nakshatra

16 August, 2025 Issue 05

Official Newsletter of IOAA 2025

18th IOAA MUMBAI, INDIA - 2025
International Olympiad on Astronomy and Astrophysics

Today's Attraction

Tour of Museum and University of Mumbai

Today students will visit some of South Mumbai's most iconic landmarks, offering a rich mix of culture, history, and science. Keep an eye out for Mumbai's iconic red double-decker BEST buses and the classic black-and-yellow taxis, the lifeline of South Mumbai's bustling streets. The *Chhatrapati Shivaji Maharaj Vastu Sangrahalaya*, housed in a grand Indo-Saracenic heritage building, features world-class collections, rotating exhibitions, and beautifully curated galleries. Finally, you will have lunch at the University of Mumbai, a prominent public state university in the city. It is among the largest university systems in the country, offering diverse courses across many disciplines. The historic fort campus features heritage architecture, including the Rajabai Clock Tower and its renowned library.

Inside view of the *Chhatrapati Shivaji Maharaj Vastu Sangrahalaya* (Museum)

Image Credit: Wikimedia Commons / Sudhir Narayana/ CC 4.0

This Day, That Year

Mid August: Peak of Perseids Meteor

The Perseid meteor shower, known for its bright and swift meteors, is a highly anticipated celestial event. The shower runs annually from 17 July to 24 August. It peaks in mid-August each year, with the best viewing opportunities occurring on the night of 12 August, before dawn on 13 August, 2025. The Perseids are associated with comet Swift-Tuttle. Meteors will radiate from the constellation Perseus, but can appear anywhere in the sky. Unfortunately, you might not get to witness it—cloudy skies in Mumbai will probably spoil the show!

Night sky during the Perseids Meteor Shower

Image Credit: NASA /Bill Ingalls / Flickr / Creative Commons 2

Weather Forecast

Max:
29°C / 84.2°F
MIN:
24°C / 75.2°F
Mumbai

Generally cloudy sky with heavy rain

Source: India Meteorological Department

Today's Programme

Students
08:30 hrs - 12:30 hrs
Excursion to South Mumbai

15:00 hrs - 16:30 hrs
Lecture by Prof. Mayank N. Vahia; (Formerly TIFR)
Venue: University of Mumbai

Leaders
09:00 hrs onwards
IBM (DA)
Venue: Astor Ballroom

Feature

Indian Astronomical Observatory, Hanle

Located at an altitude of 4,500 m above sea level, the Indian Astronomical Observatory (IAO), Hanle, Ladakh, offers exceptional observing conditions due to its dry atmosphere and remote location. Operated by the Indian Institute of Astrophysics (IIA), it began in 2001 with the 2-m optical-NIR Himalayan Chandra Telescope (HCT). The HCT is remotely controlled from Bengaluru and is equipped with sophisticated instruments for imaging and spectroscopy. IAO also hosts two high-energy instruments, the High Altitude Gamma Ray Telescope (HAGAR) and Major Atmospheric Cerenkov Experiment (MACE). HAGAR is an array of seven telescopes for detecting very high-energy gamma rays using wavefront sampling atmospheric Cherenkov technique. With a 21-m diameter, MACE is globally the second largest imaging atmospheric Cherenkov telescope. In addition, IAO hosts the 0.7-m diameter GROWTH-India telescope, India's first fully robotic research telescope. Jointly operated by IIT Bombay and IIA, it is widely used for time-domain astronomy as part of the international GROWTH network, enabling rapid follow-up of transient cosmic events. These facilities enable cutting-edge research in optical, high-energy and time-domain astrophysics.

Image Credit: Dorje Angchuk

Night sky seen from IAO, Hanle

Spotlight



THE ASIATIC SOCIETY, MUMBAI 1804
STATE CENTRAL LIBRARY







F03

D01











Café

ANCIENT
SKIES OF CYPRUS





India's Contribution to Organic Farming

India is one of the world's oldest agrarian civilisations. Based on millennia of hands-on knowledge, the indigenous agricultural practices embedded values of sustainability and reciprocity. Sir Albert Howard, author of the book "*An Agricultural Testament*", and often called the father of modern organic farming, was inspired by traditional Indian agricultural practices during the time he spent in India. He was especially impressed by how Indian farmers recycled organic waste, utilising compost made of cattle manure and crop residues to nourish the soil naturally. This inspired him to develop the Indore Method of composting in 1924, which became foundational to the organic farming movement around the world. India's sustainable agricultural practices were disrupted by the Green Revolution in the 1960s, which promoted excessive use of chemical fertilisers and pesticides. In response to these, organic farming movements took shape in the 1980s. Globally, India ranks sixth in terms of organically cultivated land, and first in terms of the total number of producers, with over 4.4 million organic farmers, according to 2021 data.

A group of Indian women farmers

Image Credit: Wikimedia Commons/ Asian Development Bank/ CC 2.0

In Their Own Words

I'm excited about the whole event! The preparations are on point. It is amazing to see students learn, change and grow while mentoring them for the Olympiad. It is interesting to see them discover new things and what they do with it!

Dmitrijs Docenko
(Leader, Latvia)

We prepared for IOAA 2025 by referring to previous years' question papers and reference books on astronomy. Some of us also attended astronomy training courses for secondary school students, where we were trained for all stages of the IOAA.

Yiu Sing Lee, Ngo Wang Chan and Zhe Jeffrey Tang
(Contestants, Hong Kong, China)

Ahlan (hello) from Saudi Arabia! Astronomy is deeply rooted in our country's culture and there are regional legends about the constellations. Like, the Arabic name for the star Achernar, which marks the end of the constellation Eridanus, is ākhir an-nahr, meaning "end of the river".

Jude Allehyani and Mohammed Alqahtani
(Contestants, Saudi Arabia)

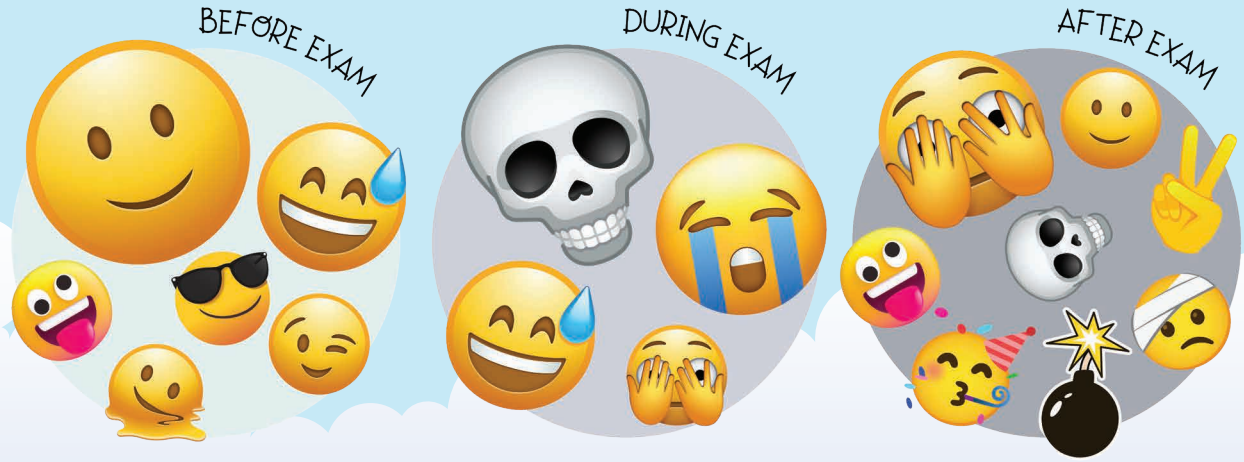
Can I tell you a fun fact? We Slovaks also call tea 'chai' in our language Slovak, just like Hindi.

Ladislav Hric
(Leader, Slovakia)

I have pursued Radioastronomy for quite a while, so I'm really excited to visit GMRT.

Kyoung Hee Kim
(Leader, South Korea)

Emoji Rapid Fire: Your Mood



Note: The icon size is roughly proportional to the number of votes the emoji received.

Feature

Vera Rubin

(23 July, 1928 - 25 December, 2016)

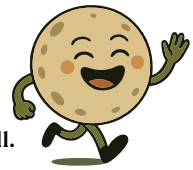
Image Credit: Wikimedia Commons/ NOIRLab/NSF/AURA / CC BY 4.0

Have you ever looked up at the stars and wondered what's holding them there? Vera Rubin did, and she found something huge hiding in plain sight! When Vera looked at how galaxies spin, she saw something strange: the stars on the edges were moving way too fast. According to what we knew, they should have flown off into space! This meant something invisible was holding them together. That "something" is called dark matter, and Vera's careful work helped prove it exists. In fact, the dark matter makes up most of the universe! She also studied how galaxies move and how stars are spread across the universe.

Vera's journey wasn't easy. In many countries in 1960's, astronomy was "not for women." Some of the research facilities didn't even have women's restrooms. Vera ignored it, taped a drawing of a woman on the men's bathroom door, and went back to work.

Vera began by looking at the stars from her bedroom window through cardboard telescopes she made with her dad. Today, the Vera C. Rubin Observatory in Chile, named after her will help us keep discovering more about our universe. So keep looking up, keep asking questions!

Why did the Moon skip dinner?



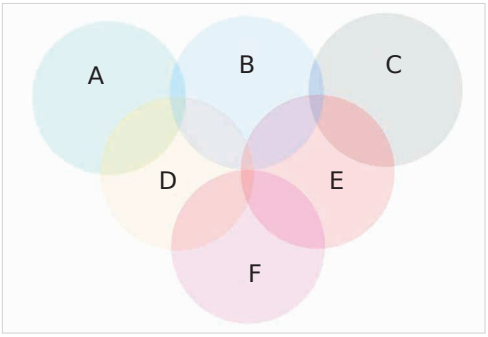
It was full.

Image by: Dev Verma

HBCSE, the host institute of IOAA 2025, **celebrated Independence Day** by hoisting the national flag on its campus.

Celestial Collaboration Quest

A, B, C, D, E, and F represent six space research stations, each specialising in a distinct celestial phenomenon (such as black holes, comets, exoplanets, etc.). The Venn diagram above illustrates the overlaps in research collaborations between these stations based on the additional celestial phenomena they study beyond their primary focus. Note that the overlaps between the following station pairs are equal in size:
B∩D, E∩B, E∩F, F∩D, A∩D, and E∩C.
Similarly, E∩D, A∩B, and B∩C are also equal in size.



Mark the following statements as true or false:

1. Only stations D and E study the widest variety of celestial phenomena.	
2. Stations B and F have an equal proportion of their researchers involved in secondary studies.	
3. The proportion of researchers working on a secondary topic at stations A and C is the same.	
4. Stations A, B, and C are involved in the fewest additional research areas.	
5. Four different celestial topics are studied at both stations D and E.	
6. Three different celestial topics are studied at both stations F and A.	

Hot Takes for a Hotter Earth

I am only one, but still I am one. I cannot do everything, but still I can do something;
And because I cannot do everything, I will not refuse to do the something that I can do.

Hint to yesterday's Jupiter Jumble

Here are the words that were hidden in yesterday's puzzle. Their exact locations are still yours to find! CALLISTO, GANYMEDE, GREAT RED SPOT, IO, MAGNETO SPHERE, EUROPA, GAS GIANT, HYDROGEN, JUNO, ZEUS

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Design and Layout: Mohamed Hakif P
Printed by: Ekvira Enterprises, Mumbai

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