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Exploring the transient universe with gravitational waves

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The first generation of km-scale interferometric gravitational-wave detectors has completed several years of observation at or near their design sensitivity. Their data is being analyzed for a variety of astrophysical sources of gravitational radiation. Although gravitational waves have not yet been detected, a number of upper limits have been set. I will discuss astrophysical implications of searches for transient gravitational-wave sources such as coalescing binary systems of black holes and/or neutron stars, and core-collapse supernovae.

¹for the LIGO Scientific Collaboration and Virgo Collaboration