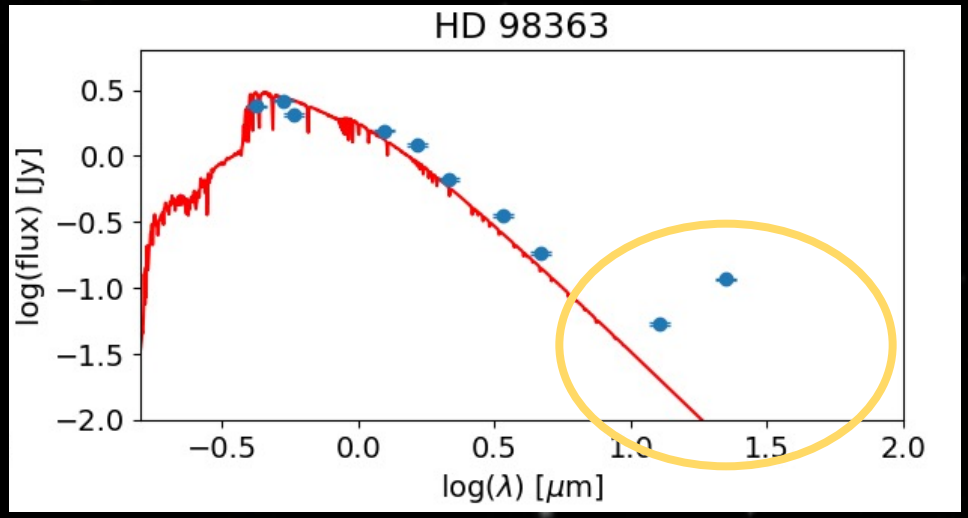
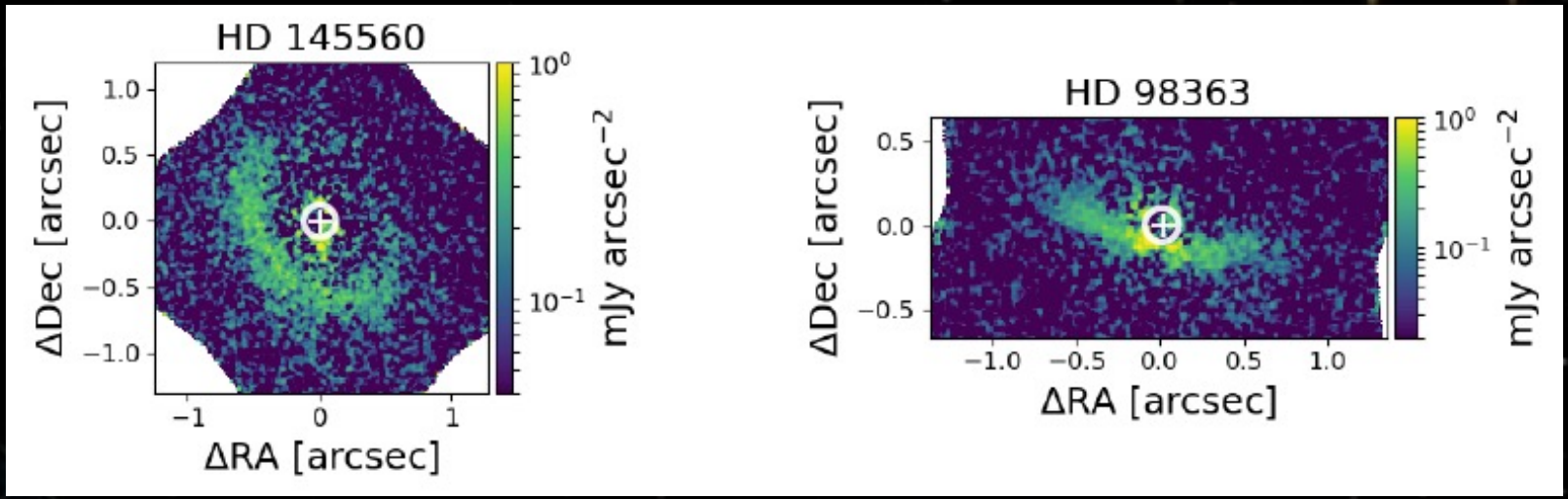
Detecting Hidden Planets

- Debris disks are rings of dust and gas that orbit young stars. Observing debris disks is the best way to study early planet formation processes because planets form within debris disks.
- The small dust grains absorb some of the light and re-emit it at longer wavelengths, causing an "infrared excess."
- The debris disks shown here are 10–15 million years old and about twice as large as our sun. One of these disks is asymmetric, which suggests there is a Jupiter-sized (or larger) planet that is perturbing the disk there.
- Follow-up observations of this debris disk will search for this planet and characterize it.



Above: An illustration of the infrared excess (yellow oval). This is the amount of light measured across a range of wavelengths. The red curve is a typical stellar model that describes a star of the same temperature as the observed star. The blue points are actual measurements of light.



Left: Pictures in the near-infrared range of two of the debris disks studied in this manuscript. The disks have different shapes because they have different disk properties in terms of amount and distribution of dusty material. HD98363 is asymmetric, possibly because of a planet disturbing the debris disk.

Citation: Hom , J. et al. Accepted to *AJ*. https://arxiv.org/pdf/1911.09667.pdf