



**Attachment DAT to the
Memorandum of Understanding LIGO-M950059-00
between the Experimental Relativity Group of the Louisiana State
University (LSUERG)
and the
Laser Interferometer Gravitational Wave Observatory (LIGO)
For The Period
August 15, 2007 - August 14, 2008**

This Attachment DAT to the Memorandum of Understanding LIGO-M950059-00 defines the role of the Experimental Relativity Group of the Louisiana State University (LSUERG) as a Member of the LIGO Scientific Collaboration (LSC). In particular, it addresses data analysis activities in support of the initial LIGO interferometers. The period of performance for the activities in this Attachment is from August 15, 2007 - August 14, 2008.

1. Collaboration

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. The LSC has organized the data analysis effort into search groups which coordinate analysis, review, and publication on behalf of the collaboration. LSC groups are encouraged to participate in one or more of these groups.

MOU Attachment DAT defines the contributions of each participating group to the data analysis development groups.

2. Participation

During the period August 15, 2007 - August 14, 2008, the members of LSUERG will participate in the analysis of initial LIGO data in the following areas:

a. Binary Inspirals

ipre₂ (a) Binary inspirals

Chad Hanna will finish studies and coding of two new signal based vetoes, one based on the structure of the templates triggered in the template bank by a candidate event, and another based on a comparison of the data with the template triggered at the full sampling rate. He will also serve as the internal reviewer of the team performing a search of high mass compact binary coalescences in S5 data, led by Craig Robinson and Anand Sengupta from the Cardiff group.

Jacob Slutsky will continue investigations of vetoes to be used in all the searches in the group, using data quality flags defined by the Detector Characterization Group.

He will perform studies on the physical coupling mechanisms of some of the environmental disturbances resulting in false alarms in the group's searches in S5. He will continue leading the team creating vetoes for the group's searches.

Jeff Kissel will analyze the correlation between false alarms in the group searches and planes overflying the Observatories, creating a veto to be used in S5 searches.

Romain Gouaty will lead the team following up the gravitational wave candidates resulting from the group searches. He will develop codes to automatically produce standard plots, and establish the interpretation of the resulting plots and auxiliary information to establish confidence levels for the candidates. Sarah Caudill will also participate in the follow up team.

Andres Rodriguez and Gabriela Gonzalez will write a technical paper on the "r² veto" used in S3-S5 searches, and developed by Andres Rodriguez.

Gabriela Gonzalez will continue serving the group as co-chair as needed.

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b. Bursts

(b) Bursts

Myungkee Sung will continue the use of an optimal filter strategy to analyze the detectors' sensitivity to hardware injections.

Warren Johnson will continue working on the development of an optimal filtering pipeline (with Myungkee Sung). He will also investigate a strategy for using cross-correlation techniques to find coincident bursts in the LIGO detectors.

c. Stochastic

Warren Johnson will continue to collaborate in the joint LIGO-ALLEGRO search for a stochastic background of gravitational waves.

d. Continuous

Not Applicable

e. Other Contributions

;/pre; Luis Lehner will concentrate on analysing possible differences in waveforms arising from possible inner structures of the involved objects. In particular for BH-NS binaries the equation of state governing the star can significantly affect the dynamics at the merger epoch. A combination of analytical and numerical techniques, in this and related toy problems will be employed. The activities related to this plan will involve collaborations with Brady, Creighton, Neilsen, and Hirschmann.

Joel Tohline will continue to simulate dynamically evolving astrophysical fluid systems and binary systems that are likely sources of gravitational radiation. In collaboration with Luis Lehner, he will continue the extension of the Newtonian and post-Newtonian treatment of such systems to include fully relativistic hydrodynamical models. Tohline will continue to participate as an active internal reviewer of LSC papers that focus on a search for burst sources; he will also continue to serve as a contact point at LSU for high-bandwidth network connections between LLO and Caltech.

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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.

Not Applicable

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

Not Applicable

4. Coordination and Reporting

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

In particular, with reference to activities described above:

2a will be carried out within the LSC Inspiral Search Group.

2b will be carried out within the LSC Burst Search Group.

2c will be carried out within the LSC Stochastic Search Group.

2d will be carried out within the LSC Continuous Waves search Group.

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.

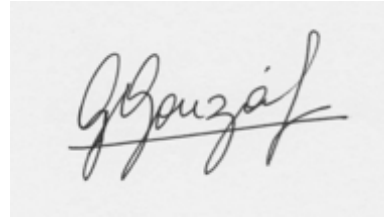
This Attachment will be updated at least annually with a plan of activities for the succeeding one-year period. These documents will be due one month before the close of the period of performance under this Attachment.

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



Gabriela Gonzalez
Principal Investigator(s)
LSUERG



David Reitze
LSC Spokesperson