



## DEPARTMENT OF PHYSICS

**Report Submission: 22/06/2026**

|                                               |  |                                         |                                                |
|-----------------------------------------------|--|-----------------------------------------|------------------------------------------------|
| <b>Semester: EVEN</b>                         |  | <b>Academic Year: 2025–26</b>           | <b>Venue: Vainu Bappu observatory, Kavalur</b> |
| <b>Event</b>                                  |  |                                         |                                                |
| <b>Date:</b><br>14/05/2026<br>&<br>15/05/2026 |  | <b>Time:</b><br>09:00 AM to<br>06:00 PM | <b>Duration: 2 days</b>                        |

### TYPE OF EVENT: INDUSTRIAL VISIT

**EVENT NAME: Academic Visit to Vainu Bappu Observatory, Kavalur**

|                         |                                           |                                   |
|-------------------------|-------------------------------------------|-----------------------------------|
| <b>Target Audience:</b> | <b>B.Sc. &amp; M.Sc. Physics students</b> | <b>Number of Participants: 27</b> |
|-------------------------|-------------------------------------------|-----------------------------------|

### Objectives:

1. To gain practical exposure to observational astronomy and astronomical instrumentation by understanding the functioning of telescopes and modern observational techniques.
2. To familiarize students with ongoing astrophysical research activities and understand how scientific observations are used to study celestial objects and phenomena.
3. To create awareness about academic and career opportunities in astronomy and space science, including higher education, internships, and research pathways.

### Program Introduction:

This report provides an overview and introduction for undergraduate (BSc) and postgraduate (MSc) Physics students getting a first-hand experience on functioning of a large aperture telescope, data taking methods and its analysis. It outlines the institute's vision, research environment, facilities, academic expectations, and the opportunities available for students to engage in research and professional development.



**Theme of the Event:** “Cosmic Horizons: Exploring Astronomy Beyond the Classroom”

This academic journey to Vainu Bappu Observatory inspires students to explore the mysteries of the universe through observation, learning, and scientific curiosity. Beyond textbooks and classrooms, the trip offers a unique opportunity to experience astronomy firsthand under the vast cosmic sky.

**Detailed Report:**

The academic trip to the Vainu Bappu Observatory offered students an excellent opportunity to experience observational astronomy and understand how modern astronomical research is conducted in India. The observatory, operated by the Indian Institute of Astrophysics, is located in the Javadi Hills of Tamil Nadu and is one of the country's leading optical observatories. Established in the late 1960s under the vision of Indian astronomer M. K. Vainu Bappu, the site was selected for its dark skies, stable atmosphere, and favourable climatic conditions for astronomical observations. The visit encompasses wide range of discussions that includes telescopes, instrumentation facilities and ongoing research at the observatory.

The observatory houses several **important facilities and telescopes** that support scientific research. These include-

- The 38 cm telescope,
- The 75 cm reflector,
- The 1 m Carl Zeiss telescope,
- The famous 2.3 m Vainu Bappu Telescope, which was once among the largest optical telescopes in Asia.

The observatory is also equipped with **advanced instrumentation facilities** such as-

- CCD imaging systems,
- Spectrographs, telescope control systems,
- Data processing units that enable precise astronomical observations.

**Ongoing research at the observatory** focuses on-



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- Stellar evolution,
- Variable stars and galaxies,
- Active galactic nuclei,
- Exoplanet studies,
- Transient astronomical events,
- Spectroscopy-based investigations.

Scientists use observational data to understand the structure and evolution of celestial objects and physical processes in the universe.

For students, the visit served as a valuable learning experience by connecting classroom concepts with real scientific practice. Students gained insight into telescope operation, observational techniques, data collection, and astronomical analysis.

The visit also highlighted future opportunities through internships, summer projects, research fellowships, postgraduate studies, and career pathways in astrophysics, instrumentation, and space science.

**Geotagged Photographs: (With Captions)**



**Students and faculties at the entrance of the Vainu Bappu Observatory.**



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**On the way to the telescope tower.**



**Talk on inner working of the Vainu Bappu telescope and data analysis.**





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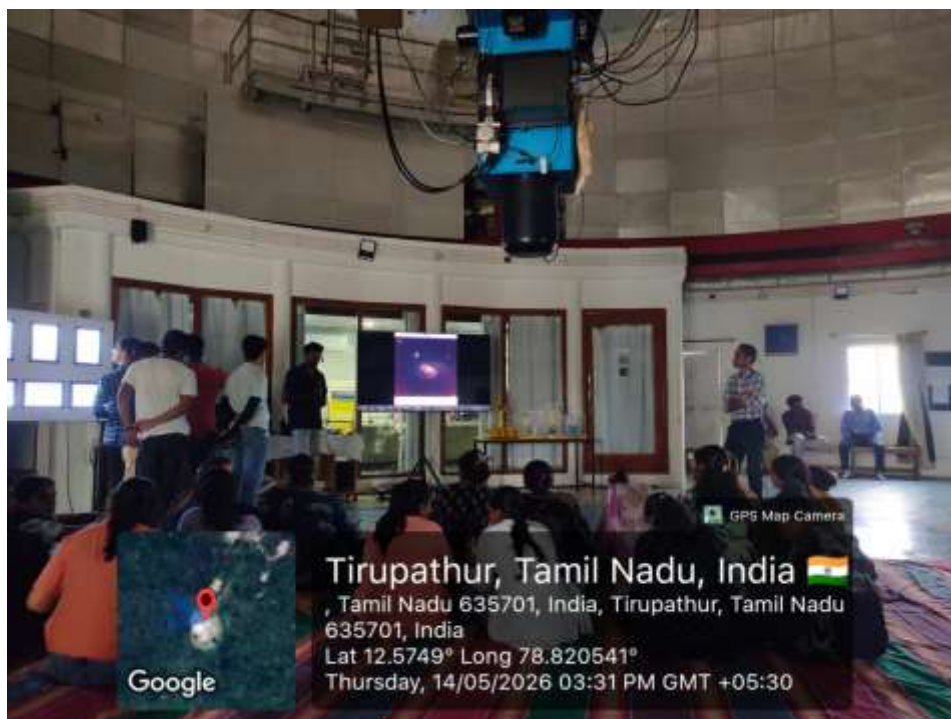
**The Vainu Bappu Telescope.**



**Demonstration of opening of the telescope dome.**



**Demonstration of tilting of the telescope to capture vast sky above horizon.**



**Question & answer session after the talk.**



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**Picture with the speaker and telescope after the demonstration.**



**Group photo in front of the telescope tower.**

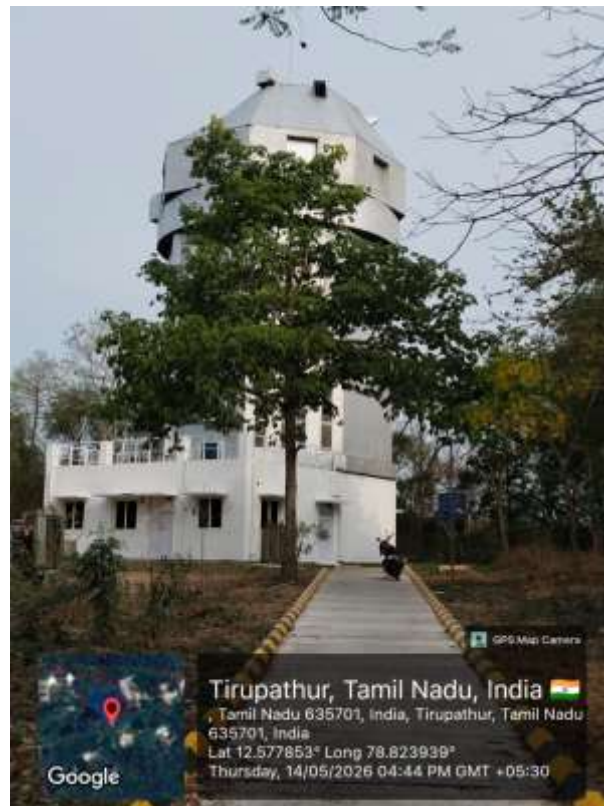




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**Another telescope tower inside the observatory.**



**J. C. Bhattacharya telescope.**





### **Outcomes:**

**1. Enhanced Understanding of Observational Astronomy:**

Students gained practical exposure to astronomical observations, telescope operation, and the use of scientific instruments, helping them connect theoretical knowledge with real-world applications.

**2. Development of Research Awareness and Scientific Skills:**

The visit introduced students to ongoing astrophysical research, data collection, and analysis techniques, improving their understanding of scientific methodology and research practices.

**3. Career and Academic Motivation:**

Students became aware of future opportunities in astronomy and space science through internships, higher studies, research fellowships, and careers in astrophysics and scientific instrumentation.

### **Conclusion :**

The academic trip to the Vainu Bappu Observatory was an enriching and insightful experience for the students. It provided valuable exposure to observational astronomy, advanced telescope facilities, and ongoing scientific research. The visit helped bridge the gap between theoretical learning and practical applications while inspiring students to explore future opportunities in astronomy, astrophysics, and scientific research.



**Student Feedback:**

