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X-ray polarimetry of GRB 221009A

Tuesday, 9 July 2024 16:00 (20 minutes)

We present the Imaging X-ray Polarimetry Explorer (IXPE) observation of the gamma-ray burst (GRB) 221009A, which reached Earth on October 9, 2022. Although IXPE was not originally designed for this purpose, the exceptional brightness of GRB 221009A allowed it to observe the afterglow emission even after almost 60 hours, providing the first constraints on the X-ray polarization in the 2-8 keV energy band. Additionally, IXPE performed simultaneous polarimetry of the GRB prompt emission by capturing its echo in the form of halo-rings of dust-scattered photons. These results offer insights into the GRB jet opening angle and viewing angle, as well as the properties of the emission region.

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Session Classification: IXPE observations and multiwavelength opportunities

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