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GW170817: Astronomy's First Talkie

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On August 25, 2017, the LIGO observatories ended their second observing run (O2). Starting on November 30, 2016, O2 had progressed relatively uneventfully for 260 calendar days until August 17, 2017, when LIGO detected its first binary neutron star merger, GW170817. It was LIGO's first binary neutron star detection, and it was also detected by telescopes across the electromagnetic spectrum, emphatically kicking off the era of gravitational-wave multi-messenger astronomy. With more than 70 ground- and space-based observatories joining in the discovery, GW170817 quickly became one of the most observed transients in the history of astronomy. I will discuss some of what GW170817 and its EM counterpart has taught us (so far) about neutron star collisions, the expansion of the universe, and fundamental physics.