed at a single location
    - finding, contacting the "last co-author"
    - not missing a tentative, interested co-author
    - avoiding conflicts of interests (e.g.: priority, understanding of the degree of contribution, duplicates)

- Journal policy may be restrictive about online exposure, prior to submission
- An unlikely issue: cf. online conference proceedings, self-archiving of draft slides at institutional webpages

Ease of use

- Are these student articles cited by anyone?

  Cliff *et al*. *Am. J. Phys.* 79, 6, 565-574 (2011)

- How to check a suspected trend in the juror grades?

  Raw data for future statistical analysis

- A similar problem at an earlier IYPT? What were the typical solutions?

  Problem selection, reference for students

- Where to pick up historical photos or videos? Whom to contact as for copyright?

  Promotional materials

- Where did the historical organizers look for sponsors? How a particular issue was accessed at a past IYPT?

  Record of earlier expertises

- What IYPT activities existed before in a particular country? Who may be a regional contact?

  Names

- How many teams, what countries, when, where?

  Facts, figures

Mission

Promotion

- Transparency, visibility for the IYPT as a center of competence through a completely documented history
- IPhO runs similar projects (even: careers of participants, educational impact, highlights and achievements in a retrospective)

Physics education library

- Reference source for all YPT and IYPT problems since 1979
- Archived solutions: physics education research, a reference for students
- Good for future participants: culture of citations, critical learning, "what those people have done", "it is not too difficult"

Know-how

- A complete, multilingual IYPT bibliography for teachers (hints, experiences), researchers in physics education (examples of goal-oriented learning)

Backup

- Preventing (otherwise inevitable) data loss as for early IYPTs
- Any important detail digitized, online, single URL, just a few clicks away
- Striving to identify any wrong accounts (winners, problems, regulations)

Outlook

- "IYPT: a globally leading center of excellence"

Why?

- IYPT has a state-of-the-art portfolio:
  - ☑ papers by participants in peer-reviewed professional journals
  - ☑ mainstream media coverage, awards, visibility
  - ☑ impact on the future careers of participants
  - ☑ independent PER articles analyzing, praising the IYPT
  - ☑ sustainable, with a 25-years track record
  - ☑ research, not problem-solving tests
  - ☑ environment, platform with a professional competence

But...

- Small inflow of new nations: visibility, prestige not sufficient
- Values do not convince the sponsors: what portfolio, coverage needed?
- Participants unaware, inexperienced as for getting work published

- Can the Archive be helpful?

Welcome to the Archive!

Welcome to the information site for the IYPT Archive, a comprehensive collection of hundreds of digitized sources unveiling the details and highlights of the IYPT's history. The Archive is currently a personal initiative, and home for a research project aimed at providing a coherent record of problems, results and regulations from the earliest YPTs and IYPTs.

International Young Physicists' Tournament, IYPT, has grown since its establishment in 1988, from a Soviet-based Russian-language competition, into one of the World's largest and most prestigious international physics contests with almost 30 nations competing annually.

In the rush of the growth of the competition, the opportunities for continuously maintaining the archives and proceedings were sometimes neglected. The critical factual details of the earliest YPTs and IYPTs have been up to now obscure, often debated, and sometimes considered lost.

Research output

Detailed history of IYPTs in 1988–1993
Posted on May 2, 2011; PDF file
Working draft of a research paper

Problems for the 1st IYPT (1988)
Posted on May 1, 2011; PDF file
Translated, restored, and commented text

Problems for the 2nd IYPT (1989)
Posted on May 1, 2011; PDF file
Translated, restored, and commented text

Problems for the 3rd IYPT (1990)
Posted on May 1, 2011; PDF file
Translated, restored, and commented text