-Gravitational Waves: The Dawn of a New Era in Astronomy

On September 14, 2015, the two sites of the Laser Interferometer Gravitational-wave Observatory (LIGO) detected a short burst of gravitational waves from the inspiral and merger of two black holes, the first time that gravitational waves had been directly detected since their prediction roughly a century ago. This observation of gravitational waves marks the end of a 40+ year-long quest, but also sets the stage for a new era of gravitational wave studies of high energy astrophysical sources. In this talk, I will provide an overview of the two binary black hole mergers observed by LIGO so far, along with some of the resulting astrophysical consequences of these observations together with a description of other searches. The current status of Advanced LIGO's second observation run and prospects for the future of the nascent field of gravitational wave astronomy will also be briefly discussed.