Broadband X-ray investigation of an Intermediate Polar V2731 Oph

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Cataclysmic variables (CVs) are interacting binary systems in which a white dwarf accretes material from a Roche-lobe–filling companion star, usually a late type main sequence star. In intermediate polars—a subclass of magnetic CVs—the white dwarf possesses a moderately strong magnetic field (B ∼ 1–10 MG). This magnetic field disrupts the inner regions of the accretion disk, channeling in-falling material along magnetic field lines toward the white dwarf's magnetic poles. This results in formation of accretion columns, where strong shocks generate intense X-ray emission. This X-ray radiation encodes detailed information about the accretion dynamics, geometry, and physical conditions within the system. As such, intermediate polars serve as valuable astrophysical laboratories for investigating accretion processes in environments characterized by strong gravity and moderately magnetized conditions. Here, we present results from the simultaneous X-ray observations of the IP V2731 Oph using the XMM-Newton and NuSTAR observatories, covering a broadband energy range of (0.3–50) keV. Simultaneous observations are crucial to constrain the key parameters such as absorption column density, shock temperature, reflection amplitude, and Fe K line strength without ambiguities. These results provide a detailed characterisation of the X-ray emission properties of V2731 Oph, including an estimate of the white dwarf mass and a thorough evaluation of the system's physical characteristics.