

Hearing & Seeing the Violent Universe

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Abstract

Joint gravitational-wave (GW) and multi wavelength electromagnetic (EM) observations of compact binary mergers should enable unprecedented studies of astrophysics in strong-field gravity, and of binary stellar evolution. Within the next decade, a worldwide network of advanced versions of ground-based GW interferometers should become operational from 10 Hz to a few kHz. At these frequencies, inspirals and mergers of neutron star binary mergers are expected to be amongst the most numerous and strongest GW-emitting sources. A subset of these events could be associated with a transient EM counterpart, and should be observable at different wavelengths, energies and timescales. In this talk, I will first discuss the EM counterparts that we expect to see from compact binary mergers and then describe how we can search and identify such EM counterparts using a slew of high-energy, optical and radio telescopes in the near future.