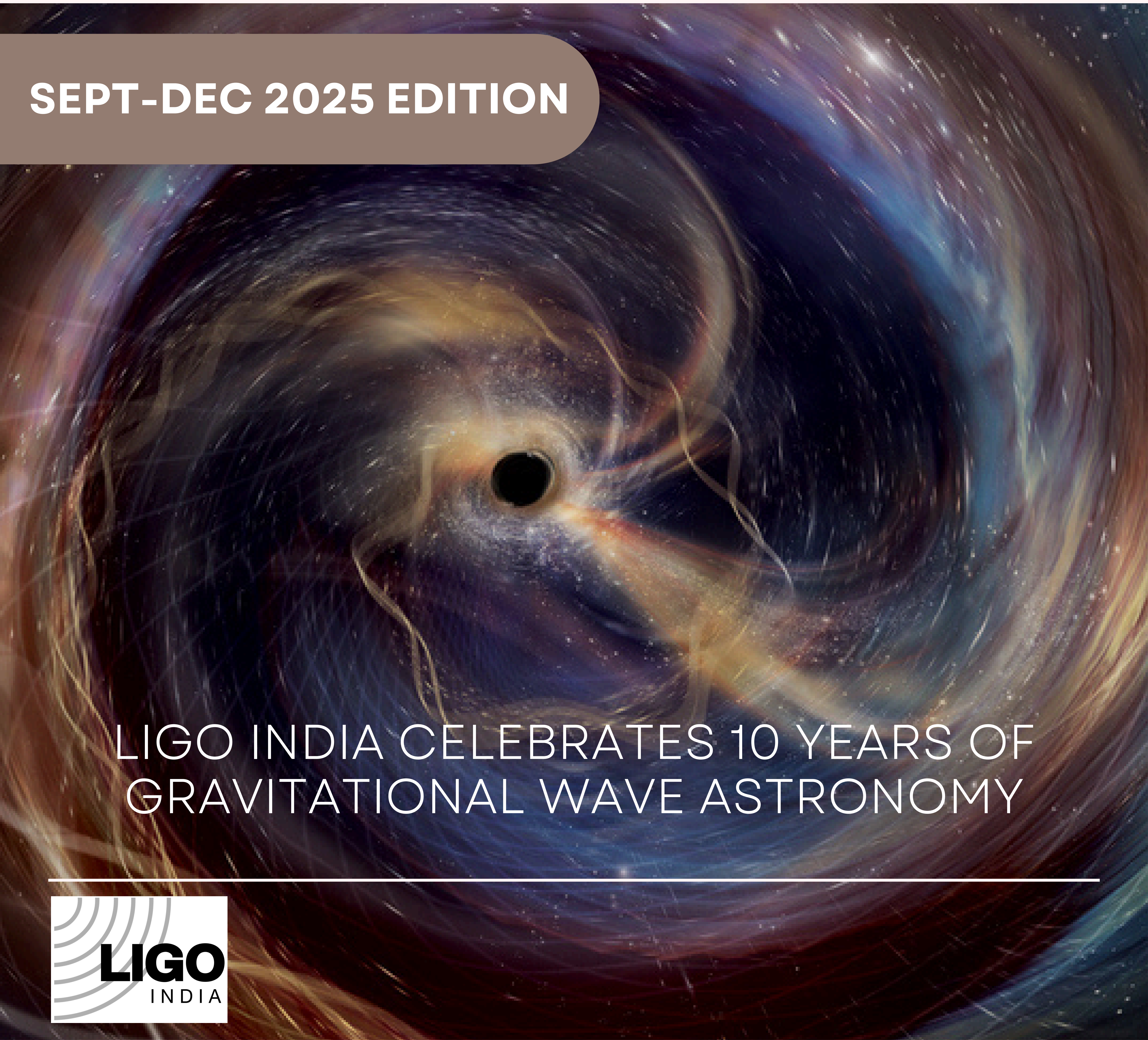
CHASING RIPPLES

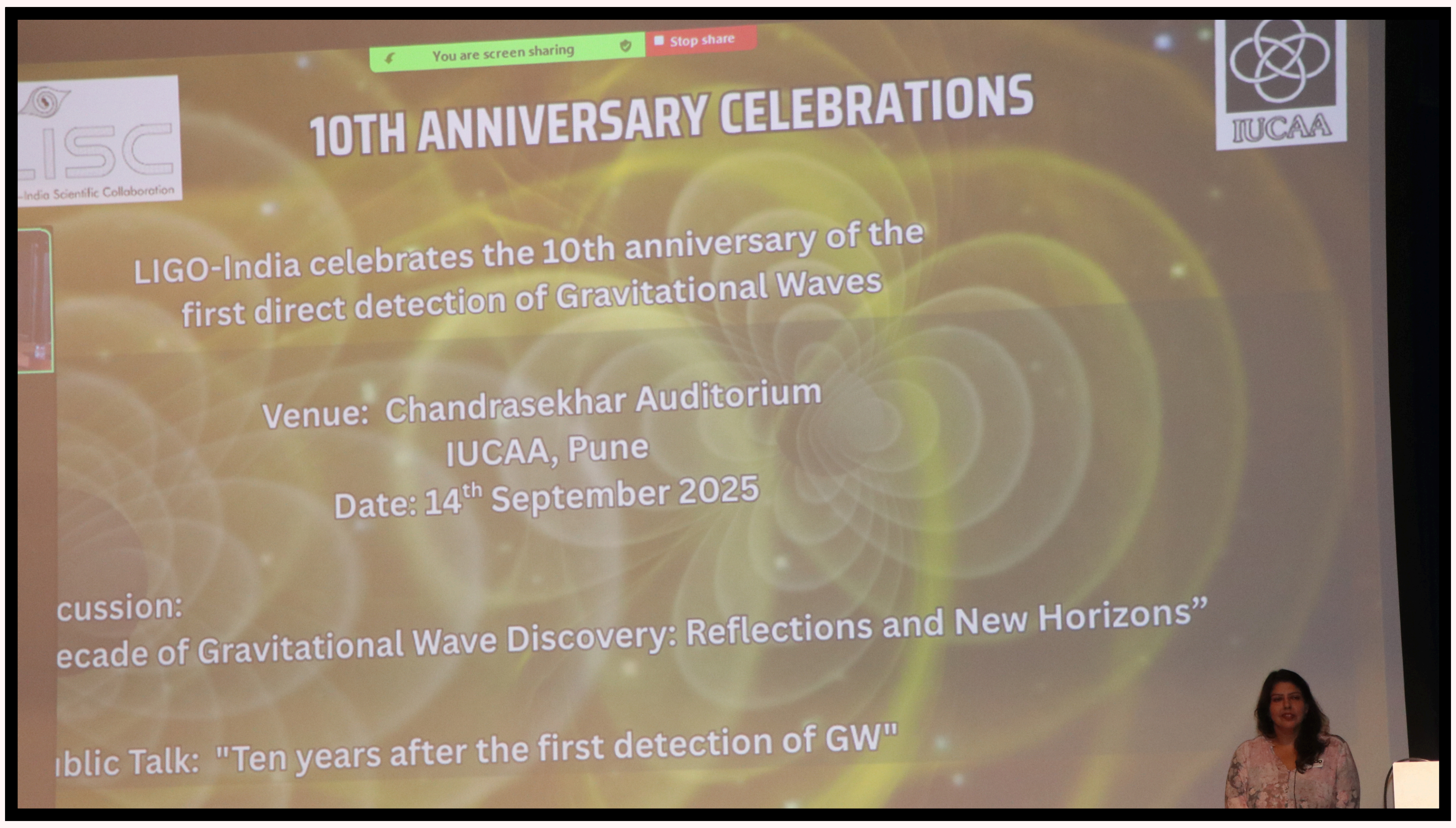
E-MAGAZINE BY LIGO-INDIA
EDUCATION & PUBLIC OUTREACH

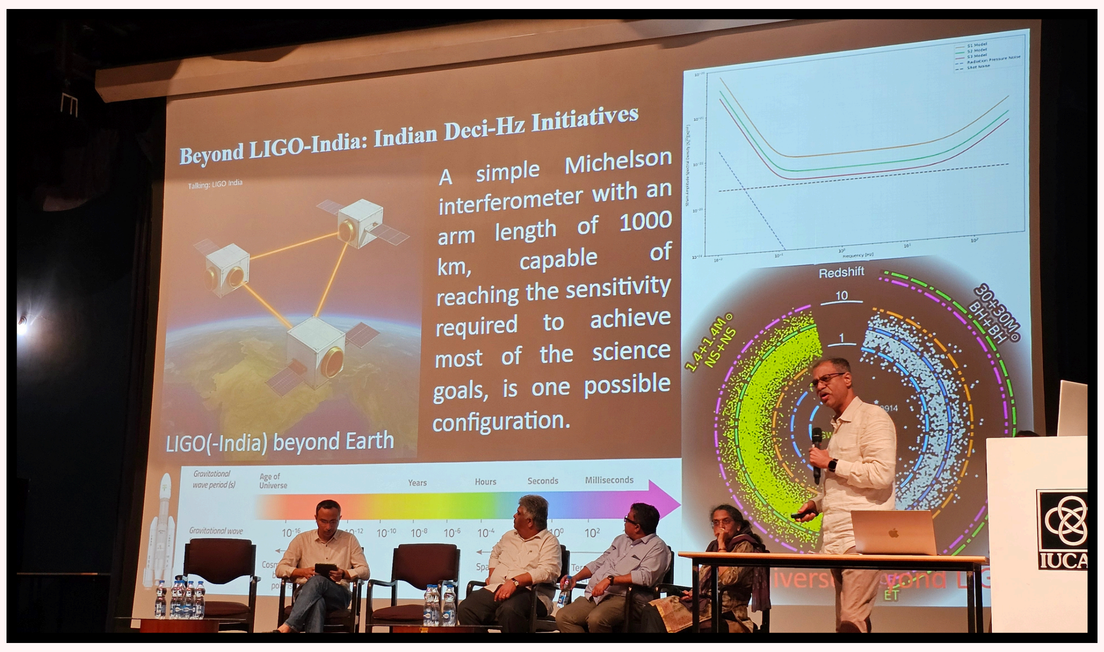


SEPT-DEC 2025 EDITION

LIGO INDIA CELEBRATES 10 YEARS OF GRAVITATIONAL WAVE ASTRONOMY

10 YEARS OF GW SCIENCE

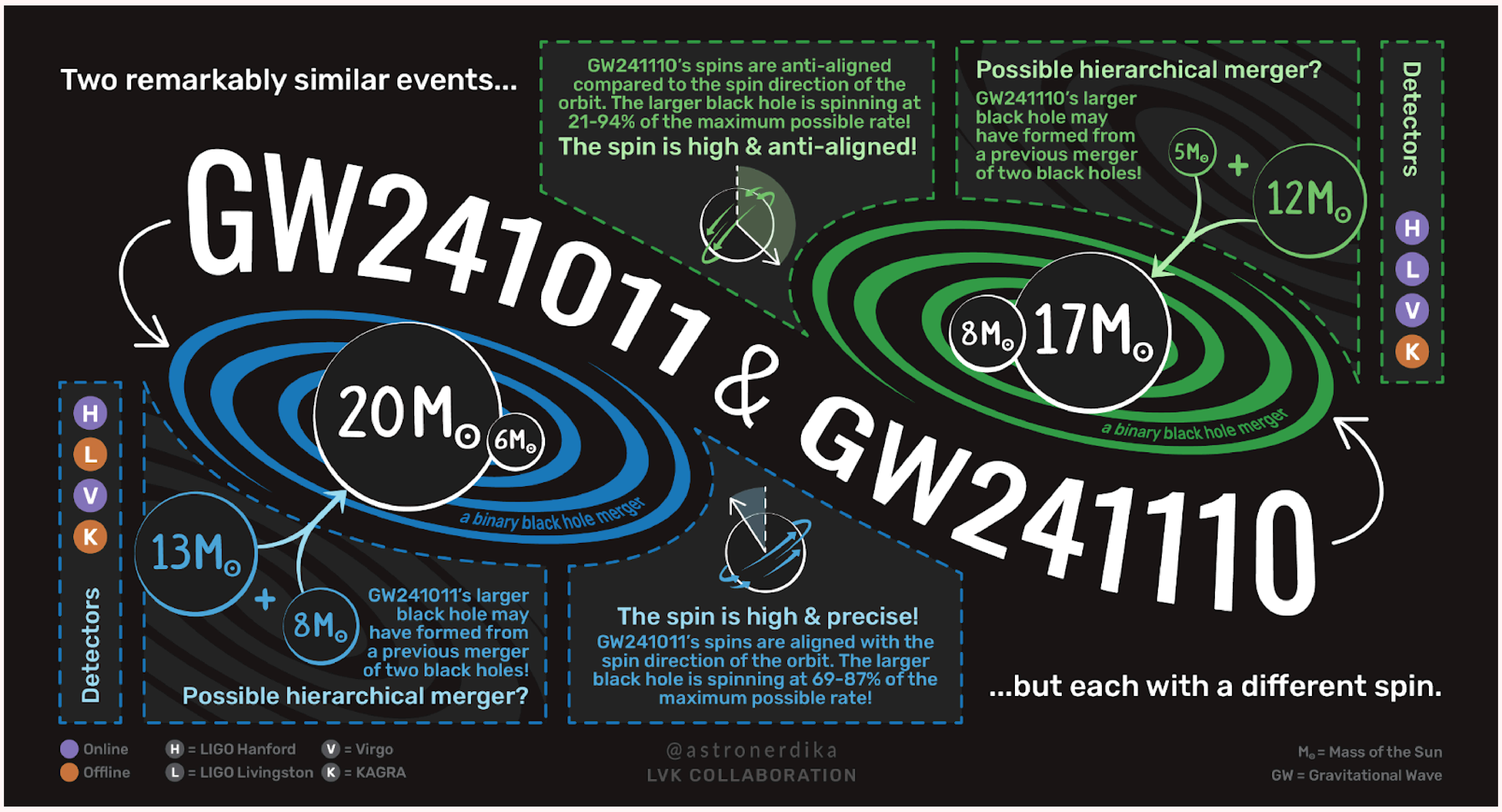




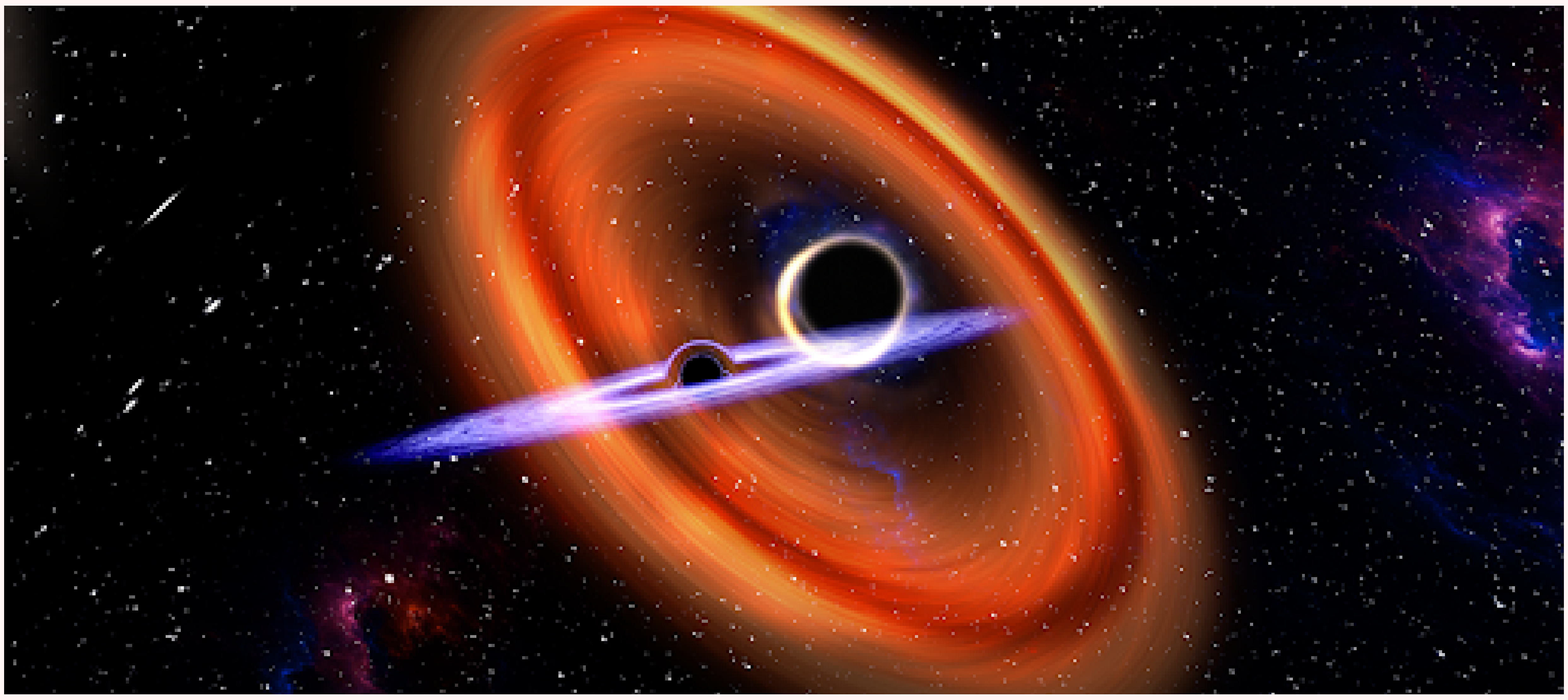
LIGO-India celebrated the 10th Anniversary of the first direct detection of Gravitational waves with a one-day programme at the Inter-University Centre for Astronomy and Astrophysics, Pune, on 14 September 2025, marking a decade of gravitational-wave astronomy in India. The event featured a panel discussion with senior scientists from the LIGO-India Scientific Collaboration (LISC), revisiting the first GW detection, the evolution of GW and multi-messenger astronomy, and future prospects including LIGO–India and the planned future detectors.

A major highlight was the announcement of the exceptional discovery GW250114. The programme also included interactive GW science games such as the “Guess What” Quiz and “Astro Charades” with LISC students, followed by an engaging public talk by Prof. Sanjeev Dhurandhar, reflecting on past milestones and future directions of GW research in India. Click here to know about other events across LISC institutes.

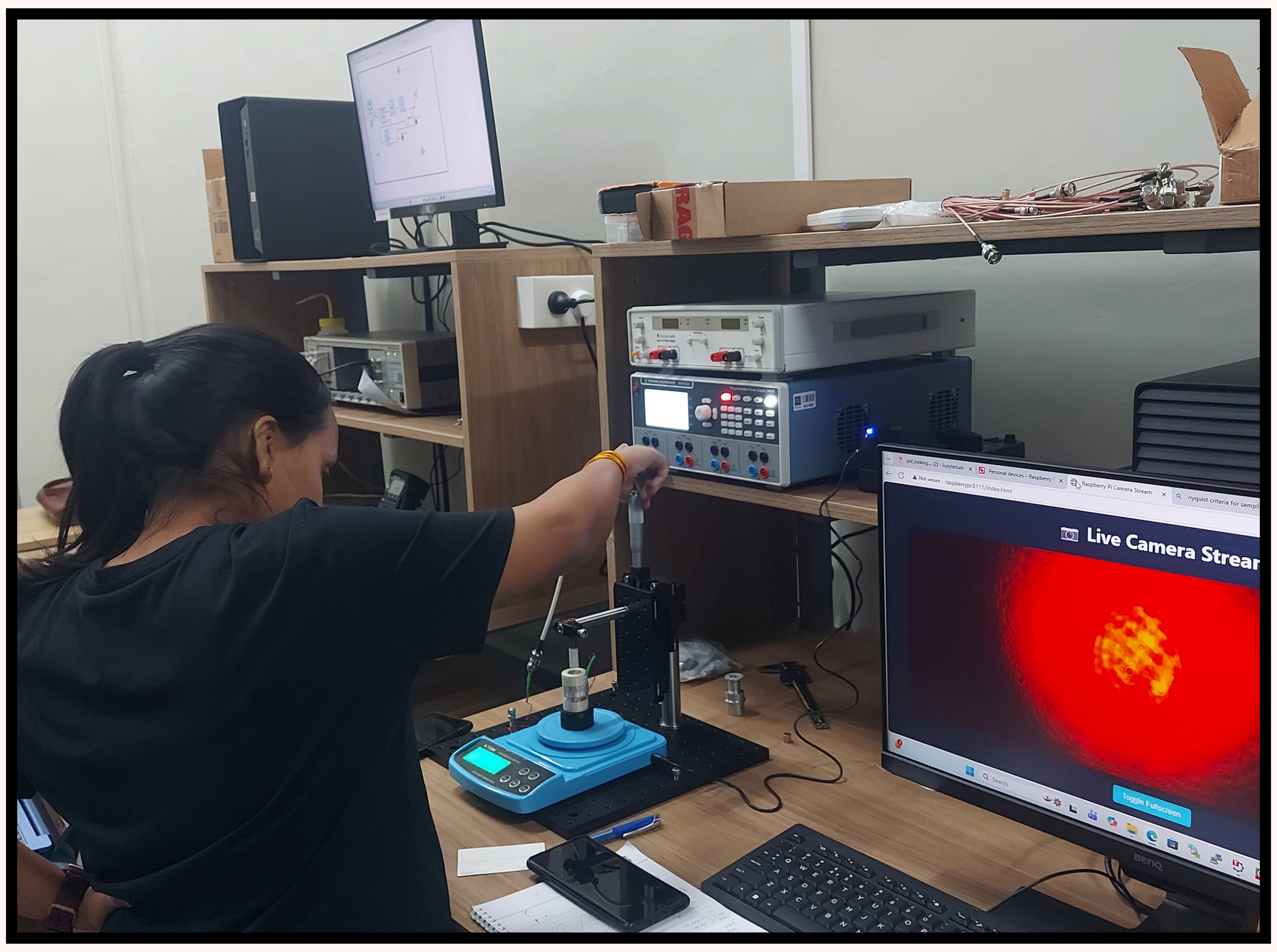
EXCEPTIONAL EVENT GW241011 & GW241110



A pair of distant cosmic black hole mergers, measured just one month apart in late 2024, is improving how scientists understand the nature and evolution of the most violent deep-space collisions in our Universe. Data collected from the mergers also validates, with unprecedented accuracy, fundamental laws of physics that were predicted more than 100 years ago by Albert Einstein and furthers the search for new and still unknown elementary particles with the potential to extract energy from black holes. More details on our news page.



GRAVITATIONAL WAVES INSTRUMENTATION WINTER WORKSHOP 2025



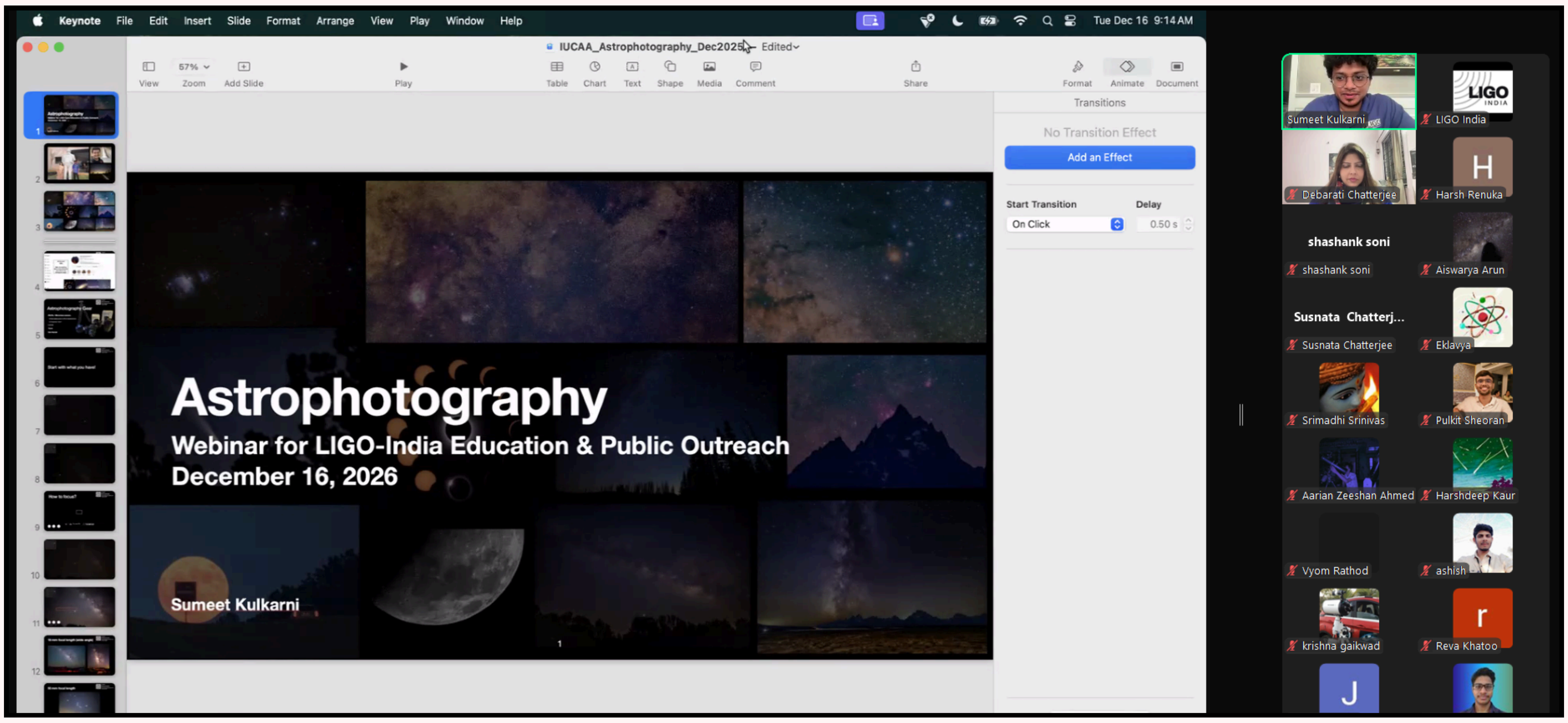
As part of its training programme, LIGO–India organised the Gravitational Wave Instrumentation Winter Workshop (GWIW) 2025 from 30 Nov to 13 Dec, highlighting a comprehensive programme designed to introduce participants to the fundamentals and advanced aspects of gravitational-wave detectors. The workshop covered the basics of gravitational waves and their detection, along with key technical topics such as interferometer sensing and control, suspensions, seismic isolation, and data acquisition, feedback control, detector characterisation, and calibration, providing a broad overview of the science and technology behind GW observatories.

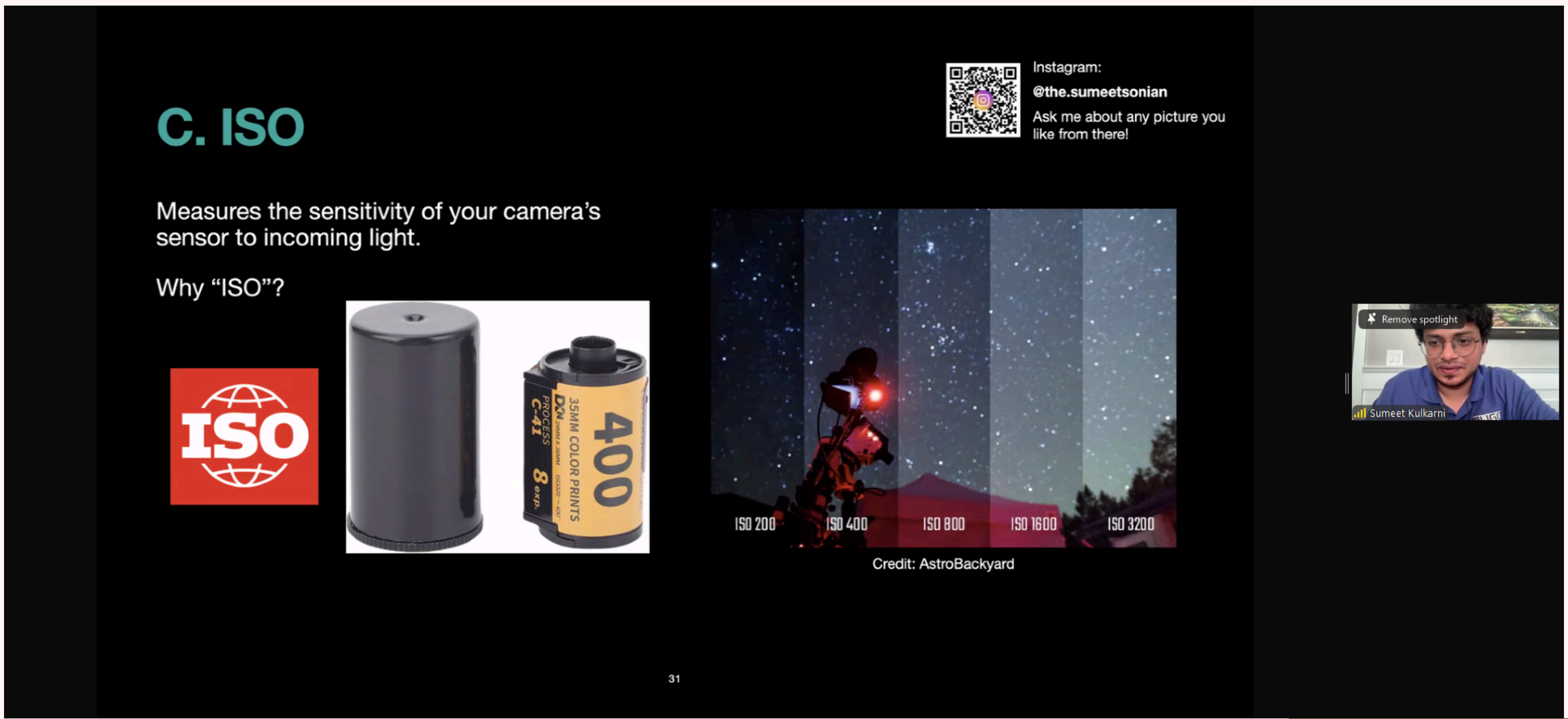
More details <u>here</u>

Build-a-Detector WORKSHOP

LIGO-India EPO organized the 2025 **Build-a-Detector workshop,** in collaboration with the University of Glasgow (UK), from 10th to 21st Nov. The workshop taught students about gravitational wave science and the necessary considerations taken in order to design and concept-build a gravitational wave detector, as well as the likely signals to be measured. A set of lectures was given on the main budget noises and possible sources to detect. The last three days of the workshop were focused on the teams designing their own gravitational wave detector with its own noise budget and source plot. The winning team will get a chance to present their design at the University of Glasgow.

ASTROPHOTOGRAPHY WEBINAR





To promote astronomy among a broader audience, LIGO-India EPO is organising contests and webinar series on Astrophotography. On 16 Dec, astrophysicist and award-winning science communicator Dr. Sumeet Kulkarni was invited as the guest speaker to deliver an Astrophotography Webinar. The session offered participants valuable insights into the art and science of capturing the night sky, blending technical guidance with creative perspectives. Dr. Kulkarni's engaging presentation inspired aspiring astrophotographers and astronomy enthusiasts alike, making the webinar an enriching learning experience and a highlight of the LI-EPO initiative to promote interest in astronomy and space science.

FILM SCREENING: *BENDING LIGHT*

The screening of the documentary film “Bending Light” was organised on 27th Nov at the Jawaharlal Nehru Planetarium, Bengaluru by the Raman Research Institute (RRI) and on 29th Nov at the Indian Institute of Technology (IIT) Bombay. The documentary highlights the historic race to test Albert Einstein’s General Theory of Relativity during the 1922 expedition.

The film features insights from Prof. Archana Pai of IIT Bombay and Prof. Annapurni Subramaniam from the Indian Institute of Astrophysics (IIA), Bengaluru. The screening attracted enthusiastic participation from students and researchers, with over 50 participants attending the event at JNP and around 75 participants at IIT Bombay, making it a successful outreach initiative that fostered interest in gravitational physics and the history of science. The event was facilitated by LIGO-India Education and Public Outreach (EPO).

TECH FESTS

IIT Bombay

LIGO India Education and Public Outreach participated in **IIT Bombay Techfest**, on 22 - 24 Dec, engaging the public by spreading awareness about gravitational wave science through interactive and hands-on exhibits. Visitors explored working models such as a Michelson interferometer, enjoyed the GW photobooth, and learned from informative posters explaining gravitational waves and LIGO science.

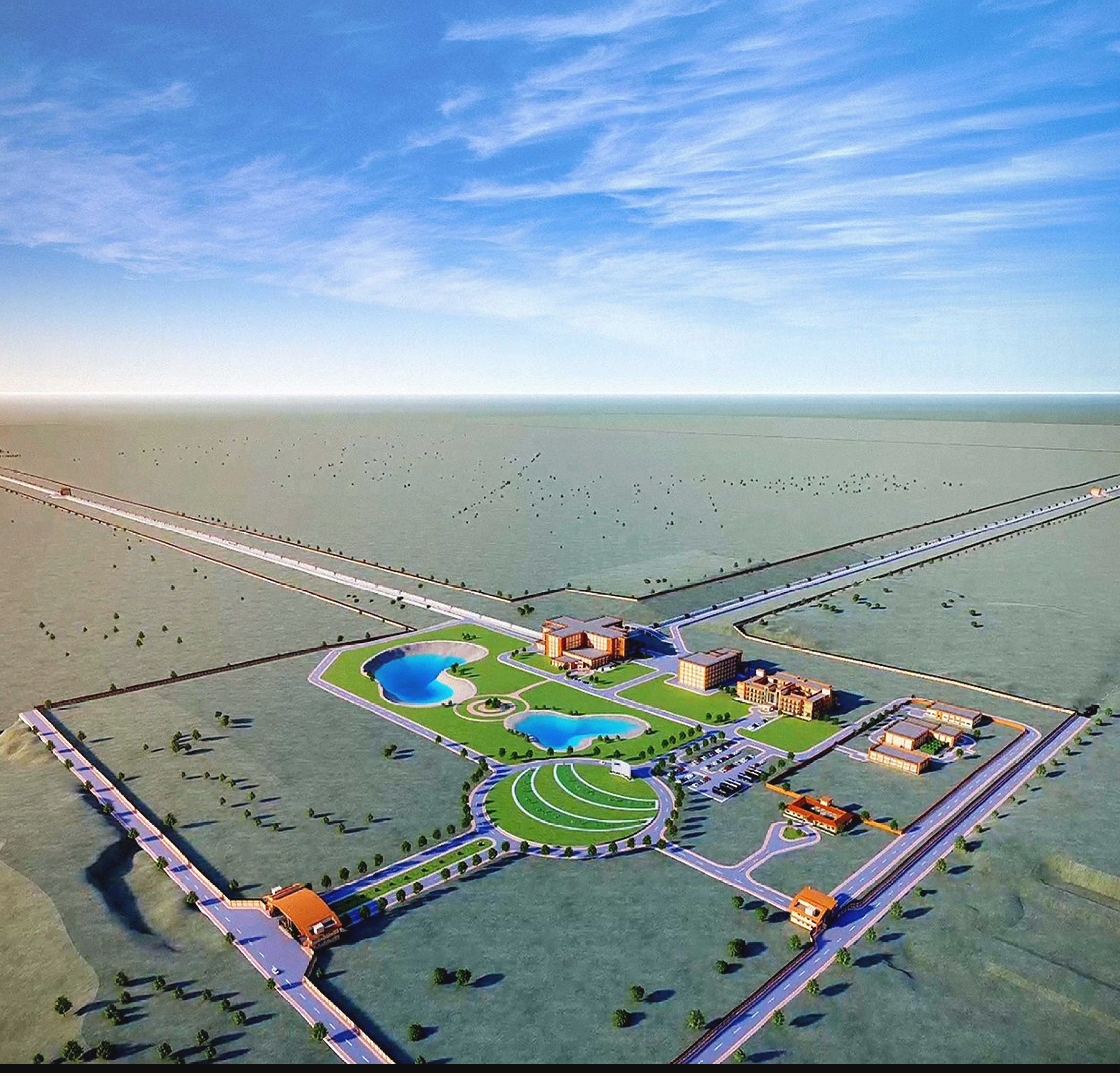
OUR TEAM AT LIGO-INDIA EPO

Debarati Chatterjee
Chair LI-EPO

Saurabh Salunkhe
Senior outreach coordinator

Harsh Satam
Intern

Aarya Thuse
Intern



CONTACT US

LIGO-India Education & Public Outreach
ligoindiaepo@gmail.com
ligo-india-outreach@iucaa.in

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