

Serendipitous discovery of a dusty disc around WDJ181417.84-735459.83

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Abstract

Spectroscopic observations of white dwarfs reveal that many of them are polluted by exoplanetary material, whose bulk composition can be uniquely probed this way. We present a spectroscopic and photometric analysis of the DA white dwarf WDJ181417.84-735459.83, an object originally identified to have a strong infrared (IR) excess in the 2MASS and WISE catalogues that we confirmed to be intrinsic to the white dwarf, and likely corresponding to the emission of a dusty disc around the star. The finding of Ca, Fe, and Mg absorption lines in two X-SHOOTER spectra of the white dwarf, taken 8 years apart, is further evidence of accretion from a dusty disc. We do not report variability in the absorption lines between these two spectra. Fitting a blackbody model to the IR excess gives a temperature of 910 ± 50 K. We have estimated a total accretion flux from the spectroscopic metal lines of $|M| = 1.784 \times 10^9 \text{ g s}^{-1}$.

Author keywords

accretion, accretion discs
stars: white dwarfs