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The evolution of Fast X-ray Transients

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Extragalactic Fast X-ray Transients (FXTs), manifesting as a few minutes to hours X-ray flashes, have likely been observed since the 1970s, but only a few dozen examples have been isolated as non-Galactic objects thanks to archival Chandra, XMM-Newton, and Swift data over the past two decades. The launch of Einstein Probe in 2024, which can rapidly detect and localize FXTs in its 3600 deg2 FOV Wide-field X-ray Telescope (WXT-EP), has allowed a detection rate of ˜3 FXTs per week, far exceeding expectations, which has permitted the detection of 50+ optical
and NIR counterparts from a total sample of 150+ publicly announced FXTs. Intriguingly, many EP transients have been identified as collapsars (core-collapse supernova with jetted engines). A small minority have additionally been liked to binary neutron star mergers or tidal disruption events, while a substantial fraction remain unclassified. I will summarize ongoing efforts by our collaboration to understand the diverse channels that produce fast X-ray transients.

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