

The Imaging X-ray Polarimetry Explorer (IXPE) Space Telescope and X-ray Optic Development at NASA's Marshall Space Flight Center

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Abstract

Developed as a partnership between NASA and the Italian Space Agency (ASI), the Imaging X-ray Polarimetry Explorer (IXPE) Observatory is an Astrophysics Small Explorer Mission successfully launched from Kennedy Space Center on December 9th, 2021. IXPE is comprised of three identical, polarization-sensitive, co-aligned, X-ray telescopes all mounted and integrated onto a spacecraft bus provided by Ball Aerospace. Each telescope focuses X-rays via a Wolter Type-I optic assembly, made employing NASA Marshall Space Flight Center's (MSFC's) full-shell optics, onto a polarization-sensitive Detector Unit (DU) developed by ASI affiliated institutions. Overview will be provided on X-ray astronomy, the MSFC X-ray optics program, and on the IXPE observatory and its calibration. IXPE is currently operating and accomplishing its science mission of observing polarized X-ray emission from astrophysical targets.