

# Fundamental Parameters of Exoplanet Hosting Stars

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## Motivation:

- \* Formation & evolution of exoplanets are heavily influenced by the properties of their parent stars.
- \* Radiation environment affects exoplanet surface temperature and weather (heat redistribution efficiency).
- \* Astrophysical properties of parent stars determine location and extent of the system's habitable zone.

# Methodology:

- \* Single-baseline near-IR interferometry (PTI and CHARA arrays) give angular diameters of the targets (resolution limit  $\sim 0.5$  mas).
- \* Hipparcos distances provide linear radii (uncertainties  $\sim 3\%$ ).
- \* Literature photometry enables SED fitting and direct determination of surface temperature =  $f(\theta, F_{\text{bol}})$  (uncertainties  $\sim 1\text{--}2\%$ ).
- \* Mass estimates from linear radii and literature  $\log g$  values (uncertainties TBD).
- \* Status: published radii and temperatures of 9 exoplanet host stars (van Belle & von Braun 2009) based on PTI data. Paper on several much smaller KM-dwarf planet hosts (CHARA data) later this year.
- \* [See related presentation by T. Boyajian et al.](#)