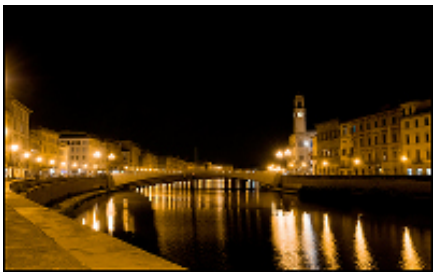

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Prospects for joint GW and high-energy EM observations of BNS mergers

Thursday, 20 October 2016 10:10 (20 minutes)

With the recent detection of two transient gravitational wave (GW) signals by the Advanced LIGO interferometers the era of GW astronomy has begun. The two events, labeled GW150914 and GW151226, are both consistent with the inspiral and the merger of a binary system of black holes (BBH). In the next years the 2nd generation interferometers will increase their sensitivity: many other GW events are expected to be detected, expanding the frontiers of the multimessenger investigations of the universe. Besides the merger of BBH systems, one of the most promising candidates for the direct GW detection is the coalescence of binary neutron stars (BNS) and black holes (NSBH). These mergers are thought to be connected with short Gamma Ray Bursts (GRBs), that are among the most energetic events in the universe, but a definitive probe of this association is still missing. Combined observations of gravitational and electromagnetic (EM) signals from these events will provide an unique opportunity to unveil the progenitors of short GRBs and study the physics of compact objects. In particular, large field-of-view instruments such as Fermi will be crucial to observe the high-energy electromagnetic counterparts of transient gravitational wave signals and provide a robust identification based on a precise sky localization. We will present the prospects for joint GW and high-energy EM observations of merging binary systems with Advanced LIGO and Virgo and with Fermi, focusing on BNS.

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