



PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik der Goethe-Universität Frankfurt

Mittwoch, den 09.02.2022, 16 Uhr c.t.

Virtuell via ZOOM: [LINK](#)

Zoom ID: 990 4879 2775

Passwort: 82 91 21



Prof. Eleonora Troja
University of Rome

Studying neutron star mergers from a new perspective

Pairs of neutron stars (NSs) are bound to spiral into each other and eventually merge due to angular momentum and energy losses to gravitational radiation. By combining extreme gravity, copious emission of gravitational waves, and luminous electromagnetic radiation, these mergers serve as excellent astrophysical laboratories to explore a wide range of fundamental problems: from the formation of relativistic jets to the cosmic production of heavy metals, from the equation of state of cold ultra-dense matter to the expansion rate of the universe. Our understanding of NS mergers, traditionally driven by observations of short duration gamma-ray bursts, was revolutionized in 2017 by the discovery of GW170817, the first NS merger studied through gravitational waves and light. Thanks to its proximity, this one event revealed the rich complexity of the merger phenomenon, opening up new horizons for the study of these systems. In this talk, I will present recent results from the observations of gravitational wave sources, including our long-term monitoring campaign of GW170817, and discuss complementary constraints from short duration gamma-ray bursts at cosmological distances.

Die Dozenten der Physik

local host: Prof. Luciano Rezzolla | rezzolla@itp.uni-frankfurt.de