

Attachment OPS to the
Memorandum of Understanding (LIGO-M 060011 -00-M)
between the
Louisiana State University Experimental Relativity Group (LSUERG)
and the
Laser Interferometer Gravitational Wave Observatory (LIGO)
August 15, 2006

This Attachment OPS to the Memorandum of Understanding LIGO-M 060011 -00-M defines the role of the **Louisiana State University Experimental Relativity Group** as a Member of the LIGO Scientific Collaboration (LSC) in the areas of detector commissioning, detector characterization, and operations support in the initial LIGO interferometers. The period of performance for the activities in this Attachment is from August 15, 2006 to August 15, 2007.

1. Together, the LIGO Laboratory and the LIGO Scientific Collaboration (LSC) are responsible for implementing and exploiting the initial LIGO detector through its science data runs. LSC groups are encouraged to contribute to the commissioning, characterization, and operation of the LIGO detectors, as members of working groups established by the LIGO Laboratory and the LSC.
2. During the period August 15, 2006 to August 15, 2007, the members of **LSUERG** will participate in the initial LIGO detector research program in the following areas:

a) Detector Commissioning

Shyang Wen plans to complete his work improving HEPI at LLO, and study the long-term implications of various seismic remediation on LIGO's scientific data quality, largely by mining the S5 data.

Gabriela Gonzalez and Joe Giaime will help the commissioning efforts in LIGO Livingston as needed.

b) Detector Characterization

Gabriela Gonzalez will continue to work with the Calibration Team to produce and document a final release of S5 calibration, as well as make the needed measurements at the Livingston detector.

Myungkee Sung will continue to produce the the time-dependent calibration factors for the S5 data. He will also work on improving the system of producing the factors; The initial data process is now done automatically by running a script on the grid cluster and the factor calculation will be added to this process, so the factor will be produced automatically and available within a week, which would help to check the detector with taking data.

Myungkee Sung will maintain the optimal linear filter package for the hardware injections and try to improve the system by making more analysis results.

Warren Johnson and Juan Lorenzo are examining the data base for natural, local, seismic events.

Next year's activities will include (1) locating local seismic events, (2) microtremor analysis to invert for local elastic constants and (3) E&O using seismic records at LIGO.

Jacob Slutsky and Jeff Kissel will work on producing data quality flags related to the seismic activity, and to the stationarity properties of different figures of merit.

Gabriela Gonzalez, Jeff Kissel and Jacob Slutsky will keep participating in the activities in the Glitch group, to find data corruption and artifacts in S5 data.

c) Detector Operations

Joe Giaime is the chief scientist at LIGO Livingston, and will lead and help operations as needed.

Gabriela Gonzalez is a member of the LSC Operations Committee, led by Fred Raab.

d) 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 **LSUERG** group members while on LIGO research assignment at any LIGO Laboratory site,
 - b) Access to LIGO data through established LSC channels in support of this work.
 - c) Not Applicable

4. Coordination and Reporting -

LSUERG will perform this research within the structures established by the LIGO Laboratory and the LSC where appropriate. In particular activities described in Item 2a) will be carried out in coordination with the LIGO Laboratory Commissioning Leader, Item 2b) will be carried out within the Detector Characterization Working Group of the LSC, and Item 2c) will be carried out in coordination with the LHO {or LLO} Site Head. Coordination will include 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 on-year period. These documents will be due one month before the close of the period of performance under this Attachment.

5. 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.

Approved:

Jay Marx
LIGO Laboratory Director

Peter Saulson
LSC Spokesperson

Gabriela Gonzalez
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Joseph Giaime

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