



**Attachment ACF to the
Memorandum of Understanding LIGO-M060110-00
between the Maryland Gravitational-Wave Group (MaGWG)
and the
Laser Interferometer Gravitational Wave Observatory (LIGO)
For The Period
August 15, 2007 - August 14, 2008**

This Attachment ACF to the Memorandum of Understanding LIGO-M060110-00 defines the role of the Maryland Gravitational-Wave Group (MaGWG) as a Member of the LIGO Scientific Collaboration (LSC), and a member of the Advanced Detector Configurations Development Group (ADCDG). The period of performance for the activities described in this Attachment is from August 15, 2007 - August 14, 2008.

1. Collaboration

The Advanced Detector Configurations Development Group (ADCDG) is the scientific collaboration for defining and developing entirely new advanced interferometers. It is expected that this development group will pursue research in dual recycling, resonant sideband extraction, Sagnac interferometers, systems with non-transmitting optics, and other advanced configurations. MOU Attachment ACF defines the role and responsibilities of workgroups participating in this development group.

2. Participation

During the period August 15, 2007 - August 14, 2008, the members of MaGWG will participate in the ADCDG in the following areas:

a. Interferometer Configurations

Postdoctoral scholar Yi Pan will study the influence of the degeneracy of the signal-recycling cavity (SRC) on the alignment and sensing control system, by numerically computing and optimizing the control matrix through a modal model simulation.

Buonanno and Pan will carry out theoretical investigations of designs of a 4km long SRC for Advanced LIGO, focusing on the possibility to reduce the loss of SNR due to optical losses in the SRC, the change of detector response to GW signals for various choices of long-SRC parameters, especially the optimization of the detector noise curve for narrowband GW signals (e.g., LMXBs), the possibility

to collect signal power in both sidebands, and practical issues including the light scattering in a beam tube containing both an arm cavity and a SRC, and length and alignment control systems in a long-SRC interferometer.

A graduate student will probably be recruited in the coming year to work on advanced interferometer configurations.

b. Squeezed Light Generation

Not Applicable

c. Other Contributions

Not Applicable

3. 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. 2, as indicated below.

a. Research accommodations for MaGWG group members while on LIGO research assignment at any LIGO Laboratory site.

Not Applicable

b. Access to LIGO data through established LSC channels in support of this work.

Not Applicable

4. Coordination and Reporting

MaGWG will perform this research within the structures established by the LIGO Laboratory and the LSC where appropriate.

In particular, activities described in Item 2 will be carried out within the Advanced Detector Configurations Development Group of the LSC.

This includes keeping the Group leaders informed of activities and plans, reporting to the group at meetings and telecons, and through technical documents submitted to the LIGO Document Control Center.

In addition, an annual report will be submitted with the update to this Attachment, giving a summary status on research by topic as indicated in Item No. 2, 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.

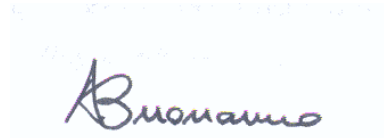
This Attachment will be updated at least annually with a plan of activities for the succeeding one-year period. These documents will be due one month before the close of the period of performance under this Attachment.

5. Computer Code

All computer code delivered to the LSC under this Attachment must be developed in consultation with the LSC Data Analysis Software Working Group (DASWG) and archived, documented and reviewed as determined by that group.



Jay Marx
LIGO Laboratory Director



Alessandra Buonanno
**Principal Investigator(s)
MaGWG**



David Reitze
LSC Spokesperson