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## Detection of gravitational waves with LIGO

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In February 2016, the LIGO Scientific Collaboration and Virgo Collaboration reported the detection of gravitational waves produced from the inspiral and merger of two stellar mass black holes. In addition to being the first direct measurement of a gravitational wave by an earth-based detector, this is the first observation of a coalescing binary black hole system, the first evidence that “heavy” stellar mass black holes exist, and the first test of general relativity in the strong-field regime. Successively, in June the LIGO and Virgo Collaborations announced that the same instruments have caught a second robust signal from two black holes in their final orbits and then their coalescence into a single black hole. With these two confirmed detections, along with a third likely detection made in October 2015 (believed also to be caused by a pair of merging black holes) we can now start to estimate the rate of black hole coalescences in the Universe based not on theory, but on real observations.

### Biography

Irene Di Palma has completed her studies in Astrophysics from the University of Rome La Sapienza, a Fellowship at the Columbia University of New York and her PhD from the Max Planck Institute for Gravitational Physics in Hannover. After the first Post-doctoral studies from the Max Planck in Golm, Berlin, she is now a Researcher at the University of Rome, La Sapienza. She has published more than 25 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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