

IUCAA Press Release on the LIGO-India approval

Union cabinet grants 'in principle' approval to the LIGO-India mega science proposal -- presents Indian science and technology with a challenging opportunity to take global leadership at the new frontier of gravitational wave astronomy.

Approval has been granted by the Union cabinet to the LIGO-India mega science proposal on Feb. 17, 2016. LIGO-India will establish a state-of-the-art gravitational wave Advanced LIGO detector on the Indian soil in collaboration with LIGO Laboratory, led by Caltech and MIT, USA.

The approval from the Government of India coinciding with the historic discovery of gravitational waves, announced by the international LIGO Science collaboration on February 11, 2016, makes an emphatic statement of the government's support to the rising aspirations of Indian science to make a far-reaching impact in the global arena of Science and Technology, and to provide opportunity to the country's youth to proudly look forward to careers in international-level science research within the country.

The LIGO-India proposal was made to the Mega-science committee of the Planning commission of India in Nov 2011 by the Indian Initiative in Gravitational-wave Observations (IndIGO) consortium (<http://www.gw-indigo.org>). The LIGO-India project will be jointly coordinated and executed by three premier Indian lead institutions: the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune of the University Grants commission, with DAE organisations, Institute for Plasma Research (IPR), Gandhinagar and the Raja Ramanna Centre for Advanced Technology (RRCAT), Indore. LIGO-India will be jointly funded by the Department of Atomic Energy (DAE) and the Department of Science and Technology (DST).

RRCAT, who has expertise in lasers and IPR, with expertise in the high vacuum and cryogenic systems, will be the institutions who will be responsible for execution of the project while IUCAA, the key science stakeholder of LIGO-India will be responsible for the science teams, human resources development, data acquisition and scientific data computation. Under an MoU, IUCAA would continue to extend logistic support to the IndIGO consortium of researchers in this field

spread over a dozen premier institutions, namely, the IITs at Gandhinagar, Madras (Chennai), Kanpur; IISERs at Trivandrum, Kolkata and Pune, Chennai Mathematical institute, ICTS center of TIFR, Bangalore and the University of Delhi. The IndIGO consortium welcomes wider participations in this frontier science project from other leading universities and other institutions nationwide.

The global science community is unanimous that the key to the future of Gravitational wave science, beyond the initial detections, lies with the LIGO-India observatory in India. Our geographical location is strategic. Only with a detector in a location such as India, which is on the other side of the Earth from the two detectors in the USA, can the location of the sources of these Gravitational waves be identified and followed up by the full range of existing astronomical facilities spanning the entire spectrum from radio frequencies to high energy X-ray and gamma rays. This includes key Indian Astronomy facilities, such as the recently launched Astrosat satellite of ISRO, and the Giant Metrewave Radio telescope (GMRT) built exclusively in India and run by NCRA-TIFR. The identification of sources of gravitational waves, would open a new window to the Universe, in a way similar to how Galileo's telescope opened up the Universe, via electromagnetic waves such as normal light, ultraviolet and X-rays, to us four centuries ago.

LIGO-India will be a frontier science experiment on Indian soil. It will involve laser, optics, vacuum and control system technologies at cutting edge of global capabilities and bring together the best in fundamental science and high end technology available in Indian national research laboratories, IITs, IISERs and the Universities. LIGO-India will also have extensive involvement of Indian industry in the construction of the 8 kilometers of beam tube maintained at ultra-high vacuum on a levelled terrain. The cost of LIGO-India to India is expected to be almost all expended in industries and laboratories within the country. It would serve as an internationally visible flagship for Industry-Academia partnership in India adding the element of 'discover in India' to the 'Make in India' initiative.

Contacts at IUCAA, Pune :

Prof. Tarun Souradeep (tarun@iucaa.in, mob: +91-9422644463)

Prof. Somak Raychaudhury (somak@iucaa.in, mob: +91-9168781888)