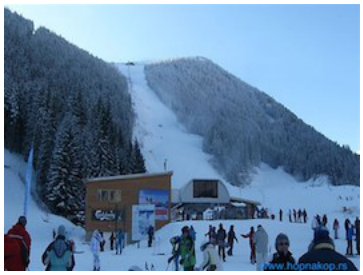

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# What Gravitational Waves and Gamma-Ray Bursts teach us about their progenitors

*Monday 12 March 2018 17:00 (30 minutes)*

The years 2015 and 2016 marked the start of gravitational wave (GW) astronomy with the discovery of gravitational waves originating from massive black hole mergers. Although searches were performed with a range of dedicated satellites for an electro-magnetic (EM) counter-part no such radiation was detected. As the sensitivity of the GW detectors increased the first detection of a GW produced by the merger of two neutron stars was detected in August 2017. This detection has implications for a wide range of different fields. Firstly the detection of an EM counter part to the GW signal confirmed the origin of Gamma-ray Bursts (GRBs), the brightest events in the universe since the big-bang, to be neutron star-neutron star mergers. It furthermore provided a wealth of information on the thus far poorly understood origin of the emission from GRBs which is being studied by a wide range of instruments such as Fermi-GBM and POLAR. Apart from constraining models on the EM radiation from GRBs it also provides information on the progenitors, the neutron stars, and the final state of the merger, the exact nature of which is not fully understood yet. In this talk the connection between GRBs and GWs will be discussed with an emphasis on the recent NS-NS merger event. The implications of this event on our understanding of both GRBs and of for example the NS equation of state of will be discussed and finally an outlook on future measurements will be given.

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