

Abstract Submitted
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Coherent all-sky search for gravitational wave bursts with the LIGO, GEO and VIRGO detectors IGOR YAKUSHIN, LIGO Livingston Observatory, Caltech, FOR THE LIGO SCIENTIFIC COLLABORATION — The fifth science run of the LIGO instruments, S5, started in November 2005, is still in progress and is expected to collect one year of coincidence data. The GEO detector in Germany has also collected data during most of the S5 run. The VIRGO detector in Italy is nearing design sensitivity and we plan to exchange data and do joint LIGO-GEO-VIRGO analyses. We discuss the benefits of applying coherent methods to the search for gravitational wave bursts on data from networks of detectors that are misaligned and have different sensitivities. We present a preliminary analysis of the S5 data with a coherent network algorithm based on the constraint likelihood method. We describe the analysis pipeline, called coherent WaveBurst, which is designed for un-triggered all-sky burst searches with networks of gravitational wave detectors. The pipeline performs identification of burst events and reconstruction of gravitational wave polarizations and source location in the sky. We estimate the performance of the coherent burst search including estimation of the false alarm rate and detection efficiency for simulated burst signals.

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