

DISCOVERY OF A YOUNG PRE-INTERMEDIATE POLAR

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We present the discovery of a magnetic field on the white dwarf component in the detached post common envelope binary (PCEB) CC Cet. Magnetic white dwarfs in detached PCEBs are extremely rare, in contrast to the high incidence of magnetism in single white dwarfs and cataclysmic variables. The handful of detached magnetic white dwarfs thus far detected are all likely dormant cataclysmic variables. CC Cet is the first unambiguous example of a young magnetic white dwarf in a detached PCEB that has never undergone accretion via Roche Lobe overflow. We find Zeeman-split absorption lines in both ultraviolet *Hubble Space Telescope* (*HST*) spectra and archival optical spectra of CC Cet. Model fits to the lines return a mean magnetic field strength of $\langle |B| \rangle \approx 600\text{--}700$ kG. Differences in the best-fit magnetic field strength between two separate *HST* observations and the high $v \sin i$ of the lines indicate that the white dwarf is rotating with a period ~ 0.5 hours, and that the magnetic field is not axisymmetric about the spin axis. The magnetic field strength and rotation period are consistent with those observed among the intermediate polar class of cataclysmic variable, and we compute stellar evolution models that predict CC Cet will evolve into an intermediate polar in 7–17 Gyr.