

**Memorandum of Understanding (LIGO-M000234-00-M)****between the****Inter-University Centre for Astronomy and Astrophysics (IUCAA)****and the****Laser Interferometer Gravitational Wave Observatory (LIGO) Laboratory****August 15, 2000**

The purpose of this Memorandum of Understanding is to establish and define a collaborative relationship between the Inter-University Centre for Astronomy and Astrophysics (IUCAA) and the LIGO Laboratory. Both parties of this agreement share the goals of observing gravitational radiation and subsequently using gravitational radiation as an astrophysical probe. This agreement is intended to further these joint goals.

1. The Gravitational Wave Data Analysis Group at IUCAA consists of Professor Sanjeev Dhurandar, Dr. Rajesh Nayak, Dr. Tapas Das and two graduate (Ph.D) students. Since IUCAA has an Associateship Programme with the universities in India, it may be possible to involve one or two associates in this collaboration. IUCAA's research under this agreement will focus on theoretical issues related to the LIGO and on issues related to signal detection, particularly in relation to the problem of detecting/observing inspirals of coalescing binaries with a network of laser Interferometric detectors.
2. The Laser Interferometer Gravitational-Wave Observatory (LIGO) Laboratory is aimed at opening the field of gravitational-wave astrophysics through the direct detection of gravitational waves. LIGO detectors will use laser interferometry to measure the distortions of the space between free masses induced by passing gravitational waves. The design, construction, and operation of LIGO is being carried out by scientists, engineers, and staff at the California Institute of Technology (Caltech) and the Massachusetts Institute of Technology (MIT).

Caltech has prime responsibility for the project under the terms of a Cooperative Agreement<sup>1</sup> with the National Science Foundation (NSF). LIGO will become a national facility for gravitational-wave research, providing opportunities for the broader scientific community to participate in detector development, observations and data analysis. LIGO welcomes the participation of outside scientists at any of these levels. LIGO is being constructed in a phased approach beginning with one three-interferometer detector system and evolving to a multiple interferometer configuration to enable simultaneous use by several gravitational-wave observation systems.

3. In entering into this Memorandum of Understanding, the LIGO Laboratory will carry out its responsibilities following the requirements of the Cooperative Agreement<sup>1</sup>.
4. The LIGO Laboratory is responsible for obtaining NSF approval of all collaborative Memoranda of Understanding with international partners, or involving NSF costs exceeding

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1. Cooperative Agreement No. PHY-9210038 between the National Science Foundation, Washington, D.C. 20550 and the California Institute of Technology, Pasadena, CA 91125, dated May 1992.

\$100,000. All Memoranda of Understanding will be provided to NSF for their information.

5. Each party to this agreement continues to be responsible for all support of its staff including travel costs associated with the activities under this agreement. Exceptional support of travel by the other institution may be allowed for travel requested by that institution.
6. This Memorandum of Understanding will remain in force until the parties mutually agree to terminate it. A semi-annual Attachment will define specific activities to be carried out during the following year.
7. The IUCAA Principal Investigator will be responsible for obtaining the necessary approvals from the IUCAA governing board.

Approved:

Barry Barish

Barry Barish  
LIGO Laboratory Director

Aug 14, 2000  
Date

S. V. Dhurandar

Sanjeev Dhurandar  
IUCAA Principal Investigator

Aug 16, 2000  
Date