

Status of the LSC

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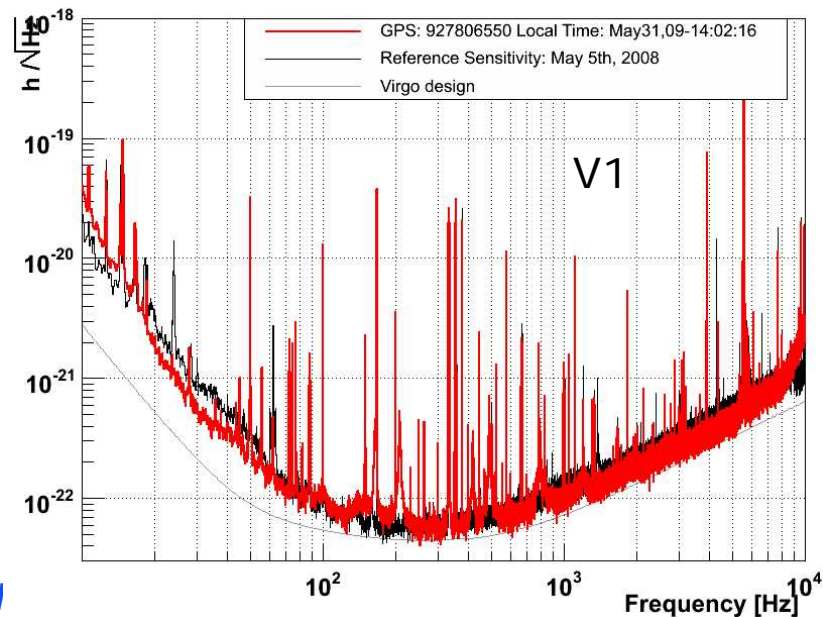
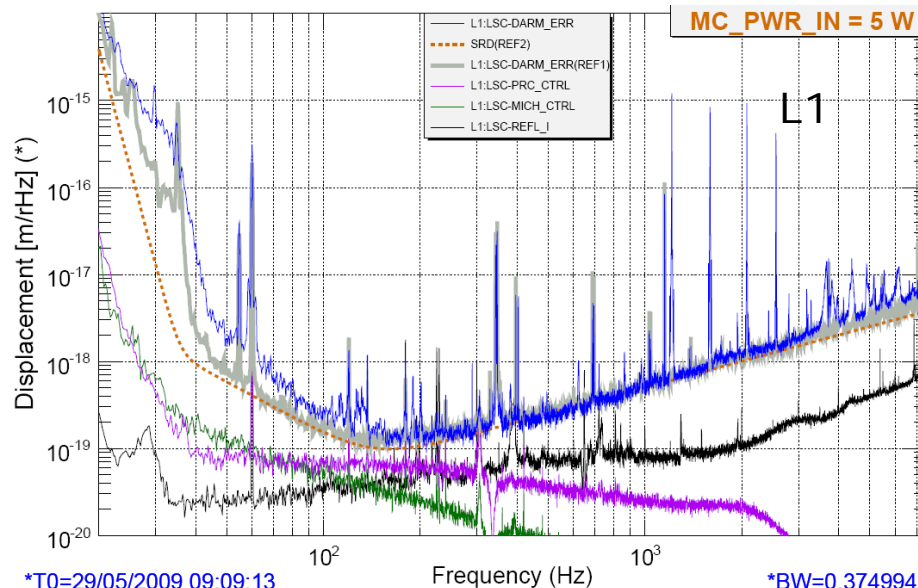
Major News

- **S6/VSR2 is about to begin**
 - » Tentative start date for S6 is **July 7**
 - Commissioning break begins in Aug, also not yet firm
 - » Will be a slow start in terms of sensitivity
 - But should be better than S5!
 - » Francesco's and Stefan's presentations cover the detector statuses.

- **LIGO Open Data Release Proposal**
 - » Still under consideration by NSF
 - » Discussions among projects to develop coordinated approach to open data release have been started
 - MOU language developed

- **GWIC Roadmap will be released in June**
 - » At the Amaldi meeting

- **Several external collaborations are now developing and maturing**
 - » High Energy Neutrinos: Antares, IceCube
 - » Wide Field Follow-up (LOOC UP)
 - » Low Energy Neutrinos: Super-K,
 - » Deep Optical Target-of-Opportunity Observations
 - » Joint Radio-Gw Searches



Status of LSC/Virgo Observational Papers

- **S5 and S5/VSR2 papers in full bloom**
 - » Seven papers have been posted on arXiv and submitted since March
 - » Others reaching rapid maturity
 - Many are joint S5/VSR2 papers

- **S4 papers now complete!**

- **The complete list**
 - » Burst Group
 1. “Search for High Frequency Gravitational Wave Bursts in the First Calendar Year of LIGO’s Fifth Science Run, posted on the arXiv; intended for Phys. Rev. D.
 2. “First LIGO search for gravitational wave bursts from cosmic (super)strings” submitted to Phys. Rev. D.
 3. “Stacked Search for Gravitational Waves from the 2006 SGR 1900+14 Storm”, submitted to Ap. J. Lett.
 4. “Search for gravitational-wave bursts in the first year of the fifth LIGO science run” posted on the arXiv; intended for Phys. Rev. D.
 5. “Search for gravitational-wave inspiral signals associated with short Gamma-Ray Bursts during LIGO’s fifth and Virgo’s first science run”, (almost) mature draft
 - **Joint L-V paper**

Status of LSC/Virgo Observational Papers

- **CBC Group**

- 6. *“Search for gravitational wave ringdowns from perturbed black holes in LIGO S4 data”*, posted on the arXiv, intended for Phys. Rev. D.

- 7. *“Search for Gravitational Waves from Low Mass Binary Coalescences in the Second Year of LIGO’s S5 Data”*, posted on the arXiv; intended for Phys. Rev. D. Brief Reports

- **CW Group**

- 8. *“Einstein @Home search for periodic gravitational waves in early S5 LIGO data”*, submitted to Phys. Rev. D.

- 9. *“Searches for gravitational waves from known pulsars with S5 LIGO data”*, mature draft at this meeting

Status of LSC/Virgo Observational Papers

- Stochastic Group

- 10. *"Listening for Gravitational Echoes of the Universe with LIGO"*; Joint L-V paper

- As of yesterday, accepted in Nature!

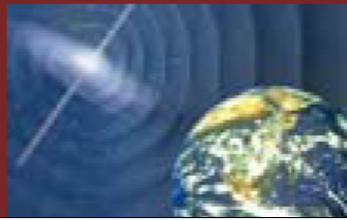
- » Reviewer:

- "This paper from the LIGO collaboration reports a new upper limit to stochastic gravitational-wave background (SGWB). ... The NSF has invested lots of money, and hundreds of outstanding physicists have invested many years of their lives. While we have not yet detected directly any gravitational waves, the current results from LIGO represent a dramatic, impressive, and important step in that direction, an experimental tour de force and a landmark achievement on the road to detection of gravitational waves. The current paper moreover (and perhaps most importantly) presents new and important upper limits to the stochastic gravitational-wave background (SGWB), and thus constrains a number of theoretical models for the early Universe. The paper is well written and suitable for a general audience. There is thus no question that the paper should be published in Nature.

Status of LSC

Open Data Release Policy

- Mandate from the National Science Board to NSF to address the question of what LIGO is doing to make its data available to the broader research community
- LSC white paper on Open Data Release: summary recommendations
 - » Pre-detection era: no release
 - » Initial post-detection era:
 - 1) release of data associated with detections *upon publication*
 - 2) release of data associated with externally triggered searches resulting in no detections *upon publication*
 - » Routine detection era: full $h(t)$ data release
- NSF review held in Feb 17-18, 2009
 - » Review panel agreed with recommendations for pre-detection, initial post detection era
 - » Panel stated that it was too early to contemplate full data release
- NSF is now considering the policy and the report of the committee.
 - » Report to the National Science Board was scheduled to take place in May 2009
 - » Delayed until August meeting
- In the meantime, the question of data release with LSC international partners GEO and Virgo under discussion
 - » Draft of new MOU language under development



GWIC

Gravitational Wave International Committee

EXECUTIVE SUMMARY

Introduction | 4

Science Goals | 4

Ground-based detectors | 7

Space-based detectors | 9

Theory, Data Analysis and
Astrophysical Model Building | 11

Outreach | 13

Technology Development | 13

Update on LSC Committees and Activities

- **New data analysis review chairs**
 - » Ben Owen replaces Jolien Creighton as the Burst review chair
 - » Teviet Creighton replaces Peter Shawhan as the CW review chair
- **Annual revision of the LSC(-Virgo) Research White Paper underway**
 - » Data Analysis & Detector Characterization
 - » Instrument Science
 - » Prioritization of R&D activities for the next year
- **LSC Outreach Exhibit to premier at the World Science Festival Street Fair, June 14**

www.ligo.org

- Designed for the public
 - » Portal for people interested in learning more about GW; Will go public on June 12 (World Science Festival LIGO Exhibit)
- Developed by LSC Web Committee over the past ½ yr
 - » Comments and suggestions are welcome → lsc-webcomm@ligo.org
- LSC business functions will be moved to a twiki

home LIGO Lab community/environment **LSC/internal** site map

LSC LIGO Scientific Collaboration

news science students/teachers/public multimedia partners about

LIGO probes dynamics of Crab Pulsar

LIGO Wave Wall
★★★★★

0:00 / 4:20

NEWS

06.14.09 LSC Traveling Exhibit Debuts at the [World Science Festival Street Fair](#) in New York City!

06.02.09 [LSC-Virgo Meeting](#), Orsay, France

05.11.09 LSC Posts Seven New Observational Papers to the [ArXiv](#)

PRESS RELEASES

06.02.08 [LIGO Observations Probe the Dynamics of the Crab Pulsar](#)

01.04.08 [Advanced LIGO Project Funded by National Science Foundation](#)

01.02.08 [LIGO Sheds Light on Cosmic Event](#)

The LIGO Scientific Collaboration (LSC) is a dynamic group of approximately 700 scientists worldwide who have joined together in the search for gravitational waves from the the most violent events in the universe. Learn more about gravitational waves and the LSC here!

LEARN MORE!

- The S5 Blind Injection Challenge pointed out some gaps in our ability to claim a GW detection
- → What are the L-V collaboration standards for detection confidence?
 - » Right now, we don't have a well-defined standard that we all agree on
- A detection claim will be a statistical statement
- But, what level of statistical confidence?
 - » N-sigma event?
 - » False alarm rate of 1/M years? False alarm probability of Z%?
 - » X-site coincidence; X=2 or 3?
 - » Coincident external trigger?
 - » “evidence for a gravitational wave” vs “detection of a gravitational wave”?

Some reminders

- **Annual LSC MOU review – Aug 5,6th**
 - » MOU Reporting web site opens ~ June 15
 - » Please complete reports and new MOUs by July 15

- **April 2009 author list generation delayed**
 - » Migration of the LSC Directory Services from Penn State to Caltech

- **Upcoming LSC-Virgo meetings**
 - » September 21-24, 2009, Eotvos Univ., Budapest, Hungary
 - Full meeting, Council session
 - F2f on September 19,20
 - » December 16,17, 2009, Boston, MA
 - Data analysis
 - F2f on December 14,15
 - » March 15-18, 2010, Arcadia, CA
 - Full meeting, Council session
 - F2f on March 13,14
 - » June meeting in Hannover, Germany, early June

Enjoy the rest of the
meeting!