White Dwarfs with an Infrared Excess

Jonathan Girven, Boris Gänsicke, Danny Steeghs, Carolyn Brinkworth and Detlev Koester

Over 400 planets are known around stars similar to that of our Sun, but what happens to these planets after the star ends its life and becomes a white dwarf?

- **Dusty Debris Disks and Brown Dwarf Companions**
- **Selecting Hydrogen-Rich Atmosphere (DA) White Dwarfs**
- **Finding DA White Dwarfs with an Infrared Excess**
- **Modelling the Excess**
- **The Resulting Debris Disk Candidates**
- **Spitzer Follow Up Observations**

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White Dwarfs with an Infrared Excess

Modelling the Excess

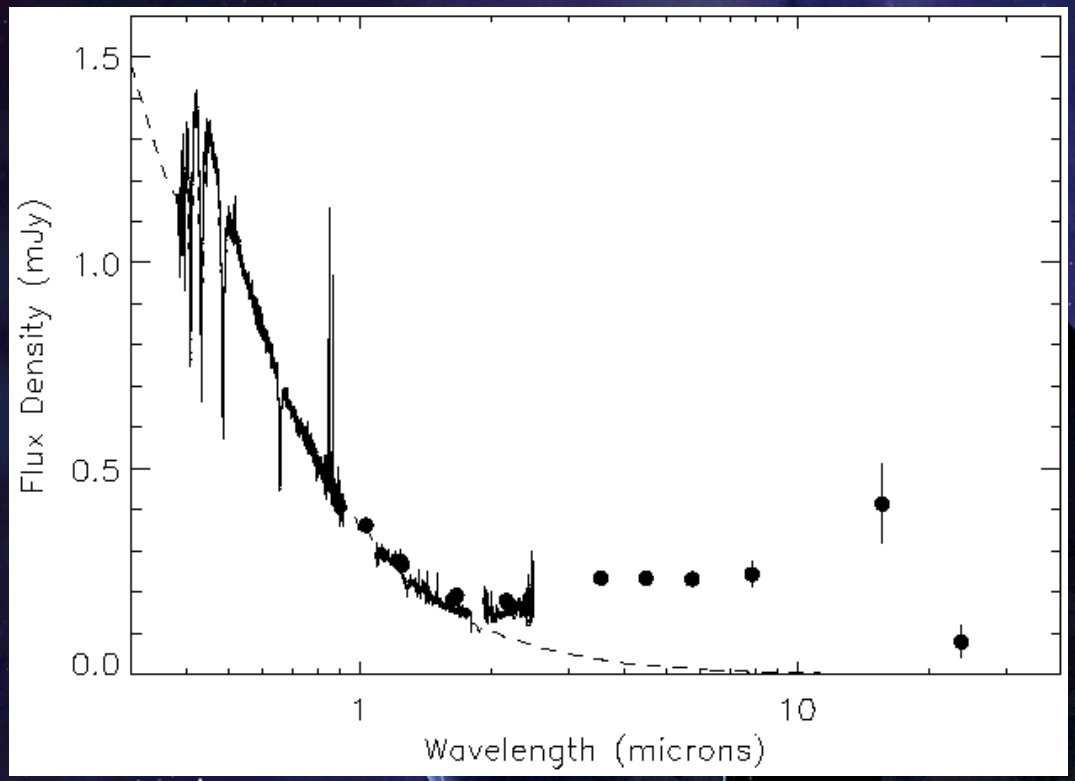
Fitting WD spectra or photometry allows us to obtain the effective temperatures and surface gravities. We can therefore extrapolate the spectral energy distribution (SED) into the infrared. Excesses over the predicted flux levels indicates a second object.

SED for SDSS 1228+1040 from the ultraviolet to the mid-IR. UV spectra and the white dwarf model (dashed line) are taken from Gänsicke et al. (2006). The near-IR spectroscopy and YJHK photometry were taken with ISAAC/VLT and UKIDSS. The mid-IR observations from 3.6 to 24 μm were taken with the Spitzer Space Telescope IRAC, IRS Blue Peak-Up, and MIPS instruments. The SED shows a significant flux density excess from the K band to longer wavelengths, compared to the white dwarf alone.

The Resulting Debris Disk Candidates

We have discovered that between 2 and 5% of DA WDs in our survey are estimated to have a late type companion or dusty debris disk.

Follow up observations with Spitzer can confirm the nature of the second bodies.



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Gänsicke, B. T. et al., 2006, Science, 314, 1908