

Memorandum of Understanding
between the
Shanghai Institute of Optics and Fine Mechanics (SIOM)
of the Chinese Academy of Sciences, Shanghai, China
and the
Laser Interferometer Gravitational Wave Observatory (LIGO) Project
July 1, 1997

The purpose of this Memorandum of Understanding is to establish and define a collaborative relationship between the Shanghai Institute of Optics and Fine Mechanics (SIOM) of the Chinese Academy of Sciences, Shanghai, China and the Laser Interferometer Gravitational Wave Observatory (LIGO) Project. Both parties to this agreement share the joint goals of observing gravitational radiation and of using gravitational radiation as an astrophysical probe. This agreement is intended to further these joint goals.

1. The Shanghai Institute of Optics and Fine Mechanics (SIOM), Shanghai, China, is one of the major research institutions in the Chinese Academia of Sciences of China. The principle field of research at SIOM is laser science and technology and its applications, including theoretical and experimental laser physics, quantum optics, laser spectroscopy, nonlinear optics, crystalline and non-crystalline laser materials. SIOM has 14 laboratories and 2 open laboratories with a total staff of 1,400, among which 900 are research scientists and engineers and 4 are academicians. SIOM intends to contribute substantially to the field of gravitational wave astrophysics by studying the feasibility of developing high quality, large Sapphire crystals for use in the LIGO Project.
2. The Laser Interferometer Gravitational-Wave Observatory (LIGO) Project 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 Agreement¹ with the US 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

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

interferometer configuration to enable simultaneous use by several gravitational-wave observation systems.

3. In entering into this Memorandum of Understanding, the LIGO Project will carry out its responsibilities following the requirements of the Cooperative Agreement¹.
4. The LIGO Project is responsible for obtaining US NSF approval of all collaborative Memoranda of Understanding with international partners, or of those involving US NSF costs exceeding \$100,000. All Memoranda of Understanding will be provided to US 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. An annual Attachment will define specific activities if any, beyond those spelled out in this document, to be carried out during the following year.

Approved:

Barry C Barish

Barry Barish
LIGO Principal Investigator

19 June 97

Date

Hu Qiquan

Qiquan Hu
SIOM Deputy Director

6.30.1997

Date