

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. This requires consideration of motion of the Earth (daily rotation and orbital motion) which induces substantial modulations of detected frequency and amplitude that are highly dependent on source location. We will describe an algorithm called PowerFlux, used to account for these modulations, when summing power spectral density estimates incoherently over long time intervals. Instrumental artifacts that contribute to false signals for certain frequencies and sky directions will also be discussed. We will describe progress in applying PowerFlux to a broadband search in data from the 30-day fourth LIGO Science Run (S4) and to the first two months of the ongoing S5 run.

Vladimir Dergachev
University of Michigan

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