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Virgo VIR-MEM-DIR-7000-123

*Subject: Gravitational wave searches and
tests of the grid*

To:

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Dear Colleagues,

The US LIGO Laboratory, together with its scientific collaboration (LSC), and the VIRGO Italian-French scientific collaboration, are presently commissioning km-scale interferometric gravitational wave detectors that will be used to search for gravitational waves (GW). To date, the two projects have already produced over 45 TB of archived data.

Many astrophysical goals of these detectors require a combined analysis in which individual detectors are treated as elements of a global network of detectors. Due to the peculiarity of the GW data analysis procedures and the required computational power, both the LIGO and VIRGO collaborations intend to develop analysis capabilities that can take advantage of national (French, Italian, and U.S.) grid resources. As such, they wish to express their intention to set up data exchange procedures and analysis software that will be compatible with the Grid tools that are under development in both the U.S. and Europe.

Such combined analysis has already begun by exchanging environmental data between the projects in order to study the transient events due to correlated noises. At present, this data exchange has been set up using conventional, standard Unix tools (e.g., rsync). Now LIGO and VIRGO wish to improve these processes in order to add a layer of security and robustness to the exchange protocol. Both projects feel that grid-enabling

this ongoing collaborative research effort is an ideal way to test Grid tools for performing collaborative GW data analysis between Europe and the U.S.

Within LIGO and the VIRGO collaborations, Grid tools have been independently deployed and were already tested in Italy and France (through INFN Grid and DataGrid projects) and in the US (through GriPhyN).

Now we think that it is the right time for expanding this collaborative effort. We therefore intend to develop a transoceanic test bed based on a middleware common to the US and European Grid projects.

We believe that the GW computational case represents a suitable test for the new Grid technology under development with a relevant scientific by product for the Gravitational Physics.

We note that it is critical that our projects be able to rely on debugged and functioning middleware. We do not possess the manpower resources that would be needed to adopt prototype or demonstration code.

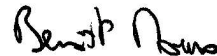
Sincerely,

Albert Lazzarini

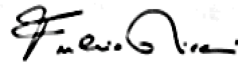


For the LIGO Collaboration

Benoit Mours



Fulvio Ricci



For the VIRGO Collaboration

cc: B. Barish (LIGO)
A. Giazotto (VIRGO)
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Virgo Document Archive
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