

**Memorandum of Understanding**  
**between the**  
**National Astronomical Observatory, Chinese Academy of Sciences (NAOC)**  
**and the**  
**Laser Interferometer Gravitational-Wave Observatory (LIGO) Laboratory**  
**April 15, 2004**

The purpose of this Memorandum of Understanding (MOU) is to establish and define a collaborative relationship between the National Astronomical Observatory, Chinese Academy of Sciences (NAOC), People's Republic of China, and the Laser Interferometer Gravitational-Wave Observatory (LIGO) Laboratory, United States of America (USA). Both parties to this agreement share the goal of observing gravitational radiation and subsequently using gravitational radiation as an astrophysical probe. This agreement is intended to further these joints goals.

1. The National Astronomical Observatory, Chinese Academy of Sciences (NAOC), People's Republic of China is an astronomic observation institute that will host and support the construction of a prototype interferometer for the proposed China Einstein Gravitational wave Observatory (CEGO). CEGO is expected to become a large-scale gravity wave detector facility containing instruments like the Virgo and LIGO interferometers. NAOC shares with LIGO Laboratory the scientific interest of detecting gravitational waves through the use of laser interferometry to measure the distortion of space between free masses induced by passing gravitational waves, and subsequently using gravitational radiation as an astrophysics probe, with the eventual aim of studying Gravitational Wave Astrophysics. NAOC intends to support the construction of a Gravitational Wave Observatory in the People's Republic of China.
2. The Laser Interferometer Gravitational-Wave Observatory (LIGO) Laboratory, USA, 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 are 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) of the United States of America (USA). LIGO is a national facility for gravitational-wave research, providing opportunities for the broader

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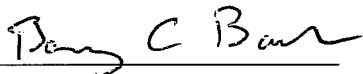
<sup>1</sup> Cooperative Agreement No. PHY-0107417 between the NSF USA, Washington, D.C. 20550 and the California Institute of Technology, Pasadena, CA 91125, dated October 2001.

scientific community to participate in detector development, observation 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 this Memorandum of Understanding, the LIGO Laboratory will carry out its responsibilities following the requirements of the Cooperative Agreement.
4. The LIGO Laboratory is responsible for obtaining NSF USA approval for all collaborative Memoranda of Understanding with international partners, or involving NSF USA costs exceeding \$100,000. All Memoranda of Understanding will be provided to NSF USA for their information.
5. NAOC is responsible for obtaining Chinese Academy of Sciences (CAS) and National natural Science Foundation of China (NSFC) approvals for all collaborative Memoranda of Understanding with international partners.
6. 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.
7. This Memorandum of Understanding will remain in force until the parties mutually agree to terminate it. An annual Attachment will define specific activities to be carried out during the following year.

Approved:



Barry Barish  
LIGO Laboratory Director

14-April-04

Date



Guoxiang Ai  
Director,  
National Astronomical Observatory,  
Chinese Academy of Sciences (NAOC)

4-22, 2004

Date