



NIHARIKA – IACS

NATIONAL SPACE DAY

2026

Venue: **MLS Hall, IACS**
Dates: **22nd & 23rd August, 2026**

Schedule: Day 1

**09:00 A.M.-
10:00 A.M.**

Registration for Day - 1

**10:00 A.M.-
11:00 A.M.**

Inauguration & Welcome Address

**11:00 A.M.-
12:15 P.M.**

Invited Talk - 1

**Photon Rings, Shadow and Portrait of
Hidden Giants**

Prof. Ratna Koley, Presidency University

**12:15 P.M.-
01:00 P.M.**

Oral Presentations (Part - 1) (12 + 3 Minutes)

**01:00 P.M.-
02:00 P.M.**

Lunch

**02:00 P.M.-
03:15 P.M.**

In-House Lecture

Have we understood Gravity?

Prof. Sumanta Chakraborty, IACS Kolkata

**03:15 P.M.-
05:00 P.M.**

Telescope Session (Subject to Sky Conditions)



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Schedule: Day 2

**09:00 A.M.-
10:00 A.M.**

Registration for Day - 2

**10:00 A.M.-
10:45 A.M.**

Joint Programme by ISAAC & Niharika

**10:45 A.M.-
11:45 A.M.**

Oral Presentations (Part - 1) (12 + 3 Minutes)

**11:45 A.M.-
01:00 P.M.**

Poster Presentation

**01:00 P.M.-
02:00 P.M.**

Lunch

**02:00 P.M.-
03:15 P.M.**

Invited Talk - 2

**Wormholes - A shortcut Path in
spacetime: A student perspective**

Prof. Farook Rahaman, Jadavpur University

**03:15 P.M.-
05:00 P.M.**

Magaj-Astro Quiz Competition

**05:00 P.M.-
05:30 P.M.**

Prize Distribution & Concluding Address



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Time: 11:00 A.M.

Invited Talk – 1

Photon Rings, Shadow and Portrait of Hidden Giants

Prof. Ratna Koley, Presidency University

Karl Schwarzschild found the first exact black hole solution to Einstein's equation back in 1916. Yet, despite being among the most fascinating predictions of Einstein's General Relativity, black holes cannot be observed directly, since no electromagnetic signal can escape from within their photon ring. Recent developments in horizon scale imaging, most notably by the Event Horizon Telescope (EHT), have opened an unprecedented window into the strong field regime of gravity. A major milestone in this journey was the first portrait of two hidden giants – the supermassive black holes at the centers of M87 and SgrA*. Black holes, however, are not the only possible massive compact objects predicted by theories of gravity. Einstein's General Relativity and its extensions can allow for alternative compact configurations, such as wormholes, dark stars, and other exotic compact objects. These objects may leave distinctive imprints on the propagation of light and, consequently, on the images observed by distant observers. In this talk, I will provide a brief overview of the light propagation in the vicinity of massive compact objects and discuss about shadow formation. I will then explore the properties of shadows and photon rings associated with astrophysical black holes and other compact objects, along with their potential observational signatures. Finally, I will discuss the current observational status and future prospects of horizon scale imaging, and examine to what extent present and upcoming measurements can help us distinguish classical black holes from exotic compact objects and unveil the nature of these hidden giants.



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Time: 02:00 P.M.

In – House Lecture

Have we understood Gravity?

Prof. Sumanta Chakraborty, IACS Kolkata

In this talk, I will first show the giants, responsible for effectively building a theory of gravity that we know today. Then I will demonstrate how the Event Horizon Telescope and the Gravitational Wave detectors are shaping modern day research in gravity. Finally, I will present the future ahead in the field of gravitational Physics.



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Invited Talk – 2

Wormholes – A shortcut Path in spacetime: A student perspective

Prof. Farook Rahaman, Jadavpur University

Wormholes are fascinating theoretical structures in general relativity that may provide shortcuts between distant regions of spacetime. This lecture presents a student-level introduction to the concept of wormholes, focusing on their geometry, physical interpretation, and possible traversability. We briefly discuss how wormholes arise as solutions of Einstein's field equations, the role of the throat and exotic matter in maintaining their structure. The aim is to provide an accessible perspective on wormholes while highlighting their significance in modern gravitational physics and the challenges involved in establishing their physical existence.



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Oral Presentations – Part 1

Thermodynamic Analysis of a Dehnen (1,4,3/2) Halo Black Hole in Kaniadakis Entropy

Rudranil Sahu, Presidency University

Testing Radiation-Pressure-Driven Cloud Dispersal Against JWST-Derived Star Cluster Emergence Timescales

Kompella Venkata Subramanyam, IEST Shibpur

Geometry- A common language of the quanta and the cosmos

Shrang Mishra, IACS Kolkata

Oral Presentations – Part 2

Asteroids: Quest for Cosmic Fossils

Anubhab Das, RKMVCC

Finding Jadoo: The Science of Life Beyond Earth - Recent Advances and Emerging Frontiers in Astrobiology

Asmit Jana, IACS Kolkata

Dark Energy: The accelerated expansion of universe

Mrinmay Das Adhikary, Presidency University

Possibilities Beyond

Sagnik Chatterjee, IEM Kolkata



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Poster Presentations

Observational Constraints on Quintessence Models using BAO Surveys and SNe Ia Pantheon+ Datasets

Anustup Biswas, IIT Kharagpur

Fragmentation and Core Dynamics in the High-Mass Star-Forming Clump G353.41-0.36

Asmito Ghosh, IACS Kolkata

Artemis II: Paving the Way for Humanity's Return to Deep Space

Jayosmita Pal, Calcutta University