

Abstract Submitted
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Broadband Search for Continuous-Wave Gravitation Radiation with LIGO VLADIMIR DERGACHEV, California Institute of Technology, LIGO SCIENTIFIC COLLABORATION AND VIRGO 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 fifth science run and ongoing sixth science run. Because the gravitational wave signal amplitudes are thought to be extremely weak, long time integrations must be carried out to detect a signal. This is complicated by the 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. Large volumes of acquired data make this search computationally difficult. We present an algorithm called PowerFlux, used to account for these modulations, when summing power spectral density estimates incoherently over long time intervals. Latest results using data from the S5 run, as well as challenges and progress of the detection search, will be discussed as well.

Vladimir Dergachev
California Institute of Technology

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