

International Mathematics Olympiad: the first science olympiad is now fifty years old

Bhupati Chakrabarti

Representing one's country in any international event or forum is indeed a matter of pride for anyone. In sports and games teenagers often represent their respective countries and bring laurels, as in the Olympics. So is the case with the International Science Olympiads where a teenager student can represent his/her country.

The world of science olympiads has expanded both in the range of subjects as well as in the number of participants. The first science olympiad was conceived as a competition for high-school students. It started exactly 50 years ago in 1959, with just seven participating nations. Mathematics was chosen for the first competition. Romania hosted the first International Mathematics Olympiad (IMO) in the town of Brasov and also the next one in 1960 in Sinaia. The IMO has been held every year since 1959, except in 1980. This is why the 50th IMO and not the 51st one is being held in Bremen, Germany in July 2009.

In 1959, the Romanian Mathematics and Physics Society invited high-school students from six neighbouring nations to participate in the IMO. These countries were Bulgaria, Czechoslovakia, German Democratic Republic (GDR or the then East Germany), USSR (the Soviet Russia), Hungary and Poland. And, of course, the host nation Romania also participated. This was an initiative by the so-called Eastern Block countries, i.e. countries that had allegiance with the then Soviet Union, but the word 'international' did the magic. Moreover, one must take into consideration the constraints that existed during international trips in the 1950s. The observed excitement among students was so high that the organizers decided to continue the event. The last IMO (49th) held in Madrid, Spain had 535 competitors from 97 countries.

As it had happened with other International Science Olympiads that started in the 1960s, countries in western Europe or for that matter most of the developed nations initially had some reservations, as these events were introduced by some Eastern Block countries. In fact, the venue of the IMO rotated among the Eastern Block countries for first seventeen years. United Kingdom, Sweden and Italy were among the first few nations from outside the Eastern Block that had participated in

the event in 1967. In fact, this was a big step to make the competition truly an international event. The IMO was first hosted outside eastern Europe in 1976, when Austria hosted the 18th version of the competition. By that time USA had also entered the competition in 1974.

The competition was for the first time hosted outside Europe, i.e. in USA in 1981 and first in Asia in 1990 with Beijing as the venue. India first participated in the IMO in 1989 and since then has been sending teams to participate. India also hosted the IMO in Mumbai in 1996. It was the 37th version of the event. It was the first instance of India hosting any International Science Olympiad. Last year India also completed twenty years of its participation in IMO. India, started participating in the other Olympiads only from late 1990s or even later.

Interestingly, the IMO is not only the first science olympiad, but is also unique in many ways. It is an event where in a single competition students from the 8th to the 12th grade are made to work out the same set of problems. They work out two sets of three problems each on two separate days. On each day four and a half hour are allotted for this, implying an average time of one and half hour for a single problem! The problems given are fundamental in nature and at least one solution exists that can be worked out with the help of basic principles of mathematics. A country can send up to six participants and there is no categorization as a senior or junior competitor. So ultimately a 12th grade student may find a 9th grade student not only as his teammate but also as his competitor. This makes the IMO different from the International Physics, Chemistry or Biology Olympiads, where mainly the students from the 12th grade compete though occasionally highly talented 11th graders make it to the teams. So in these olympiads not only the analytical mind but the acquired knowledge of the subject both in theory and practicals plays a significant role. Unlike the IMO, these science Olympiads, also have an experimental component included in the competition.

It has been observed that IMO has actually initiated a movement of critical study and learning of mathematics not as

a part of the curriculum, but as a branch of knowledge that helps to look at the nature in a special way and demands the development of a logical mind. Different countries have established mathematical societies and other similar organizations. Extensive brainstorming over mathematics and identifying the joy of mathematics and not just rote learning has started in different parts of the world, including India, with lot of enthusiasm.

Incidentally people are curious to know whether a good performance by a teenager in the IMO marks him as a future mathematician or a future mathematical prodigy. Several IMO participants have actually pursued the study of mathematics and have become renowned researchers or teachers in the field. However, only a few Fields Medal winners have been past IMO participants or medallists (the Fields Medal is considered to be the highest award in the field of mathematics).

We now have about ten or more International Science Olympiads for students at different levels taking place every year. And this number is increasing. Different bodies are being formed to initiate newer olympiads at regular intervals. Add to this various regional olympiads in most of these subjects involving nations from a particular region. These are also very much international events. Apart from mathematics, India is already participating in about seven more (Physics, Chemistry, Biology, Astronomy, Astronomy and Astrophysics, Informatics and Junior Science) International Science Olympiads. Most of these competitions have begun in only last twenty-five years or so. In fact, the second oldest international science Olympiad after IMO is the International Physics Olympiad, and it has just completed 40 years of its existence in 2007. Moreover it could not be held thrice in between and still does not attract so many participating nations compared to the IMO. So the IMO by all means leads the field.

1. <http://www.imo-official.org>

2. Walawalkar, M. G., *Curr. Sci.*, 2005, **88**, 340-341.

Bhupati Chakrabarti is in the Department of Physics, City College, Kolkata 700 009, India. e-mail: bhupati2005@yahoo.co.in