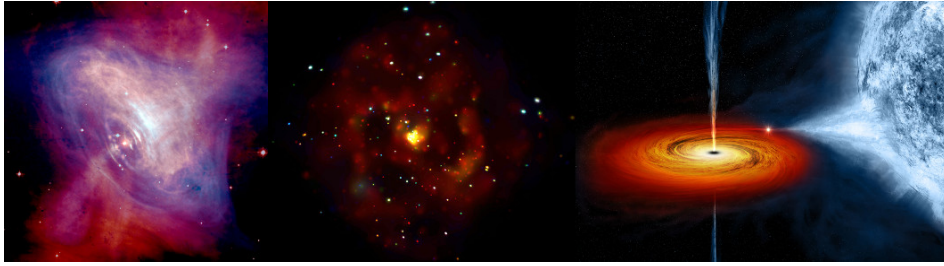


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SWIFT J0503.7-2819: a nearly synchronous intermediate polar below the period gap?

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Intermediate polars (IPs) are the low magnetic field strength ($B \sim 10^6 - 10^7$ G) subclass of magnetic cataclysmic variables. IPs are asynchronous systems, and they follow the asynchronism relation as the spin period of the white dwarf (WD) is relatively less than the orbital period of the binary system. Most IPs have orbital periods longer than the 'period gap' of 2-3 h. However, there is a special class of IPs known as nearly synchronous IPs for which the spin period of WD is approximately in the range of (0.7-0.9) times the orbital period of the WD. These systems are thought to be in the process of attaining synchronism and evolving into polars. There is only one confirmed system, 'Paloma', which belongs to this class and lies in the period gap. Within this frame of reference, we will discuss the X-ray and optical properties of only other nearly synchronous IP, namely SWIFT J0503.7-2819. The X-ray and optical variations of this target have been found to occur at the period of ~ 65 min, which we propose as the spin period of the white dwarf. The energy-dependent modulations at this period, which are due to the photoelectric absorption in the accretion flow, also assure this conjecture. If the proposed spin period is indeed the actual period, then SWIFT J0503.7-2819 could be the first nearly synchronous intermediate polar below the period gap.

Presentation Type

Oral

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