



Chair of the Host Technical Committee:

Iran Pushing the Envelope on IOI Organization

IOI 2017 Opening Ceremony at Milad Complex



The 29th International Olympiad in Informatics opens in Tehran on Saturday, July 29th.

This morning, there will be a meeting where IOI teams will review competition rules. In the afternoon, teams will attend the IOI opening ceremony.

The opening ceremony will be held at Milad convention center. 85 attending countries will introduce their team members along with their flags.

Milad tower next to the convention center stands at 435 meters from its base. A panorama view of Tehran and the beautiful Tochal Mountain can be seen from Milad tower. Tochal Mountain stands at nearly 4,000 meters from sea level.

Competition Rules

There will be two competition days. On each day contestants will be given three tasks to complete in five hours, and each competitor has their own workstation.

Please make sure you don't carry watches

of any type or snacks to the contest venue. Exceptions could be made by the IC for students with special dietary limitations.

Contestants can submit up to 50 solutions for each task. Testing Interface has some updates comparing to the previous years.

There will be a two-hour practice competition prior to the first competition day. This will help contestants become familiar with the contest venue and the grading system.

In order to protect the confidentiality of competition tasks, any direct or indirect communication between contestants and team delegates is prohibited from the moment competition tasks are disclosed at GA meeting. This limitation will apply to both contests and will last until the end of each 5-hour contest.

To help contestants wrap up their codes, three notices will be given at 15 minutes, 5 minutes, and 1 minute before the end of the contest.



29th International Olympiad in Informatics

July 28 – August 4, 2017 Tehran, Iran

No. 2 – Saturday, July 29, 2017



Islamic Republic of Iran
Ministry of Education



Shahid Rajaei
Teacher Training University



Young Scholars Club



Sharif University of
Technology



Welcome to IOI 2017

Mohammad Ali Abam

Chair of IOI 2017

On behalf of the Organizing Committee, I would like to warmly welcome all members of the IOI community to the 29th International Olympiad in Informatics (IOI 2017), scheduled for July 28 through August 4, Tehran, Iran.

Iran is an ancient country with a long history of civilization. From King Cyrus, who wrote the first charter of human rights nearly 2500 years ago, to numerous scientists and scholars of the Islamic golden age, Iran has contributed to humanity's cultural and scientific heritage. In more recent times, Iran has cultivated more than its fair share of the world's computer scientists and engineers, many of whom are indebted to national and international Olympiads in informatics as a crucial step in their education.

We are approaching the IOI 2017 opening, and we are readily looking forward to hosting you in Tehran. I would like to thank my colleagues whom without their support and encouragement, it would not have been possible to reach this point. I hope you enjoy your stay in Iran and leave our country with many happy memories.



Laying the technical infrastructure for maintaining a fair and smooth contest is very important. For over a year, the technical committee has tried its best to ensure a great contest for all contestants.

We sat down to talk to Dr. Hamid Zarrabi-Zadeh, Chair of the IOI 2017 Technical Committee, on Friday on the activities of his committee. The full text is as follows.

What are the responsibilities of the IOI 2017 Technical Committee?

Preparing the environment for the Olympiad both in terms of hardware and software is an important task. It also oversees the implementation of the Olympiad to ensure a smooth and problem-free experience. The committee has been bustling to reach those goals in the form of an eight-person team along with several subgroups.

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What technical preparations have been made ahead of IOI 2017?

We have developed three major systems which can be utilized in future contests: Task Preparation System (TPS), Translation System, and Network Administration, all of which will help get the job done automatically, fast, and error-free. They are indeed Iran's gifts to the International Olympiad in Informatics.

We also compiled a list of required equipment and purchased new hardware. The software used for the previous years was tested on the new devices, and once successfully operated, a total of 320 computers were purchased for contestants and 100 units for the judging system and staff.

These computers are fast and efficient. The network is interconnected via optical fibers guaranteeing 1 Gbps speed for connecting computer systems to the switches, and a speed of 20 Gbps for connecting switches to the servers.

What does the TPS System do?

IOI competition tasks are significant parts of the competition. Competition tasks are proposed by the participating countries and selected through a specific protocol.

The process pertaining to the tasks is sensitive,

time-consuming, and prone to errors. That is why we tried to systematize this section of the contest through a TPS or task preparation system. Whenever we modify a task, we can use the TPS system to make sure that the changes correctly reflects to the other parts such as checkers, graders, generators, and so on.

There was a translation system in the previous years. What makes this one different?

Yes. There was a nice translation system prepared at IOI 2014. The system had some shortcoming, especially in handling right to left languages, such as Farsi, Arabic, and Hebrew. It made us to build a new translation system to solve these issues, and also add several new features, including a handy notification system and an embedded printing system.

Please elaborate on the Network Administration.

Since a large number of devices are operating at the same time during the competition, we need to simultaneously manage and monitor all systems. Network Administration makes that possible. For instance, the computers are locked before the contest. They will be unlocked concurrently for all teams once the contest gets underway.

Maryam, an Inspiration for All



Ebadollah S. Mahmoodian

Dear participants of IOI 2017,

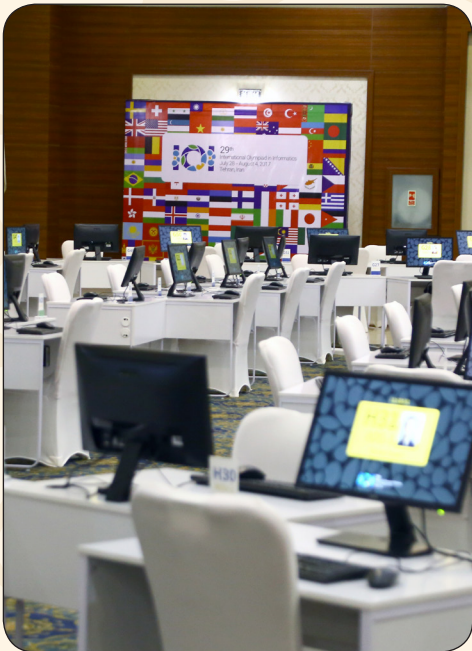
I welcome you all to our country and wish you a pleasant stay. Iran is very active in scientific Olympiads. Here I want to tell you about one of our math Olympians who, unfortunately, passed away recently. I met Maryam Mirzakhani when she was 15, right after she finished her ninth grade. She participated in a summer math camp that was held in the math department at the Sharif University of Technology for talented high school students. Even at such a young age, it was obvious

that Maryam will have a bright future in mathematics. I told her class about a cycle decomposition problem in combinatorics, and within days, Maryam came up with a solution to the open problem. This led to Maryam's first scientific publication, while still at high school.

Maryam went on to win a gold medal in IMO 1994 in Hong Kong (becoming the first Iranian girl to win a gold medal in scientific Olympiads) and another gold medal in IMO 1995 in Canada (receiving a perfect score). She completed her B.Sc. in mathematics at the Sharif University of Technology in 1999. She completed her Ph.D. in mathematics at Harvard University in 2004. Maryam joined the faculty at Princeton after receiving her Ph.D. as an assistant professor. She became a full professor at Princeton in 2008 before moving to Stanford in 2009. In 2014, she received the Fields Medal, the highest honor in mathematics, becoming the first woman and the first Iranian to win the coveted prize.



Maryam passed away a few weeks ago, at the young age of 40, after a four-year battle with breast cancer. She is survived by her husband, computer scientist Jan Vondrak, her young daughter Anahita, her parents, her siblings, her brothers, and a generation of men and women who looked up to her as an inspiration. Let us pay our respects to this brilliant mathematician by celebrating her life, her passion in math, and her diligence and dedication to achieving excellence.



TODAY'S

SCHEDULE

SATURDAY

JULY 29

| Time | Contestants | Leaders | Visitors |
|---------------|--|---|---------------------|
| 06:00 – 08:30 | Breakfast | Breakfast | Breakfast |
| 08:30 – 09:00 | | GA Meeting 1: Competition Rules | Transfer |
| 09:00 – 09:30 | Entering Contest Hall | | |
| 09:30 – 11:00 | Practice Session | | Miniature Garden |
| 11:00 – 11:30 | | | Transfer |
| 11:30 – 12:00 | Leaders-Contestants Discussion | | |
| 12:00 – 12:45 | Lunch (Evin Hotel) | GA Meeting 2: Discussing Practice Session | Lunch (Azadi Hotel) |
| 12:45 – 13:30 | | Lunch (Azadi Hotel) | |
| 13:30 – 14:30 | Transfer | | |
| 14:30 – 15:00 | Entering the Opening Ceremony Hall (Milad Convention Center) | | |
| 15:00 – 17:00 | Opening Ceremony | | |
| 17:00 – 18:00 | Transfer | | |
| 18:00 – 19:30 | Dinner (Evin Hotel) | Dinner (Azadi) | |
| 19:30 – 22:00 | Fun Time | GA Meeting 3: Task Selection and Translation | Free Time |

Places to Visit: Saturday

Miniature Garden Park of Tehran

The Miniature Garden Park of Tehran is home to small replicas of historical Iranian sites and landmarks registered on UNESCO’s List of World Heritage sites. “Chogha Zanbil Ziggurat” in southern Khuzestan Province, “Persepolis” in Fars Province, and “Naqsh-e Jahan Square” in Isfahan Province, are among the 13 miniature models on the show. These replicas are built at a scale of 25/1. Each model has an inscription with a brief explanation about the historical site. Other models include “Takht-e Soleyman” in West Azerbaijan Province, “Pasargad” in Fars Province, the “Citadel of Bam” and its Cultural Landscape in Kerman Province, “Soltanieh Dome” in Zanjan Province, and “Bisotun” in Kermanshah Province. The garden park has an exhibition with an area of 750 square meters, a library, a shopping center for handicrafts, and a printing house.



Milad Tower

Milad Tower is the tallest tower in Iran and the sixth tallest in the world after the Guangzhou TV and Sightseeing Tower, CN Tower in Toronto, Ostankino Tower in Moscow, Oriental Pearl Tower in Shanghai and the Tokyo Skytree. Finished in 2007 in Tehran, it stands 435 meters high. With its octagonal base symbolizing traditional Persian architecture, it now serves as the icon of Tehran. The telecommunication tower has restaurants at the top that offer a panoramic view of Tehran. The head consists of a large

pod with 12 floors, with the roof at a height of 315 meters. There is also a convention center and an IT park, among other facilities, around the tower. The tower and its nearby facilities offer a distinct center for trade, information, communication, convention and accommodation all in one place. The complex features a parking lot of 27,000 square meters, a large computer and telecommunications unit, a cultural and scientific unit, a commercial transaction center, a showroom for exhibiting products, an exhibition hall and an administrative unit.