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Searches for gravitational waves from astrophysical sources

GABRIELA GONZALEZ¹, Louisiana State University

Interferometric gravitational wave detectors have achieved unprecedented sensitivity to gravitational waves, expected from astrophysical sources of different kinds: brief transients from violent events like supernova explosions and collisions of neutron stars and black holes, coalescence of binary compact systems, continuous waves from rotating systems, and a possible stochastic background of gravitational waves. I will describe the astrophysical sources generating gravitational waves in the frequency band of Earth based detectors, and the methods used to search for their signals. I will present some of the results obtained in data collected with the LIGO and GEO detectors, as well as describe the prospects for the present and future detectors.

¹for the LIGO Scientific Collaboration