

Attachment DAT to the
Memorandum of Understanding (LIGO-M 050245 -00-M)
between the
Inter-University Centre for Astronomy and Astrophysics (IUCAA)
and the
Laser Interferometer Gravitational Wave Observatory (LIGO)
August 15, 2006

This Attachment DAT to the Memorandum of Understanding LIGO-M 050245 -00-M defines the role of the **Inter-University Centre for Astronomy and Astrophysics** as a Member of the LIGO Scientific Collaboration (LSC), in particular, its activities in data analysis in support of 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. The LSC has organized the data analysis effort into search groups which coordinate the analyses, perform detailed reviews, and prepare publications on behalf of the collaboration. LSC groups are encouraged to participate in one or more of these groups. MOU Attachments define the contributions of each participating group to the data analysis groups.
2. During the period August 15, 2006 to August 15, 2007, the members of **IUCAA** will participate in the analysis of initial LIGO data in the following areas:

c) Stochastic

The detection and mapping of the anisotropy in stochastic GW background bears strong semblance to the analysis of the cosmic microwave background (CMB) anisotropy and polarization which is also a stochastic field statistically described in terms of its correlation properties. The IUCAA group has achieved its primary goal to identify the key features that now allow us to adapt appropriate techniques from CMB analysis.

During the period August 15, 2006 to August 15, 2007, the IUCAA Gravitational Wave Data Analysis Group will focus on the following:

a) The raw sky map of the GW background is the signal convolved with antennae pattern. An indepth semi-analytic study of the structure of the kernel based on the Stationary Phase Approximation (SPA) and a related geometrical picture has given us valuable insight into the problem. The structure will be further investigated with the help of angular basis functions in order to achieve optimal deconvolution of the GW sky.

b) Numerical inversion using the Maximum Likelihood Method has been performed assuming Gaussian noise. We propose to extend the method to more realistic noise as in actual detectors. The current scheme assumes some knowledge of the power spectrum of the source. We propose to explore schemes where such assumptions can be relaxed.

e) 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 **IUCAA** 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

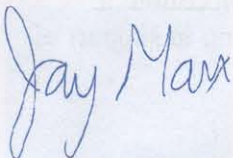
4. Coordination and Reporting -

IUCAA 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 within the LSC Inspiral Search Group, Item 2b) will be carried out within the LSC Burst Search Group, Item 2c) will be carried out within the LSC Stochastic Search Group and Item 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 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:

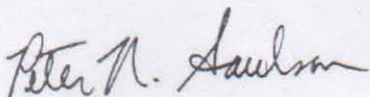


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LIGO Laboratory Director



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