

Physikalisches Kolloquium

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Gravitational Wave Astronomy

The 2017 Nobel Prize in Physics was awarded “for decisive contributions to the LIGO detector and the observation of gravitational waves” back in 2015. Those gravitational waves are believed to origin from a black hole-black hole merger. On October 16, 2017 the LIGO/VIRGO collaboration announced the discovery of a neutron star-neutron star merger, observed simultaneously by means of gravitational waves (GW170817) and as a gamma-ray burst (GRB170817A) and its afterglow across the electromagnetic spectrum. This event marks the beginning of a new era in astronomy and physics: gravitational wave astronomy.

This colloquium will provide a brief introduction into the physics of gravitational waves, the interferometric detection technique, and summarise the discoveries so far. Then I will explain how gravitational waves can test general relativity and its alternatives and will explain how, within that day in October 2017, the theoretical community started to realise that the simultaneous observation of a gravitational wave and a gamma-ray burst killed several classes of alternative models of gravity within a few seconds. Finally, I will briefly touch on how the Bielefeld research activities fit it.

Montag, 30.04.2018, 16:15 Uhr

Ort: Hörsaal 6