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The Dawn of Gravitational Wave Astronomy

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Early in the morning of September 14th, 2015, a gravitational wave signal passed through the Earth and was detected by the Advanced LIGO instruments. The detection occurred 100 years after Einstein first predicted their existence using his newly formulated general theory of relativity, and 60 years after Joe Weber initiated the search for these elusive signals. The first direct detection of gravitational waves marks the end of the a decades long effort to measure a basic property of the Universe, and the beginning of a new branch of astronomy. I will describe what we have learned from the first detection of a black hole merger, and what the future may hold for gravitational wave astronomy of the next years and decades, on ground and in space.