

**Attachment Number B to the
Memorandum of Understanding (LIGO-M950025-00-M)
between the
Australian Consortium for Interferometric Gravitational Astronomy
(ACIGA)
and the
Laser Interferometer Gravitational Wave Observatory (LIGO) Laboratory
August 15, 2001**

This Attachment to the Memorandum of Understanding LIGO-M950025-00-M covers the role of the Australian Consortium for Interferometric Gravitational Astronomy (ACIGA), as a member of the Isolation/Suspension/Thermal Noise Development Group (ISTNDG). The period of performance for the activities in this Attachment is from August 15, 2001 to February 15, 2002. This period may be modified by agreement to a revision of this Attachment.

1. LIGO Scientific Collaboration - The LIGO Scientific Collaboration is organized as a separate organization from the LIGO Laboratory. It includes scientists from the LIGO Laboratory, and those from collaborating institutions, and has 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 commenced on March 1, 1997 and ended following the first full meeting of the Collaboration at which the Collaboration Council assumed its role.

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 Australian Consortium for Interferometric Gravitational Astronomy (ACIGA) and the LIGO Laboratory concerning the activities of ACIGA as a Collaborating Institution in the LIGO Scientific Collaboration (LSC) and in the Isolation/Suspension/Thermal Noise Development Group (ISTNDG), and as indicated in Item No. 8 below.

4. Isolation/Suspension/Thermal Noise Development Group – The Isolation/Suspension/Thermal Noise Development Group (ISTNDG) is the scientific collaboration for defining and developing future isolation and suspension improvements for use in advanced subsystems for the initial LIGO interferometers or in entirely new advanced interferometers. A specific Attachment will define the roles and responsibilities of groups in this development group. Members of this group will normally be authors on publications reporting the work of the group and will normally be eligible to participate in data runs and science beyond the LIGO I data run.
5. Report of Progress – ACIGA group will provide a status report on its activities in support of LIGO every six months. The report will consist of: a) a summary status on research by topic as indicated in Item No. 8 below including progress against the milestones if any, significant accomplishments such as new insights/discoveries or publications, issues of concern if any, and an indication of invested time, b) updated List of Collaborators, and c) a plan of activities for the succeeding six-monthly period. The report will be due one month before the close of the period of performance under the Attachment in question.
6. Term of Membership - The Membership will be renewed every six months upon evidence of satisfactory performance of agreed upon duties.

The coordinates of ACIGA members are included in the Attachment Z to the Memorandum of Understanding LIGO-M950025-00-M.

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, 2001 to February 15, 2002, the ACIGA group will participate as follows:
 - a) Thermoelastic Noise in Solid Sapphire Etalons

Obtain sapphire etalon and fused silica etalon against which to compare the signal produced by the sapphire etalon;
 Complete design of suspension system;
 Fabricate suspension system;
 Bench-top test system; and
 Install in-vacuum system.

- b) Frequency Distribution of Thermal Noise (FDTN) 1

AU will:

Fabricate a monolithic test cavity for measurement of thermoelastic noise in sapphire;
 Assemble a suspension system for the cavity; and
 Test on the benchtop.

c) FDTN 2

ANU will:

- Complete parametrisation of flextures and design a flexure mount for thermal noise experiment;
- Complete processing of UHV system ready for delivery of UWA isolator;
- Shakedown optical layout and control system using benchtop, in air prototype; and
- Perform an experimental demonstration of 'squashing' for eliminating intensity noise.

d) FDTN 3

UWA will:

- Complete construction of an isolator for delivery to ANU; and
- Continue design of suspended optical bench.

9. During the period August 15, 2001 to February 15, 2002, the LIGO Laboratory will share, as requested and appropriate, LIGO data of relevance to the research topics in Item No. 8 above.
10. The research effort pursuant to this Attachment B will be coordinated by David McClelland and Gary Sanders on behalf of ACIGA and the LIGO Laboratory, respectively.
11. Resource Sharing: The LIGO Laboratory will contribute resources including allocation of appropriate scientific and engineering personnel, research facilities and funding in support of the effort in Item No. 8, as indicated below. These resources will be in addition to the coordination effort and data to be made available per Item No. 9 above.
 - a) Accommodations for ACIGA investigator(s) while on LIGO research assignment at Caltech, and/or LIGO sites.
 - b) Funding to cover subsistence and international travel expenses for ACIGA investigators while on LIGO research and/or LSC assignment at Caltech, and/or LIGO sites. Specific funding arrangements will be as agreed on a case by case basis.


Approved:



Barry Barish
LIGO Laboratory Director

11-1-01

Date



David McClelland
ACIGA Principal Investigator

16/11/2001

Date