

## India to host the 46th International Physics Olympiad this year

The international olympiad for school students first came into existence in 1959, with the introduction of International Mathematics Olympiad (IMO). The initiative was essentially taken by some academicians belonging to the countries in Eastern Europe, better known as pro-Soviet nations during the peak period of the Cold War. IMO gradually gathered momentum and inspired a section of physics teachers, researchers and physics enthusiasts. This was the beginning of a success story when the International Physics Olympiad (IPhO) took shape in 1967 (ref. 1). The first edition, once again an initiative of the Eastern European nations drew only four participating countries. But that did not prevent it from growing. India sent its first team to IPhO in 1998. This year India is hosting the 46th version of this event for the first time and is expecting participation from 85 nations with about 400 student contestants.

Olympiads are competitions among individuals that avoid any bitterness among the participating nations. The medals and certificates are given to individual students on the basis of their performance in theory and experiment taken together. No country-wise ranking is officially announced. Yet, an unofficial merit list is prepared taking into consideration the performance of all five students from a participating nation. And India stands quite good in this list.

The IMO had an advantage from the organizational as well as budgetary point of view, as the event does not involve any experimental component. Physics, like other international olympiads such as chemistry, biology or junior science, has a component that is not only confined to pen and paper. And this makes the organization of the event quite complicated. Designing experiments for the practical component of IPhO is not easy, because the students are left to themselves with the question papers and the apparatus to perform the experiment. Question papers contain all the relevant instructions, but during the examination the students need to be on their own and

there is no so called 'supervisor' or 'examiner' around. This is quite a different situation from what the students get in a conventional practical examination. Framing the theory questions is equally challenging, as these are mostly chosen from areas where active research is going on. These need to be original and should not be typical textbook stuff. The questions also demand a great understanding of the principles of physics. Preparation of both types of question papers is the prerogative of the host country. The international board that comprises of the leaders from all the participating nations moderates the question papers and finalizes them. Question papers are translated into various languages by the respective team leaders and observers. Evaluation of the answer scripts is done according to a marking scheme where both the groups, i.e. the leaders from the respective teams and the academic personnel from the host country get involved. The entire evaluation system is extremely transparent and the marks are finalized through arbitration.

Final results are prepared following a well chart-out guideline<sup>1</sup>. It has the provision of awarding gold medals to top 8% of the participating students. The next 17% students get silver medals, followed by bronze medals and honourable mentions. Actually nearly 67% of the participating students get some medal or award. But all of them consider the event to be a great learning process. These young participants often initiate a long-time friendship not only with another participating student, but even with the young team guides.

This year the IPhO will be held in Mumbai from 5 to 12 July. The competition has an appropriate logo<sup>2</sup> which has been developed keeping in mind the centenary year of the general theory of relativity of Albert Einstein and the relevant work of Arthur Eddington in providing the theory a strong experimental foundation.

One can easily understand the quantum of expenditure involved in organizing a programme of this dimension, as

the host country needs to take up the major share of the expenses. The preparation of experimental set-ups demands a significant portion of the budget and at the end the competition each the participating country quite often gets one set of experimental apparatus as a gift; this is completely in tune with the spirit of the olympiad. Incidentally, this year could have been the pre-golden jubilee event for the IPhO, but the event could not take place during three years – 1973, 1978 and 1980 – possibly because of budgetary constraints.

In India, the Homi Bhabha Centre for Science Education (HBCSE), which is an integral part of the Tata Institute of Fundamental Research (TIFR), is the nodal agency for the training and selection of students for representing the country in different olympiads. HBCSE has an excellent in-house team of experts who are involved round the year in various design and development works related to the selection and training of Indian students. It is now coordinating the activities for the international event on behalf of the host nation. The financial support for the olympiad comes from different departments and ministries of the Government of India, including the Department of Atomic Energy, Department of Science and Technology, Ministry of Human Resource Development, Ministry of Culture, etc. The Indian Association of Physics Teachers (IAPT), an all-India body of physics teachers, administers the first-level screening test for the selection of Indian students. IAPT is shouldering this responsibility right from the time when India first participated in IPhO. Let us hope that the collaborative efforts of all who consider physics close to their hearts will make the event successful.

1. [www.ipho.phy.ntnu.edu.tw/](http://www.ipho.phy.ntnu.edu.tw/)

2. <http://www.ipho2015.in/>

**Bhupati Chakrabarti**, Indian Association of Physics Teachers, 23, Ibrahimpur Road, Kolkata 700 032, India.  
e-mail: bhupati2005@yahoo.co.in