

Neutron star mergers - from nuclear physics to cosmology

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The LIGO and Virgo gravitational-wave detectors recorded the first detectable signal from a pair of neutron stars colliding with each other on the 17 August 2017. With the detection of gamma rays just 1.7 seconds after the merger, the identification of an optical source in a nearby galaxy, and observations at multiple wavelengths, this is a unique astronomical object with which to test theories of our Universe from tiny to huge scales. After a brief introduction to gravitational waves and how the detectors work, I will discuss the insights that have come from this event so far. I will finish with a discussion of future observing runs and what we can expect over the next few years.