

Abstract Submitted
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Advanced LIGO searches for gravitational waves associated with gamma-ray bursts DIPONGKAR TALUKDER, University of Oregon, THE LIGO SCIENTIFIC COLLABORATION AND THE VIRGO COLLABORATION COLLABORATION — Gamma-ray bursts (GRBs) are the most luminous electromagnetic events in the universe. According to the existing models, the long-soft GRBs are powered by the core collapse of rapidly rotating massive stars. The progenitors of short-hard GRBs are widely thought to be mergers of binary neutron stars or black hole-neutron star binaries. These phenomena are all expected to emit gravitational waves that are detectable by Advanced LIGO/Virgo when the source is within its range in the sensitive frequency band, making GRBs promising events for gravitational-wave follow-up. Here we present efforts to localize gravitational-wave signal candidates on the sky and to identify coincidences in time with GRBs. We discuss the strategies developed to promptly launch searches for gravitational waves associated with GRBs and the prospects of joint electromagnetic and gravitational-wave follow-ups. We also present the results of these searches during Advanced LIGO's first observing run carried out between September 2015 and January 2016.

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