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Search for r-modes from Crab pulsar. BINOD RAJBHANDARI, BENJAMIN OWEN, Texas Tech Univ — Fluid oscillations of neutron stars can be promising sources of continuous gravitational waves. R-modes are oscillations where the restoring force is the Coriolis force. The modes are damped by viscosity but can be unstable to gravitational radiation via the Chandrasekhar-Friedman-Schutz instability. When relativistic corrections are taken into consideration the mode frequency can be 1.39 to 1.57 times the spin frequency of the star and the frequency derivative can be roughly estimated in terms of the star's measured spin-down parameter. We performed a search for r-mode gravitational waves from the Crab pulsar for the entire LIGO O1 and O2 runs. We did not find any evidence of gravitational waves but instead set upper limits.

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