

Abstract Submitted  
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**Broadband Search for Continuous-Wave Gravitation Radiation with LIGO** VLADIMIR DERGACHEV, University of Michigan, LIGO SCIENTIFIC COLLABORATION — Isolated rotating neutron stars are expected to emit gravitational radiation of nearly constant frequency and amplitude. Searches for such radiation with the LIGO interferometers are underway, using data taken from LIGO's first several data runs. Because the gravitational wave signal amplitudes are thought to be extremely weak, long time integrations must be carried out to detect a signal. Unfortunately, motion of the Earth (daily rotation and orbital motion) induces substantial modulations of detected frequency and amplitude that are highly dependent on source location. We present an algorithm called PowerFlux, used to account for these modulations, when summing power spectral density estimates incoherently over long time intervals. Current approaches to reconstruction of source parameters (necessary for coincidence analysis) will also be discussed. We will describe the application of PowerFlux to a broadband search in data from the 30-day fourth LIGO Science Run (S4) and to the initial data of the ongoing S5 run.

Vladimir Dergachev  
University of Michigan

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