Attachment OUT to the Memorandum of Understanding LIGO-M970077-00 between the German/British Collaboration (GEO 600) for the Detection of Gravitational Waves (GEO600) and the Laser Interferometer Gravitational Wave Observatory (LIGO)

For The Period

August 15, 2008 - August 14, 2009

This Attachment OUT to the Memorandum of Understanding LIGO-M970077-00 defines the role of the German/British Collaboration (GEO 600) for the Detection of Gravitational Waves (GEO600) as a Member of the LIGO Scientific Collaboration (LSC) in support of Education and Outreach to the broader community. The period of performance for the activities in this Attachment is from August 15, 2008 - August 14, 2009.

1. Education and Outreach

As a frontier physics effort, LIGO offers a unique opportunity to inspire interest in science among students and to educate the broader community. The LIGO Laboratory supports a broad program of education and outreach to take advantage of these opportunities.
Activities to attract and educate visitors take place at both Observatories, as well as the development of educational materials for use there and elsewhere.
The LIGO Laboratory is building a Science Education Center at the Livingston Observatory, and is participating with local partners to make it a vehicle for science education throughout the region. LSC groups are invited to participate in these activities, and to suggest others, with the goal of leveraging activities to make a greater impact.
This MOU Attachments defines the role and responsibilities of groups in this development group.

2. Participation

During the period August 15, 2008 - August 14, 2009, the members of GEO600 will participate in in LDG in the following areas:

a. Educational Materials Developed

(a) A dedicated, modern and attractive Gravitational Wave Astronomy outreach website will be developed. This will highlight current and future detectors, data analysis and numerical simulation research as well as the fundamentals of the science. A multimedia database will also be provided. The site will link

to all detectors and research institutes. Target date for completion of the website is November 2008.

(b) We will also work closely with other members of the EPO Working Group to develop a web portal (with the proposed name www.gravitycentral.org) that will describe general relativity to the general public. This website will link to gravitational wave-specific sites including that described in item (1) above, and the LSC outreach webpages.

(c) The YouTube interview series on black holes will be completed. A further series may also be developed, depending on funding availability.

(d) In Glasgow, Hendry plans to develop the Einsteins Universe series of public lectures as an online resource, with multimedia content to be made available for use across the LSC.

(e) In Cardiff Sathyaprakash plans to write up an article describing the development of the Black Hole Hunter game, for publication in a popular science/physics journal.

(f) In Cardiff Sathyaprakash and Wendy Sadler (Director of Science Made Simple) have funds from the Science and Technology Facilities Council to develop further Sathyaprakashs Open Day lecture, and to deliver it under the banner Gravity Beyond the Apple. The multimedia lecture will comprise video, audio, interviews, pamphlets and posters and will showcase the online version of the Black Hole Hunter game.

b. Other Contributions

(a) Milde Marketing will continue to carry out regular professional press work on behalf of all GEO institutions.

(b) The UK and German GEO institutions will participate in a number of national and international activities for IYA2009, including:

- The AEI, together with other institutes in Berlin and Potsdam, will organize the national opening in Berlin, in January 2009. The AEI plans to develop an exhibition entitled From Galileo Galilei to Gravitational Waves, which will showcase what astronomers see with the different astronomical methods that have been developed so far, and how gravitational wave astronomy will expand our knowledge about the universe.
- The AEI will contribute to a series of articles in the German popular astronomy magazine Sterne und Weltraum. This series of 7 articles will be accompanied by tailor-made material for schools and will afterwards be distributed to schools as a special issue.
- Glasgow will organize public lectures at the Glasgow Science Centre, and plan to develop an interactive interferometer exhibit (similar to that built for the RS Summer Science Exhibition) for the concourse of the GSC Planetarium.

(c) The AEI will participate in the German adaptation of an American science series for children.

(d) The AEI will participate in the Science Express train project in Germany.

(e) Hendry, together with other members of the EPO Working Group, plans to visit the Gravity Discovery Centre, in Perth Australia, to strengthen links and coordination of outreach activities across the LSC.

(f) We will assist the EPO Working Group in the development and delivery of the proposed World Science Festival activities on gravitational wave science, in New York City, May 2009.

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 GEO600 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

GEO600 will perform 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 with the LIGO Observatories Educational and Outreach Leaders.
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.

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