Attachment Number C to the

Memorandum of Understanding (M000300-00-M)

between the

Department of Physics of Southern University and A&M College Baton Rouge, LA Campus (SUBR)

and the

Laser Interferometer Gravitational Wave Observatory (LIGO) Laboratory

February 15, 2001

This Attachment to the Memorandum of Understanding LIGO-M000300-00-M covers the role of the Department of Physics of Southern University and A&M College (SUBR) as a member of the LIGO Scientific Collaboration (LSC) and a member of the Lasers/Optics Development Group (LODG). The period of performance for activities in this Attachment is from February 15, 2001 to August 15, 2001. 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 publications, and talks announcing new observations and physics results. This will be done through regular reports to the Directorate and its Program Advisory Committee (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 Department of Physics of Southern Uni-

versity and A&M College (SUBR) and the LIGO Laboratory concerning the activities of the Department of Physics of Southern University and A&M College (SUBR) as a Collaborating Institution in the LIGO Scientific Collaboration (LSC) and in the Lasers/Optics Development Group (LODG), and as indicated in Item, No. 8 below.

4. Lasers/Optics Working Group – The Lasers/Optics Working Group (LOWG) is the scientific collaboration for defining and developing future high power lasers and required improvements in optics 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 in 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 – SUBR 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 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 Department of Physics members are included in the Attachment Z to the Memorandum of Understanding LIGO-M000300-00-M.

7. Intellectual Property Rights – The rights to intellectual property development under this Attachment will be subjected to the National Science Foundation Grant Policy as indicated in Section 730, Intellectual Property.

8. During the period February 15, 2001 to August 15, 2001, the SUBR group will pursue trace element studies in HEM sapphire as follows:

   a) Identification and quantitation of targeted trace elements (eg, Fe, Cr, Sc, Ti, Mo) in HEM-grown sapphire using synchrotron radiation and thermal reactor neutrons as probes.

   b) Identification of the valence states of observed bulk species in paragraph a) above.

   c) Establishment of limits of detection for chemical species of interest, but not observed.

   d) Optical absorption studies, complementary to the effort carried out by the Stanford group, will be pursued with Joseph Kovalik and Mark Coles of the LIGO Livingston staff.

e) Longer range goals: McGuire will work with LLO on the development of a parallel program of optical absorption studies in sapphire and other LIGO-related materials.

9. Milestones: The next set if specimen irradiations is scheduled for April 2001.

10. During the period February 15, 2001 to August 15, 2001, LIGO will share, as requested and appropriate, LIGO data of relevance to the research topics in Item No. 8 above.

11. The research effort pursuant to this Attachment C will be coordinated by Stephen McGuire and Gary Sanders on behalf of the Department of Physics of Southern University and A&M College (SUBR) and the LIGO Laboratory, respectively.

12. 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. 10 above.

    a) Laboratory and office space for SUBR investigators while on LIGO research assignment at the LLO site.

    b) Funding in support of initial trace element and optical absorption measurements, involving research at SUBR, NIST, CAMD, and Cornell (Ward Laboratory) and Stanford (Ginzton Laboratory) Universities.

Approved:

Barry Barish
LIGO Laboratory Director

May 21, 2001
Date

Stephen C. McGuire
SUBR Principal Investigator

June 4, 2001
Date