

# CONCLUDING REMARKS

## *Opinions*

Before presenting my own personal reflection on the IYPT I want to present some opinions of other people involved in the IYPT. As you will find out, the IYPT has quite a similar significance of them...

### Text by Dr. Brigitte Pagana-Hammer



Dr. Brigitte Pagana-Hammer was one of the teamleaders of the Austrian team during the 12<sup>th</sup> and 13<sup>th</sup> IYPT. She will also be teamleader for the 14<sup>th</sup> IYPT. Moreover she was one of the organisers of the 12<sup>th</sup> IYPT in Vienna.

The following text reflects her impressions on the IYPT:

I arrived at the “Polgar Physicists Team” only two years ago and now it seems to me, that I have been with them for a long time. My first impression was, that something quite different from other schools happened in the physics lab. Students coming even in the afternoon, looking around and obviously searching for something to do. I came to know, what they were looking for, when Mr. Schiestl told me about the IYPT and asked me if I would be interested to collaborate in the team. Already this first information convinced me by the special characteristics of this kind of competition. It represents perfectly my own ideas, what school education generally, and particularly science-teaching, should be nowadays: immediate practical application of the topics studied, teamwork, ability to represent the own point of view on scientific problems in discussions with fellow-students and teachers, learning by doing, to have continuous contact with the world outside of the classroom especially for more and for “up to date” information, but also to show the resources, which offer the future generations for the scientific, as well as for the economic world and last, but not least to be able communicate with people of different nations, different cultural background and experience using the English language as intrinsic world wide scientific idiom. It was quite clear, that I accepted Mr. Schiestl’s proposal without hesitation, although I was a little bit worried about the high scientific level and the large scale of skills required by this competition. Easily identifying myself with new situations, especially with such interesting and prestigious as the IYPT, I tucked up my sleeves and started first

with the preparation of our school-team and with my part in the organisation of the 12th IYPT 1999 at Vienna and now with AYPT and IYPT 2000. It is hard work, but I would not miss only one minute of this exciting experience and I hope that even my students did enjoy it at least as much as I did. To see, how young people grow with the difficulties of the problems to prepare and to present in the competition, to take part of their ambitions, fears and pleasures, and the own collaboration in an international team of high qualified scientists and teachers made these two years for me to one of the most productive and pleasant periods of my life: "I became fan of the IYPT".<sup>5</sup>

## Text by Dr. Andrzej Nadolny



Dr. Nadolny is the Secretary of the IYPT. It is his task to provide the Local Organisation Committees with all the appropriate information and to take care of the archives of the IYPT.

[...] IYPT is in many respects complementary to International Physics Olympiad. Seventeen problems, to

be solved by participants, are chosen and formulated about half a year before the International Tournament (during a special Preparatory Seminar). These problems are usually "non-academic" problems, often of interdisciplinary character, that have no one exact solution, but can be solved on various levels. Participants themselves have to make reasonable assumptions or define conditions for the solution. As Tournament is a competition between teams, long-term team-work plays an important role here. This work involves studies of literature (internet is also an important source of information), discussions with specialists, development of theoretical models, planning and performing of experiments, computer simulations, preparation of a presentation.

[...]

IYPT not only stimulates creativity and helps to acquire competencies in physics, but also develops communication skills. Participants of the Tournament have to use English, which is a foreign language for the majority of them, but enables them also "contacts across the frontiers".

This particular aspect of the Tournament is nowadays of special importance.<sup>6</sup>

## Text by Univ.-Prof. Gustav Asenbaum



Univ.-Prof. Asenbaum was an observer of the 12<sup>th</sup> IYPT in Vienna, one of the jurors of the 2<sup>nd</sup> AYPT and one of the persons who greatly helped us during the preparations work.

In occasion of the 12<sup>th</sup> IYPT young people interested in science met fellow-students from 17 nations to measure their scientific abilities. Their ambition, the fun they had, as well as the touch of serious competition were for me the most remarkable aspects of the event. The audience had nearly the impression to hear their brains work. The evaluation of the theory and the experiments reported on the several problems by the fighting teams themselves and the questions of the jury-members, as proposed in this kind of tournament, bring the teams in contact with other ways of scientific thinking even of "senior scientists". Furthermore the students have to present their results to a qualified audience. To formulate and to present their results requires a lot of personal ability and scientific skill. It becomes clear that nowadays only well spoken English allows to communicate the ideas of scientists from several countries, and it was interesting to see how linguistic deficits created physical misunderstandings during the discussions and how the teams tried hard to solve them.[...] In many cases this tournament may be the

<sup>5</sup> CD-ROM: 12<sup>th</sup> IYPT 1999

<sup>6</sup> CD-ROM: 12<sup>th</sup> IYPT 1999

motivation for the team-members to continue their studies of science at the university, and I am quite sure, that most of them will be found between the best 10% of their course.<sup>7</sup>

## **Speech of Prof. Dr. Markus Schwörer**

Prof. Dr. Markus Schwörer is the Vice-President of the German Physical Society. The following speech was delivered after the final physics fight in the 11<sup>th</sup> IYPT 1998 in Donaueschingen (Germany).

Dear young colleagues from all over the world,

I'm deeply impressed by the high quality of your presentations and even more so by your discussions. I'm equally impressed by the wide range of the really interesting problems of physics that have been presented. I would like to thank especially those you have invented and formulated those problems. I represent the GERMAN PHYSICAL SOCIETY which has just turned 152 years and which has more than 30000 members. Among those figure such well-known physicists like MAX PLANCK and ALBERT EINSTEIN. The same is true for the other EUROPEAN PHYSICAL SOCIETIES. I would like to refer to MARIAN SMOLUCHOWSKI, probably the most famous Polish Physicist and JAROSLAV HEYROVKY, he certainly is one of the best Czechs Physicist. MARIAN SMOLUCHOWSKI developed the basic theory of diffusion and received the Nobel Prize for the development of the polarographic method. From these and other countries come the high school students' teams who have qualified for today's final. It would be of great value for international understanding if the EUROPEAN PHYSICAL SOCIETY would support the competition of young physicists financially and continuously. We should enable the participants in the respective finals to assist at the competitions of the following years. Thus we might achieve an interconnection between the best competitors of each year. Physics is an basic and ancient branch of science. It counts at least 5000 years. The astronomers of ancient Syria were physicists. They practised experimental physics. They measured the movement of the stars and especially the interdependence of astronomical events, for example solar eclipses. Their time system was based on the movement of the stars as it is seen by the observer on the earth. And their time system was very precise. They laid down their results and some of those documents can be read even today. Due to the precision of the earth's movement we are able to check today whether their calculations were correct. At least in one case of a lunar eclipse the result is correct even with the precision of 4 minutes, even after a time lapse of 4000 years. Physics is the root of all science. Physicists have developed the basic of method of physics in the past 400 to 500 years. This consists in the combination of quantitative observation of the structures of the dynamics of nature with a mathematical description thereof. The first part is called experimental physics and the second part theoretical physics. Only if both parts of our science reach the same result i.e. only if theory and experiment coincide do we claim truth for our results. It is the basic method of co-operation between theory and experiment which - in the meantime - has been adopted by other science especially by chemistry and biology. And of course these methods have been taken over to by all modern technical sciences like electronics, optics, semiconductors, laser-technology and medical-technology. All modern technology was originally developed by physicists. It can be expected that physicists will go on developing modern technology. It can be hoped they will do so with a high awareness of the responsibility for the future of our children and grandchildren.

Physics is also an up-to-date science. The "NEUE ZÜRCHER ZEITUNG" of June, 5th writes: The neutrino has got a mass, that's the experimental result of widespread international co-operation. If this result is propagated it will have great influence on our present conception of the universe since the number of neutrinos is about 10 billion times bigger than the number of electrons, so that the mass of neutrinos, be it as small as it may, will compose an essential part of the whole mass of the universe. If you, the members of the high school students' teams, make physics your future profession you will have at least two advantages in life:

1. You will have the opportunity to keep learning fundamentally new things during all your lives.
2. You will have the opportunity of explaining negative effects caused by science to politicians and the broader public. In this way you can prevent the misuse of science and make a contribution to the maintenance of peace.

I would like to emphasize that it was a great experience for me watching these finals.

Yours, faithfully, Markus Schwörer<sup>8</sup>

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<sup>7</sup> CD-ROM: 12<sup>th</sup> IYPT 1999

<sup>8</sup> Booklet: 11<sup>th</sup> International Young Physicists' Tournament

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