

**ORIGINAL  
SIGNATURE**

**LIGO-M010188-00-M/GEO-E2001-01**

**Memorandum of Understanding  
Between the  
German/British Collaboration for the Detection of Gravitational Waves (GEO)  
And the  
Laser Interferometer Gravitational Wave Observatory (LIGO) Project  
June 15, 2001**

The purpose of this Memorandum of Understanding is to establish and define the cooperation between the German/British Collaboration for the Detection of Gravitational Waves (GEO) and the Laser Interferometer Gravitational Wave Observatory (LIGO) Project in respect of the operation of their detectors, the sharing of data, the joint analysis of data, and the dissemination of results of that analysis. 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 assist in the realization of these joint goals. The two parties already have a Memorandum of Agreement dated August 15, 1997 (LIGO-M970077-00-M). The present MOU strengthens the cooperation established by the previous one and does not replace it.

1. GEO is building a detector of arm length 600m (GEO600) near Hannover in Germany with the purposes of joining in a worldwide search for gravitational radiation from astronomical sources and of developing advanced interferometric and suspension technologies for later gravitational wave detectors. The design, construction, and operation of the GEO600 system is being carried out by scientists and technologists at the University of Hannover, the University of Glasgow, and the Max Planck Institute for Gravitational Physics (Albert Einstein Institute) in Hannover and Golm. Data acquisition and analysis are managed by the Albert Einstein Institute (AEI), Cardiff University, and Birmingham University. The project is funded in Germany by the State Government of Niedersachsen, the Max Planck Gesellschaft (MPG), and the Bundesministerium fuer Bildung und Forschung (BMBF) in Germany, and by the Particle Physics and Astronomy Research Council (PPARC) in the UK.
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 Agreement<sup>1</sup> with the National Science Foundation (NSF). LIGO is a national facility for gravitational-wave research, providing opportunities for the broader scientific community to participate in detector development, observations, and data analysis.

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<sup>1</sup> 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.



**Addendum A to the  
Memorandum of Understanding (LIGO M010188-00-M/ GEO-E2001-01)  
Between the  
GEO 600 Gravitational Wave Collaboration  
and the  
Laser Interferometer Gravitational Wave Observatory (LIGO) Laboratory  
15 June 2001**

This Attachment to the Memorandum of Understanding LIGO M010188-00-M/ GEO-E2001-01 describes the operation of the LIGO-GEO data exchange agreement. It applies to data acquired by either Project from the effective date of the agreement. The agreement shall remain in force until one or the other party withdraws from it or a revised agreement is adopted.

1. All provisions of this attachment are reciprocal. Any provision for the treatment of GEO data by LIGO applies equally to the treatment of LIGO data by GEO. Responsibility for operation of the exchange lies with the LIGO Director on the one hand and the GEO Principal Investigator for Data Analysis on the other. In general, both projects agree that they will endeavor to distribute, analyze, and ensure the security of data received from the other project in the same way as their own.
2. The word "data" refers to any experimental data recorded from any detector and its associated monitoring systems. The term "reduced data set" refers to a data product that includes a calibrated data stream suitable for analysis for gravitational wave signals. The exact format of the reduced data set will be agreed upon from time to time by LIGO and GEO.
3. Members of LIGO Laboratory and of the LIGO Science Collaboration (LSC) named in Attachment 1 have the right to access the full GEO data set, and members of GEO and GEO Associate Scientists named in Attachment 2 will have the right to access the full LIGO data set. The projects will maintain a joint public list of scientists who access either data set, listing the data accessed and the purpose of the investigation. Investigators should normally analyze data of comparable sensitivity from all detectors of the two projects that were recording data during the period covered by their investigation, in order to arrive at a result with maximum confidence. Scientists will submit 6-monthly reports on the progress of their work to their Project. LIGO and GEO will each make 6-monthly reports to the other on the use of the other project's data. Any publication of results from this data will be subject to the provisions of paragraph 6 below.
4. LIGO and GEO agree to exchange reduced data sets on a continual basis. Each project will make the reduced data set from the other project available to its own scientists and collaborators from its own data archive. LIGO and GEO will ensure maximum reasonable compatibility between data formats in order to facilitate analysis. Through the LIGO Scientific Collaboration (LSC) LIGO and GEO will encourage maximum cooperation between members of each Project on data analysis.
5. LIGO and GEO will cooperate to the best of their abilities on scheduling observations, with the aim to ensure that at any time at least two independent detectors are operating with good sensitivity in full-bandwidth mode. Planned periods of data recording will be discussed and coordinated by representatives appointed by the Director of LIGO and the Principal Investigators of GEO.
6. Any form of dissemination of the results of the analysis of the data covered by this agreement to persons outside the projects may be made only with the permission of both the Director of

LIGO and the GEO Principal Investigator for Data Analysis. Scientific publications describing such results will be jointly authored by individuals identified by each Project. Any press releases based on the analysis of data under this agreement will be issued jointly and simultaneously by LIGO and GEO.

Approved:

Barry C Barish  
Barry Barish  
LIGO Principal Investigator

15 June 01  
Date

Bernard Schutz  
Bernard Schutz  
GEO 600 Principal Investigator for  
Data Analysis

15.06.01  
Date

**Attachment Number 1 to the  
Memorandum of Understanding (LIGO M010188-00-M/ GEO-E2001-01)  
between the  
GEO 600 Gravitational Wave Collaboration  
and the  
Laser Interferometer Gravitational Wave Observatory (LIGO) Laboratory  
15 June 2001**

This Attachment to the Memorandum of Understanding LIGO M010188-00-M/ GEO-E2001-01 gives the list of individuals who are members of LIGO or the LSC and who have signed an MOU with LIGO covering the use of GEO data. This list will be updated every 6 months.

**Name of Individual**

**Period of time of membership/validity of MOU**

**Attachment Number 2 to the  
Memorandum of Understanding (LIGO M010188-00-M/ GEO-E2001-01)  
between the  
GEO 600 Gravitational Wave Collaboration  
and the  
Laser Interferometer Gravitational Wave Observatory (LIGO) Laboratory  
October 1, 2000**

This Attachment to the Memorandum of Understanding LIGO- M010188-00-M/ GEO-E2001-01 gives the list of individuals who are members of GEO or are GEO Associated Scientists and who have agreed to abide by the terms and spirit of this MOU covering the use of LIGO data. This list will be updated every 6 months.

**Name of Individual**

**Period of time of membership/validity of MOU**