

**Attachment Number A to the
Memorandum of Understanding (LIGO-M970038-00-M)
between the
University of Oregon Experimental Relativity Group (UOERG)
and the
Laser Interferometer Gravitational Wave Observatory (LIGO) Laboratory
August 15, 1997**

This Attachment to the Memorandum of Understanding LIGO-L970038-00-M covers the role of UOERG as a Charter Member of the LIGO Scientific Collaboration (LSC) and a member of the LIGO I Development Group (L1DG). The period of performance for the activities in this Attachment is from August 15, 1997 to February 15, 1998. This period may be modified by agreement to a revision of this Attachment.

1. LIGO Scientific Collaboration - The LIGO Scientific Collaboration will be organized as a separate organization from the LIGO Laboratory. It will include scientists from the LIGO Laboratory, and those from collaborating institutions, and will have its own leadership and governance. The Collaboration will ensure equal scientific opportunity for individual participants and institutions. It will organize the research, publications, and all other scientific activities. The Collaboration will report to the Laboratory Directorate for final approval of its research program, technical work, observational physics publications, and talks announcing new observations and physics results. This will be done through regular reports to the Directorate and its PAC.
2. Charter Membership - An initial period for formation of the Charter group of institutions in the LIGO Scientific Collaboration will commence on March 1, 1997 and will end following the first full meeting of the Collaboration at which the Collaboration Council will assume its role. We expect that this transition will occur within six months. Membership in the Collaboration during this charter period will be initiated by proposal to the LIGO Laboratory Directorate.

Following the charter period proposals will be evaluated through the Collaboration Council. With Collaboration approval, an MOU with the LIGO Laboratory, including Attachments defining specific work, will be required for any participating institutions.

3. This document is an agreement between the University of Oregon Experimental Relativity Group (UOERG) and the LIGO Laboratory concerning the activities noted below, under provision 8, of UOERG as a Collaborating Institution in the LIGO Scientific Collaboration (LSC) and in the LIGO I Development Group (L1DG).

4. **LIGO I Development Group** - The LIGO I Development Group will be the scientific collaboration for implementing and exploiting the initial LIGO detector and physics through the initial science data run. Only groups who establish a specific Attachment approved by the LIGO Laboratory, which defines a sufficient contribution and participation in LIGO I development, implementation or data analysis will be part of this initial LIGO data run and science. Participation in future data runs and science that follow LIGO I will be possible for other groups, with guidelines to be determined by the LIGO Scientific Collaboration. It is anticipated that LIGO I data will only be made available through formal collaboration within the LIGO I Development Group during the first two years following its collection.

The general guideline for institutional membership in the LIGO I Development Group is that the contribution per collaborator of any new group to the design, construction, and implementation of the initial LIGO detector and to the first data run be comparable to that of the LIGO Laboratory scientists.

5. **Report of Progress** - UOERG will provide a summary report of progress, monthly, by e-mail to the Collaboration Council and to the LIGO Laboratory Director. UOERG will submit a complete report on its activities every six months, supply an updated List of Collaborators, and a plan of activities for the next six months. This report should be submitted one month before the updated attachment will take effect.
6. **Term of Membership** - Membership will be renewed every six months upon evidence of satisfactory performance of agreed upon duties.
7. **Intellectual Property Rights** - The rights to intellectual property developed under this Attachment will be subject to the National Science Foundation Grant Policy as indicated in Section 730, Intellectual Property.
8. **During the period August 15 - February 15, 1998, UOERG , with collaborators James E. Brau and Anatoli Arodzero, will do the following:**
 - a.) Support the daily operations of the 40 meter interferometer at Caltech by participating in the daily work schedule. (A. Arodzero)
 - b.) Study the operations of the 40 meter interferometer at Caltech to investigate possible improvements in the control systems. An effort will be made to add to the understanding of interferometer dynamics. These studies are aimed at learning techniques that can eventually be applied to the LIGO 4 km interferometers. (A. Arodzero)
 - c.) Estimate the effects of cosmic rays on the LIGO interferometers (40 meter and 4 km), and develop techniques for confirming their size and controlling their influence on the data. (A. Arodzero and J. Brau)
 - d.) Work with the LIGO data analysis group on 40 meter data and plans for analysis of the 4 km data. Participate in the Data Translation Group. (J. Brau)

Approved:

Barry Barish

Barry Barish
LIGO Laboratory Director

James E. Brau

James E. Brau
UOERG Principal Investigator

Aug 15, 1997

Date

Aug 15, 1997

Date