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The long-lived X-ray counterpart of GW170817

Friday, 9 July 2021 18:00 (35 minutes)

Our understanding of compact binary mergers was transformed by the spectacular discovery of GW170817, the first neutron star merger observed through gravitational waves and light. The electromagnetic counterpart of GW170817 was initially dominated by a luminous kilonova, peaking at optical and then infrared wavelengths. At 9 days, we detected in X-rays the onset of a different component of emission, best described as non-thermal afterglow radiation from a structured relativistic jet viewed off-axis. I will review the current status of observations of GW170817 and show that the X-ray counterpart continues to be detected at 3.3 years after the merger. Such long-lasting signal is not a natural prediction of the structured jet model and is spurring a renewed interest in the origin of the X-ray emission. I will discuss possible interpretations of the long-lived X-ray counterpart and how future observations could break the degeneracy between models.

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