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GW150914: a black hole binary merger discovered by gravitational-wave observation

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Exploring the universe with gravitational waves (GWs) was only a theoretical expectation for the last 100 years after Einstein's theory of general relativity. In September 2015, the US-based Laser Interferometer Gravitational-wave Observatory (LIGO) first detected GWs emitted from the collision of two stellar-mass black holes at cosmological distance (1.3 billion light years) from Earth. The event, labeled as GW150914, confirms the existence of black-hole binary mergers, and further, opens a new field of GW astronomy. I will give a brief overview on the detection of GW150914 and discuss prospects of GW astronomy. In addition to the information about sources we obtain via GWs, coordinated follow-up observations using electromagnetic waves and neutrinos will be useful to better understand some of the universe's most energetic phenomena.

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