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Uncertainties in Modeling Kilonova Emission

Monday, 5 July 2021 16:55 (25 minutes)

Neutron star mergers have long been believed to drive short-duration gamma-ray bursts, one of the most powerful explosions in the universe. They have also long been believed to be a promising source of the r-process isotopes observed in the Milky Way. These two theories were violently validated in the observation of the first neutron star merger in gravitational waves. The electromagnetic follow-up of this event proved that mergers could both produce relativistic jets and heavy r-process isotopes. But determining the exact composition of from the electromagnetic emission requires detailed physics and current models are currently forced to approximate this physics. I will discuss the uncertainties in these physical assumptions and their effect on the emission from neutron star mergers and our inference of the ejecta properties from events like the merger producing GW170817.

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Session Classification: Explosive Events Associated with Compact-Object Binary Mergers

Track Classification: Binaries: Explosive events associated with compact-object binary mergers