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Exploring the Physics of Compact Objects with Gravitational-Wave Astronomy

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The Advanced Laser Interferometer Gravitational Wave Observatory (LIGO) has recently completed its first observing run. Future observations of gravitational waves by LIGO will open a new field in astronomy. The gravitational waves radiated by binaries containing neutron stars and/or black holes contain information about strong field gravity and the properties of dense matter. In this talk I will discuss the nuclear and gravitational physics that can be learned from the observation of compact-object mergers