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New LIGO Results in the Search for Gravitational-Wave Bursts

LAURA CADONATI, LIGO SCIENTIFIC COLLABORATION — The Laser Interferometer Gravitational-wave Observatory (LIGO) Burst Analysis group is pursuing searches for unmodeled gravitational-wave transients of short duration (< 1 sec) in the 100-2000 Hz frequency band. Plausible sources of this type of signal are core-collapse supernovae and the merger and ringdown phases of coalescing binary systems. This talk presents new limits on the measurable rate of gravitational-wave bursts. Such limits constitute a significant improvement over the published results from the first LIGO science run, due to the increased observational time, better detector sensitivity and more sophisticated analysis techniques. In particular, the search in the 700-2000 Hz band has benefited from collaborations and data exchange with the TAMA (Japan) and GEO600 (Germany) interferometers, a major step forward in the implementation of a world-wide network of gravitational-wave detectors.

Laura Cadonati
Massachusetts Institute of Technology

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