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Dear Dr. Srivastiva,

The LIGO Laboratory has completed construction of Advanced LIGO, a second-generation gravitational wave detector that promises to usher in the era of gravitational wave astronomy through the direct detection of gravitational waves. As part of the Advanced LIGO observatory network, we had been actively pursuing the possibility of locating one of the three Advanced LIGO interferometers overseas, with possible locations including Australia ('LIGO-Australia') and India ('LIGO-India'). Because of long-standing collaborative ties, Australia started as our number one priority for hosting an interferometer. The purpose of our letter is to inform you that as of October 1, 2011 LIGO Laboratory no long pursued Australia as a host country. *LIGO-India is currently the only candidate for an overseas detector being evaluated by the LIGO Laboratory.*

Let us briefly summarize LIGO and the rationale for proposing LIGO-India. The LIGO project is the largest science project funded by the US National Science Foundation (NSF), and is designed to open the field of gravitational-wave astrophysics through the direct detection of gravitational waves. LIGO Laboratory operates two observatories in the US located at Hanford, WA and Livingston, LA. The LIGO interferometers operate jointly with the Virgo and GEO600 interferometers to make up the global ground-based gravitational-wave network. Operating in conjunction with the two US-based LIGO interferometers and the Virgo and GEO (both located in Europe), LIGO-India would become the southernmost detector in the network. Recent studies have quantified the scientific benefits of locating an interferometer in India, providing a strong motivation to seek a joint partnership with India.

LIGO Laboratory is proposing to provide the instrument components already fabricated for one of the three Advanced LIGO interferometers to LIGO-India. India in turn would provide i) an infrastructure equivalent to the US Advanced LIGO observatories and ii) operational costs for at least 10 years once construction is completed. The cost for the interferometer that LIGO proposes to supply to LIGO-India is approximately US$140M, including design, development, and hardware. LIGO-India could be operational early in the lifetimes of the next generation detectors (Advanced LIGO, Advanced Virgo, and GEO-HF) and would make a fundamental contribution by launching the era of gravitational wave astronomy. The revolutionary nature of LIGO science and technology is such that it should serve to attract a substantial number of young Indian scientists from related fields in physics and astronomy into gravitational-wave science.

Our decision to solely consider LIGO-India has come about because of several developments, some relating to Australia and others relating to India. With respect to Australia, we have learned that it will be essentially impossible for LIGO-Australia to be funded on a time scale

commensurate with our goal to have an operational LIGO interferometer overseas by the end of this decade. On the other hand a number of positive developments related to LIGO-India have occurred in the past few months. In July 2011, IndIGO (the Indian Initiative on Gravitational-wave Observations), a consortium made up of scientists from a number of Indian institutes and universities -- IUCAA (Pune), TIFR (Mumbai), RRI (Bangalore), RRCAT (Indore), IPR (Gandhinager), IISER (Pune, Kolkata, Trivandrum), University of Dehli, IIT (Madras), and CMI (Chennai), Jamia Milia, BITS (GOA), Tezpur University, IISc (Bangalore) -- was admitted to membership in the Gravitational Wave International Committee (GWIC), whose mission is to facilitate international collaboration and cooperation in the construction, operation and use of the major gravitational wave detection facilities world-wide. IndIGO's admission to GWIC comes in recognition both of the growth of the Indian research efforts in the global gravitational-wave community and the potential that India could be a host country for a future large-scale gravitational wave detector. IndIGO also became a consortium member of the LIGO Scientific Collaboration (LSC) in September 2011. The LSC is a large (1000 person) worldwide collaboration whose missions are to detect gravitational waves, use them to explore the fundamental physics of gravity, and develop the emerging field of gravitational wave science as a tool of astronomical discovery. Most importantly, we have seen a significant growth in both the size and commitment of the experimental physics community to IndIGO and LIGO-India.

In 2011,the NSF reviewed our proposal to select LIGO-India as the preferred candidate for locating an Advanced LIGO interferometer overseas. The review panel agreed with the compelling science case that LIGO-India offers and noted that "LIGO-India is the only option actively under consideration by the LIGO Laboratory." This positive development enables us to move forward with our evaluation. There are many aspects to our evaluation, key among them the requirement by the NSF is that LIGO-India must be accomplished at no additional cost to NSF/LIGO.

TheLIGO Laboratory will work closely with the IndIGO consortium to assess the feasibility of locating one of our interferometers in India. We will be particularly focused on ensuring that observatory infrastructure and operations financial commitments are secured, that a suitable observatory site candidate has been identified, that good progress has been made on identifying a lead institute and LIGO-India Director, and that Indian institutes and laboratories with the requisite scientific talent have agreed to participate.

LIGO Laboratory views LIGO-India as a great scientific opportunity for LIGO, for India, and for the future of gravitational-wave astronomy. Please do not hesitate to contact us should you have any questions.

Sincerely yours,

David Reitze
Executive Director
LIGO Laboratory
California Institute of Technology