

Characterizing White Dwarf Planetary Systems with JWST

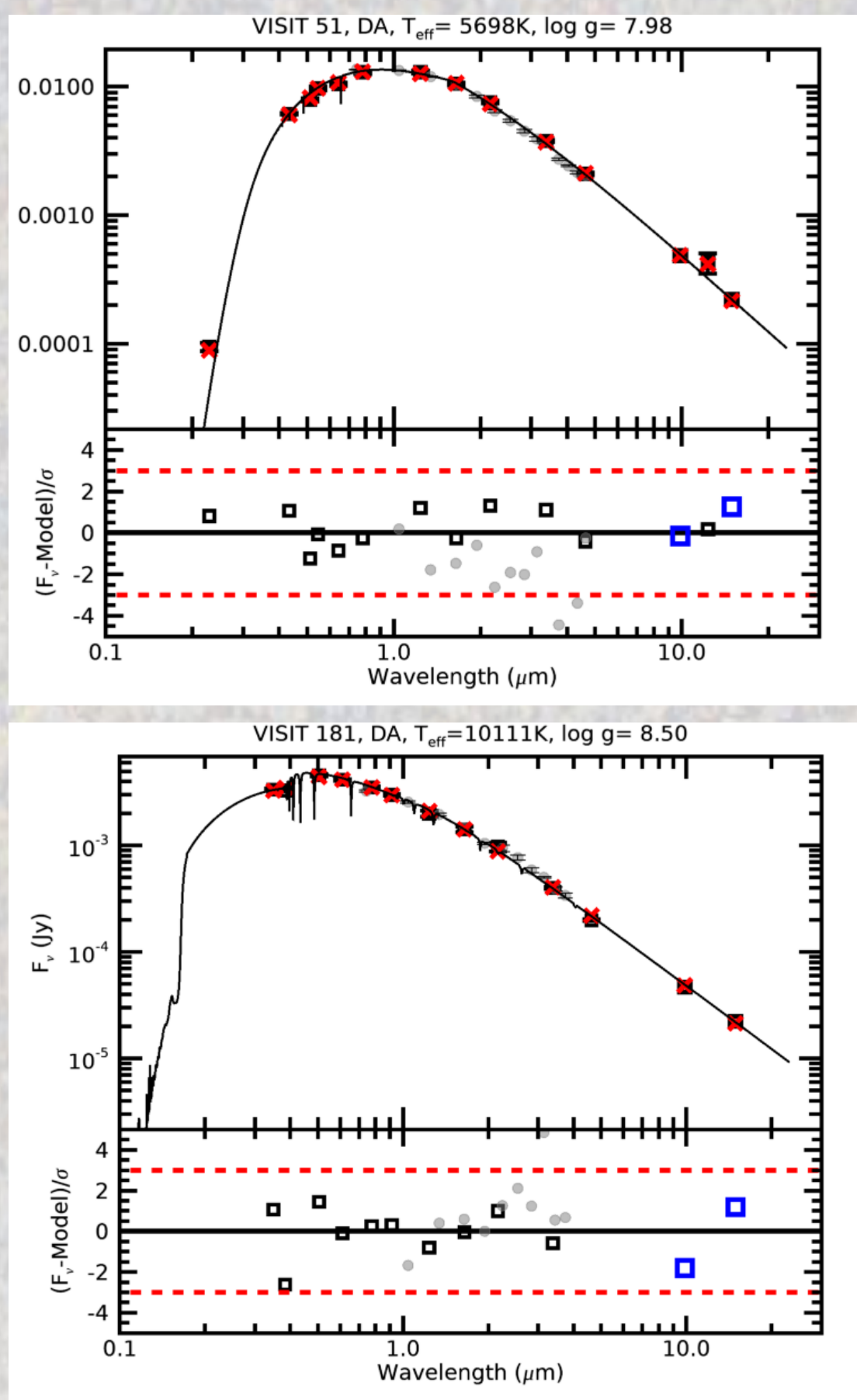
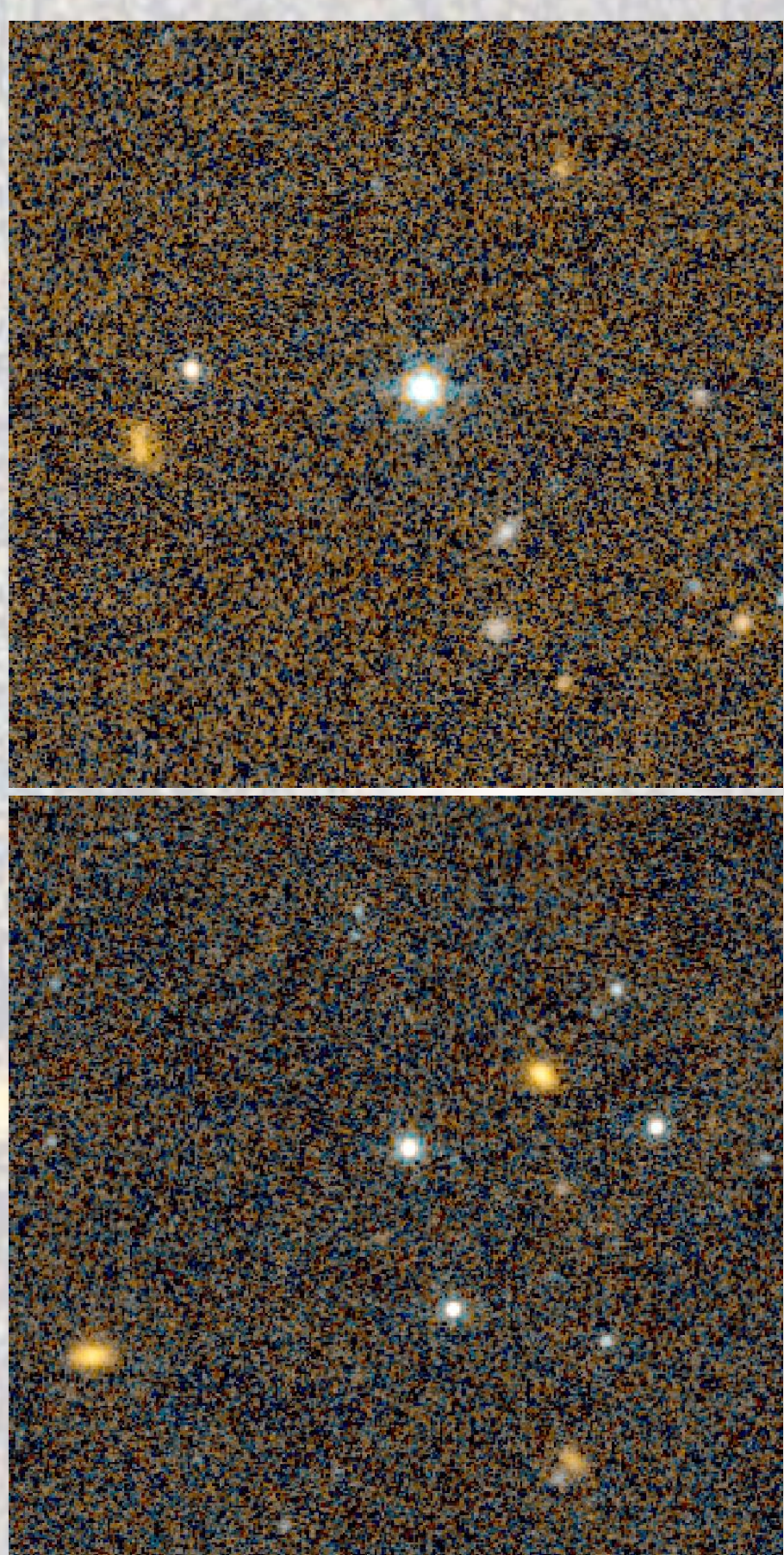
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Abstract

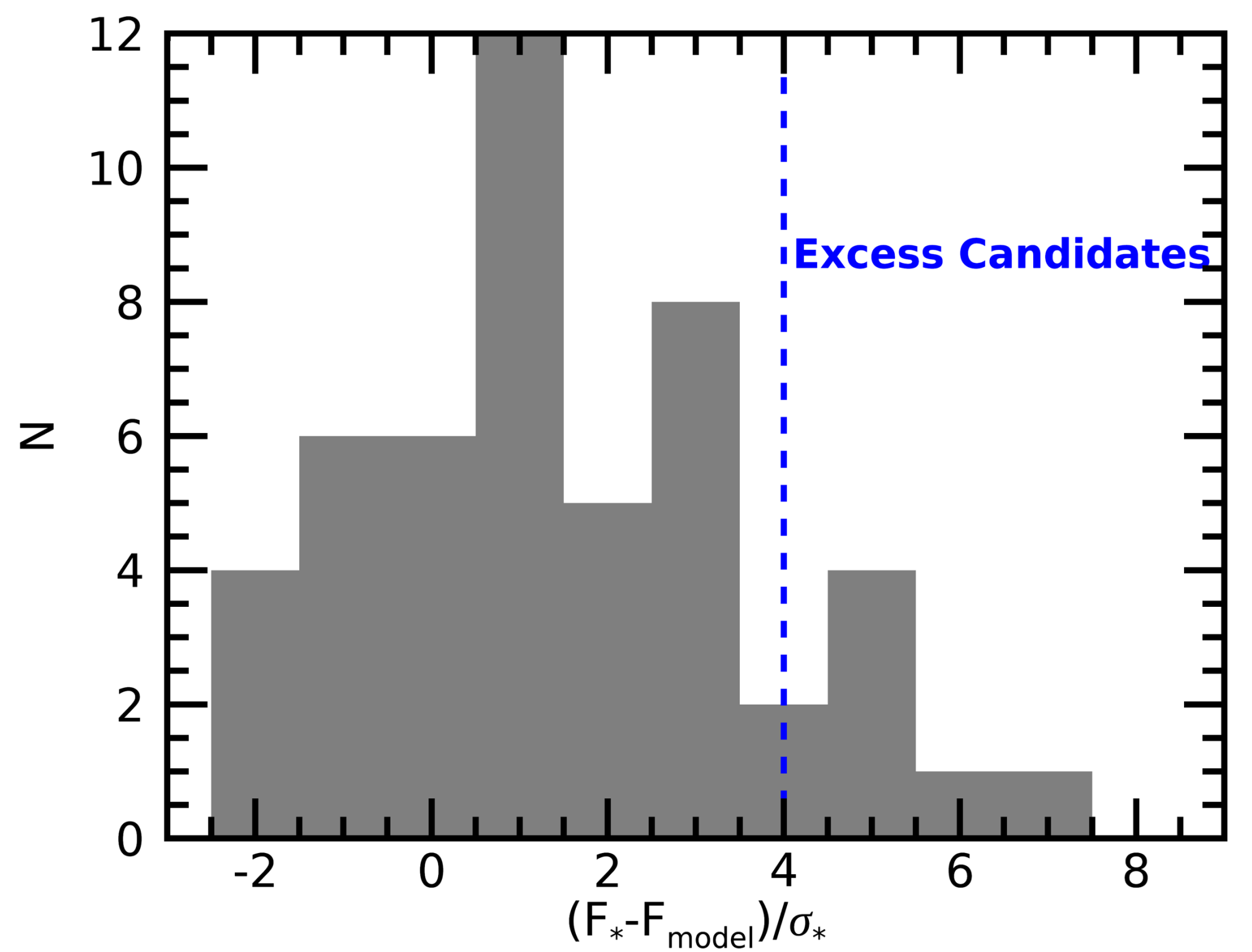
The sensitivity and spatial resolution of JWST in the near and mid-IR has opened the door to very detailed studies of white dwarf planetary systems. I will review the results of the MIRI Excesses Around Degenerates (MEAD) Cycle 2 survey that targeted 56 white dwarfs within 25pc. I also show follow-up observations with Keck/HIRES and Gaia astrometry that hint at a potentially large population of cold giant planets with orbital separations <10 au around former A and F type stars. These results can provide context to future planetary system demographic information that will come from astrometric results with Gaia DR4 and microlensing results with the Nancy Grace Roman Telescope. This work also helps to determine the fate of giant planets at orbital separations much like our own Solar System.

The MEAD Survey

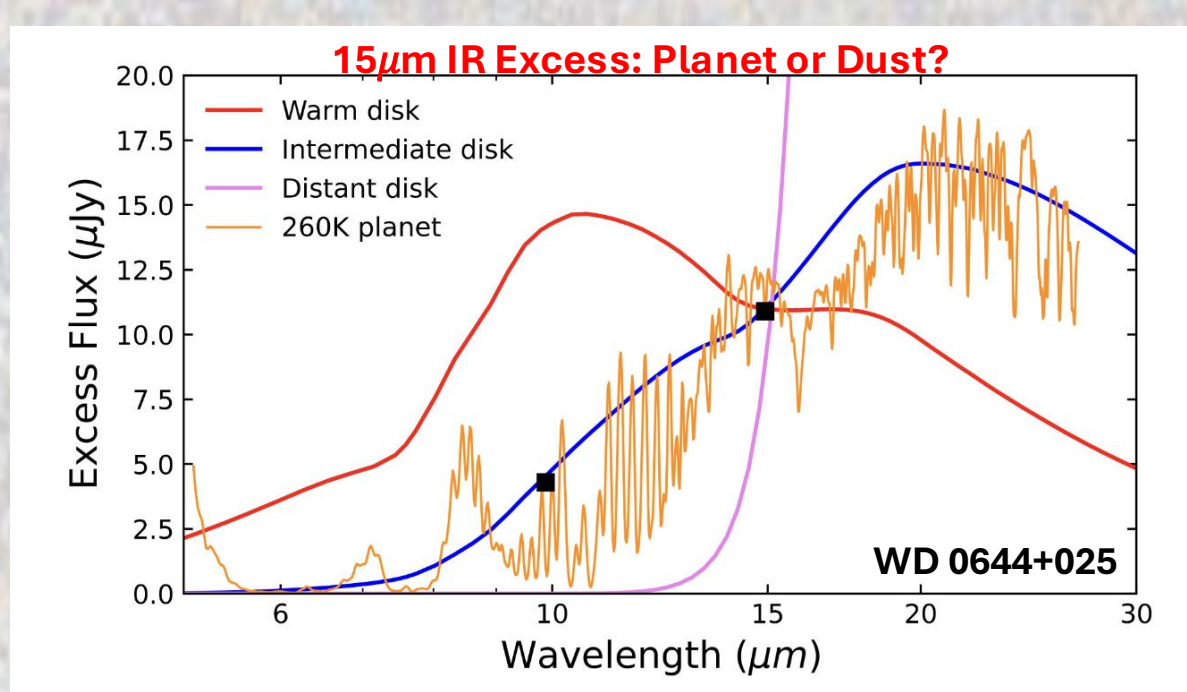
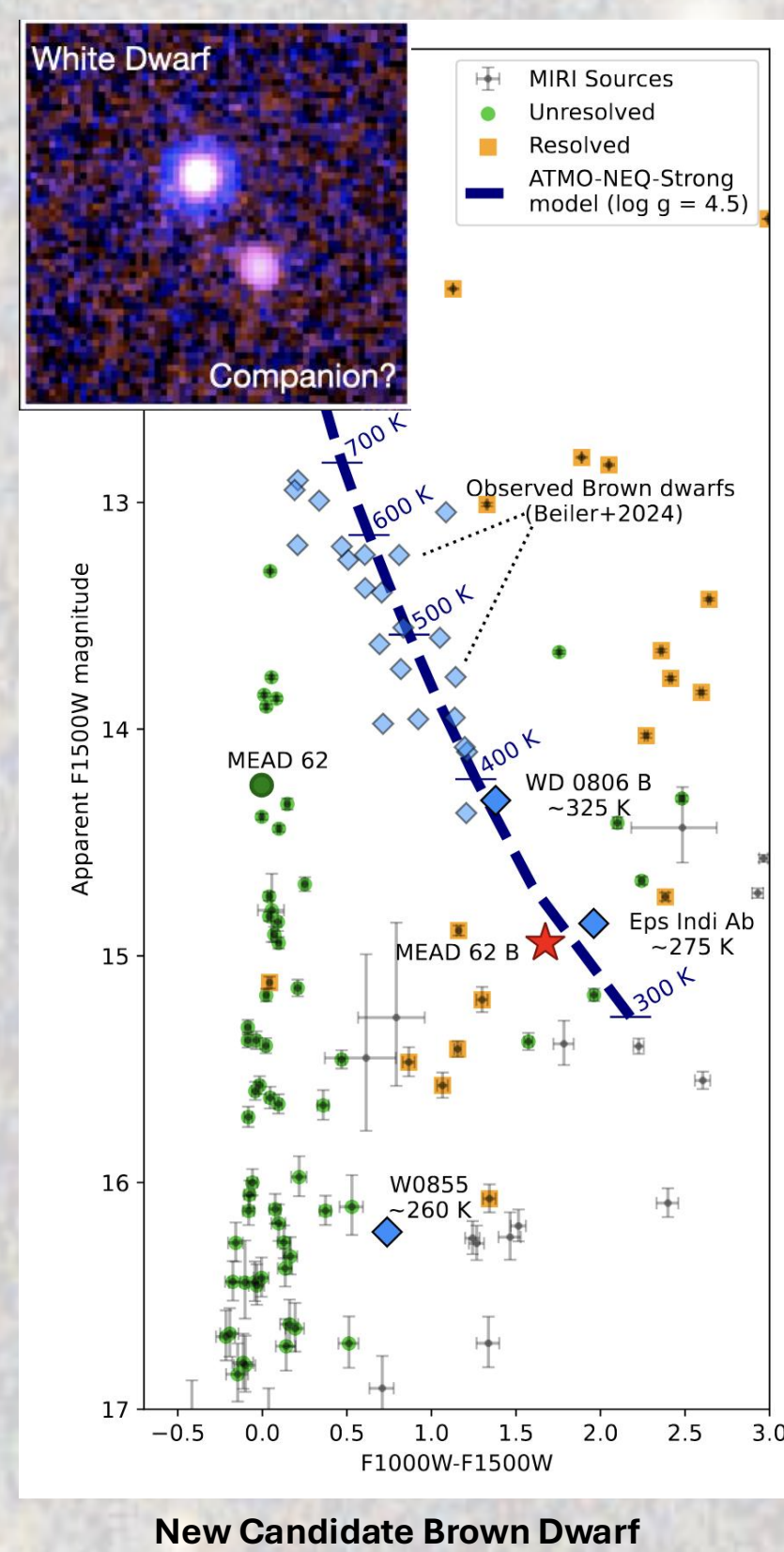
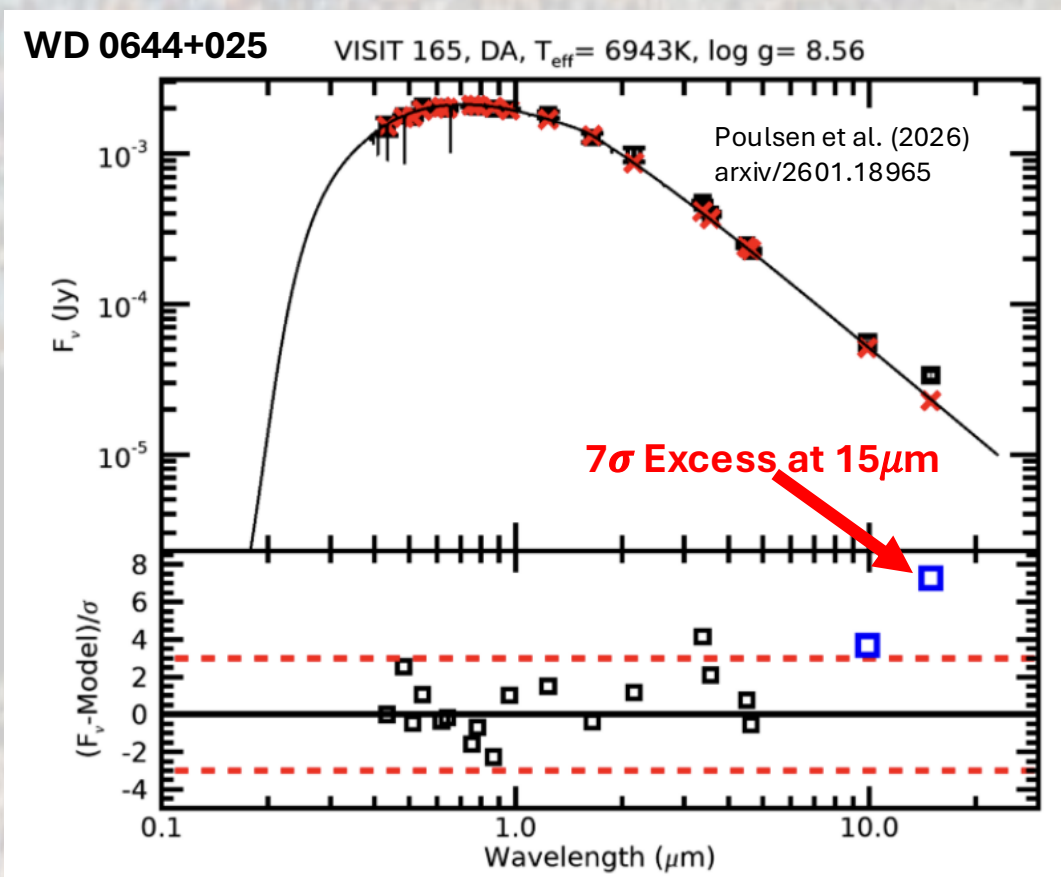
- Volume Limited Sample ($d < 25$ pc)
- 56 White Dwarfs
- Shallow MIRI imaging
- F1000W and F1500W filters



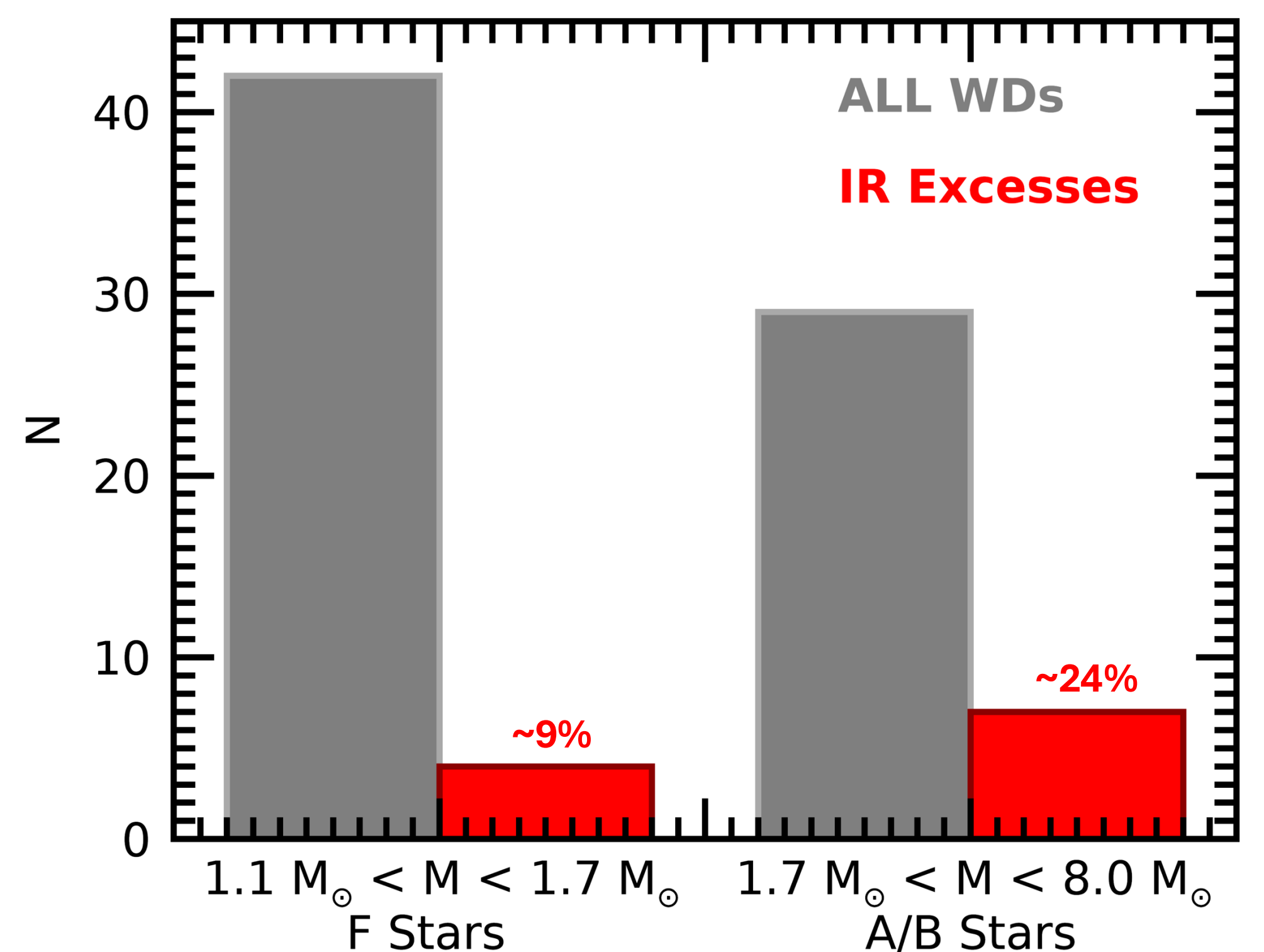
MEAD IR Excesses and Preliminary Occurrence Rates



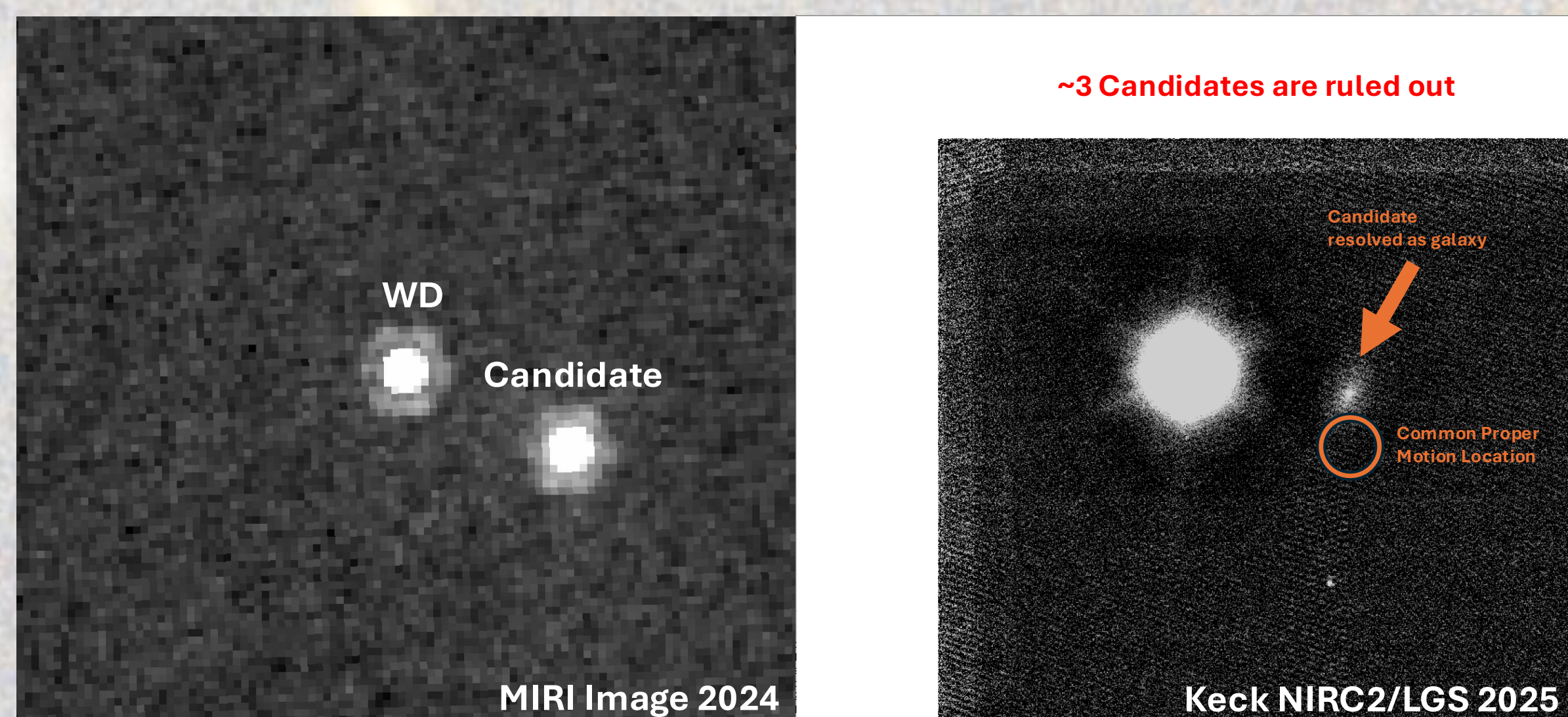
First Results from the MEAD Survey



ALL MIRI WD IR Excesses



Keck LGS Follow-up of MEAD Planet Candidates



Keck LGS follow up of 8/14 Resolved Candidates

