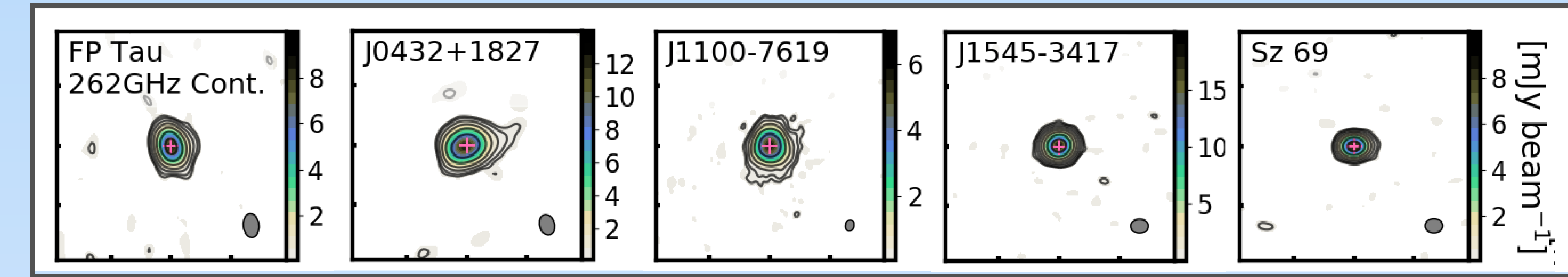


Characterizing Young, Cool M-Stars and their Planet-Forming Disks

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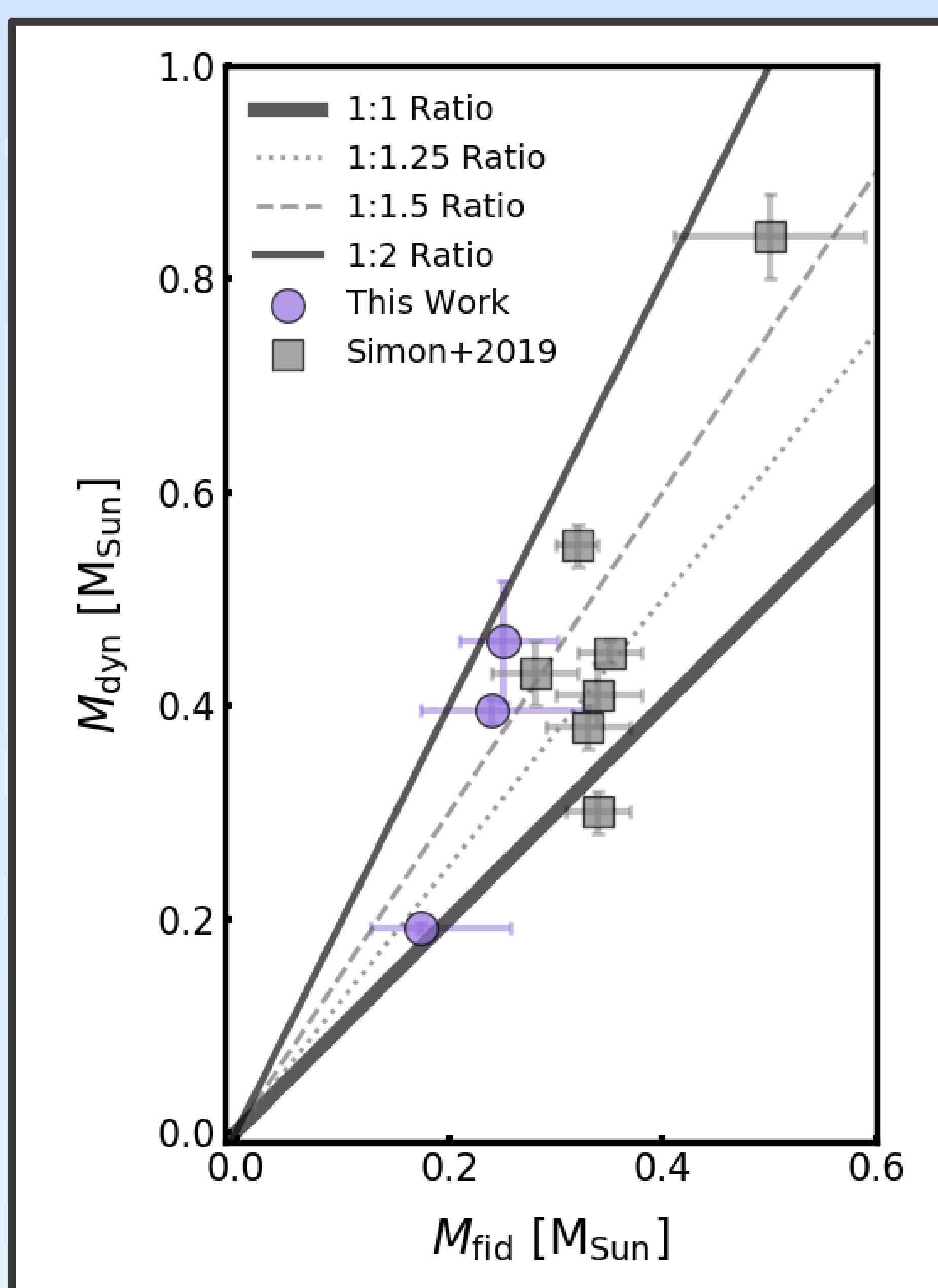
1. The Sample.

5 disks around M-stars:
M4-M5.5 ~1-3Myr ~0.05-0.32L_☉ <0.50M_☉



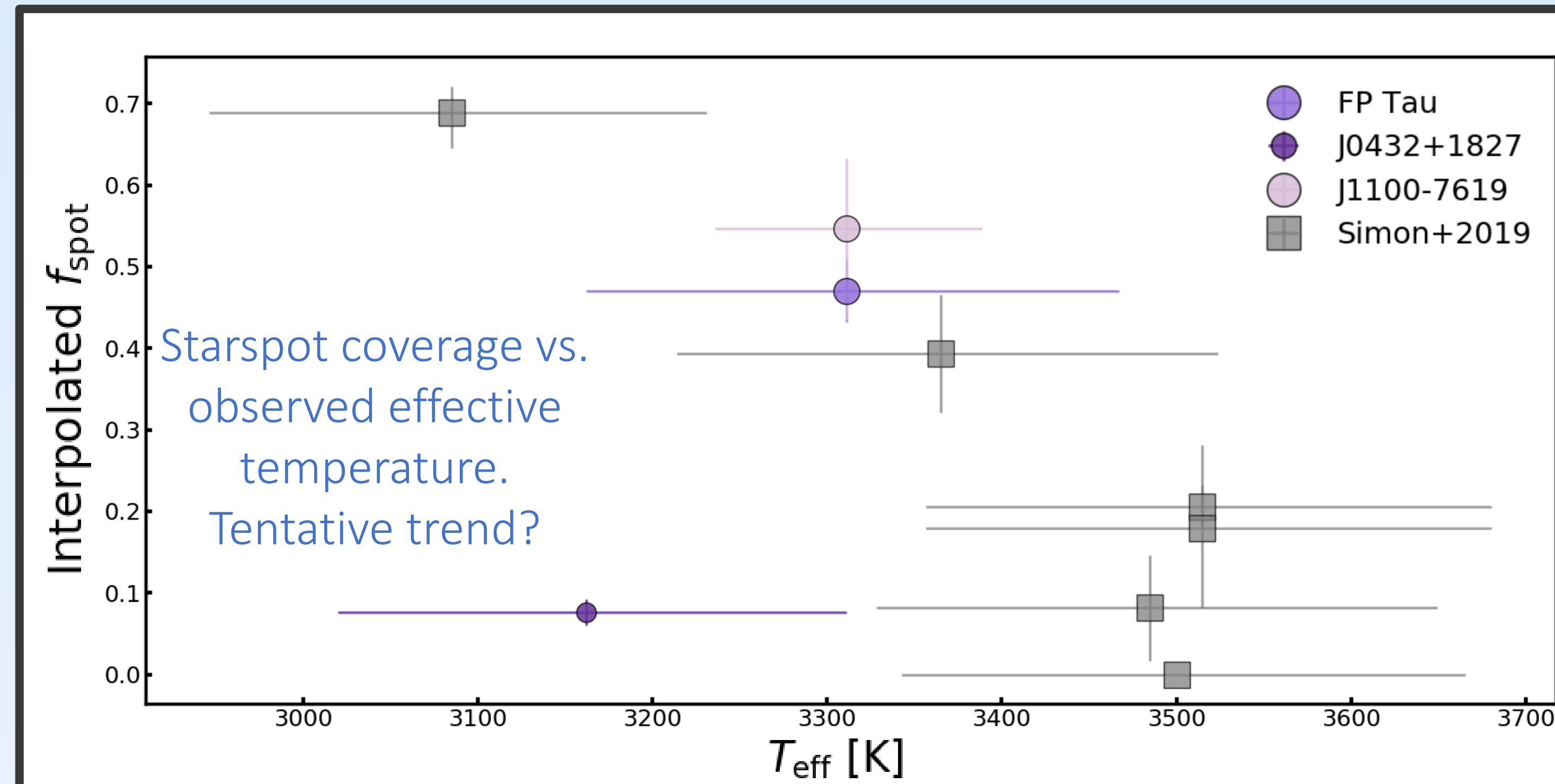
2. Characterizing the Stars.

We used CO emission and DiskJockey to dynamically estimate stellar masses for a subset of our sample, and to then benchmark stellar evolutionary model performance for low-mass, pre-main-sequence stars.

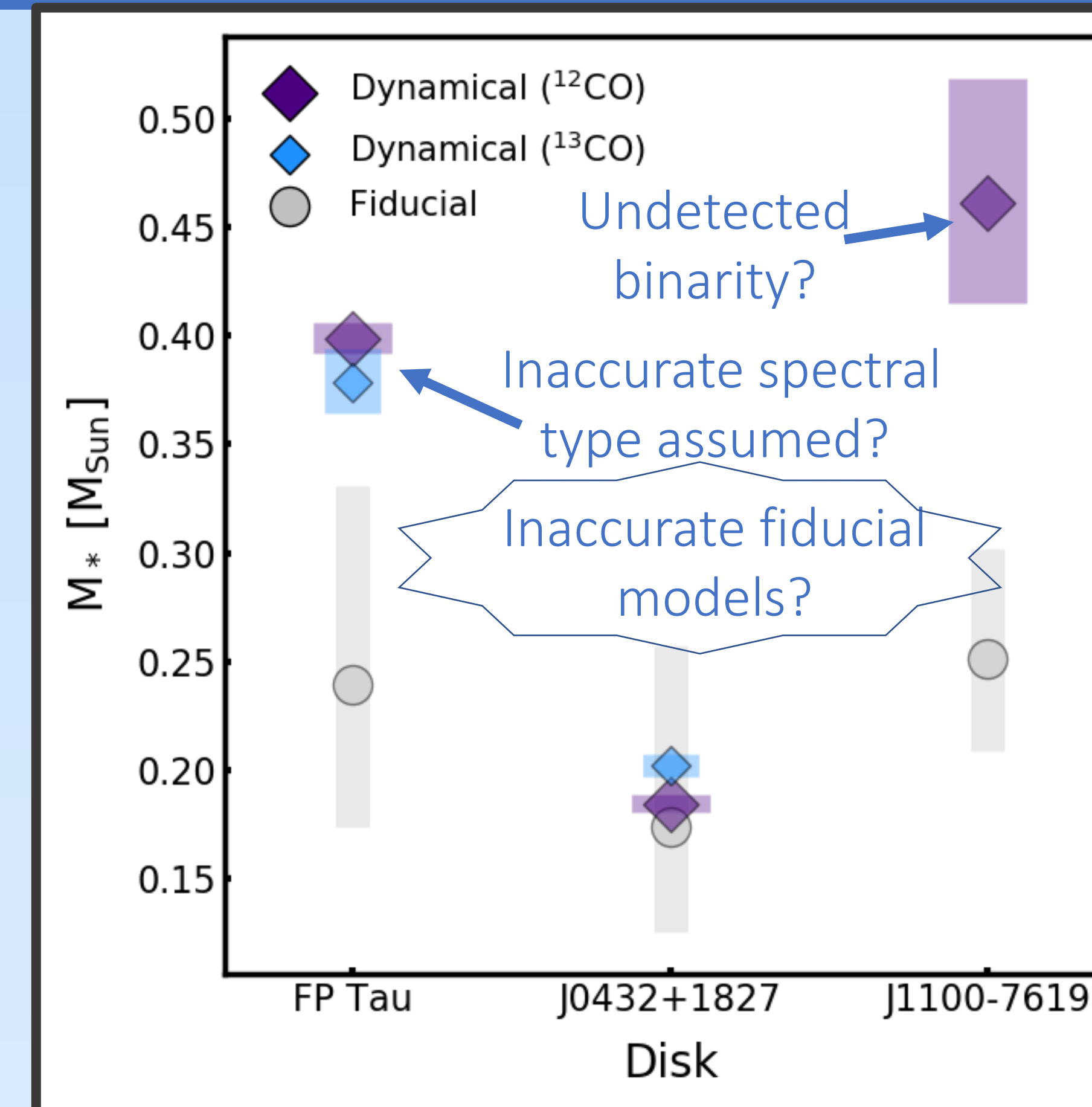


Including stars from Simon+2019, fiducial models (M_{fid}) often underpredict dynamical masses (M_{dyn}).

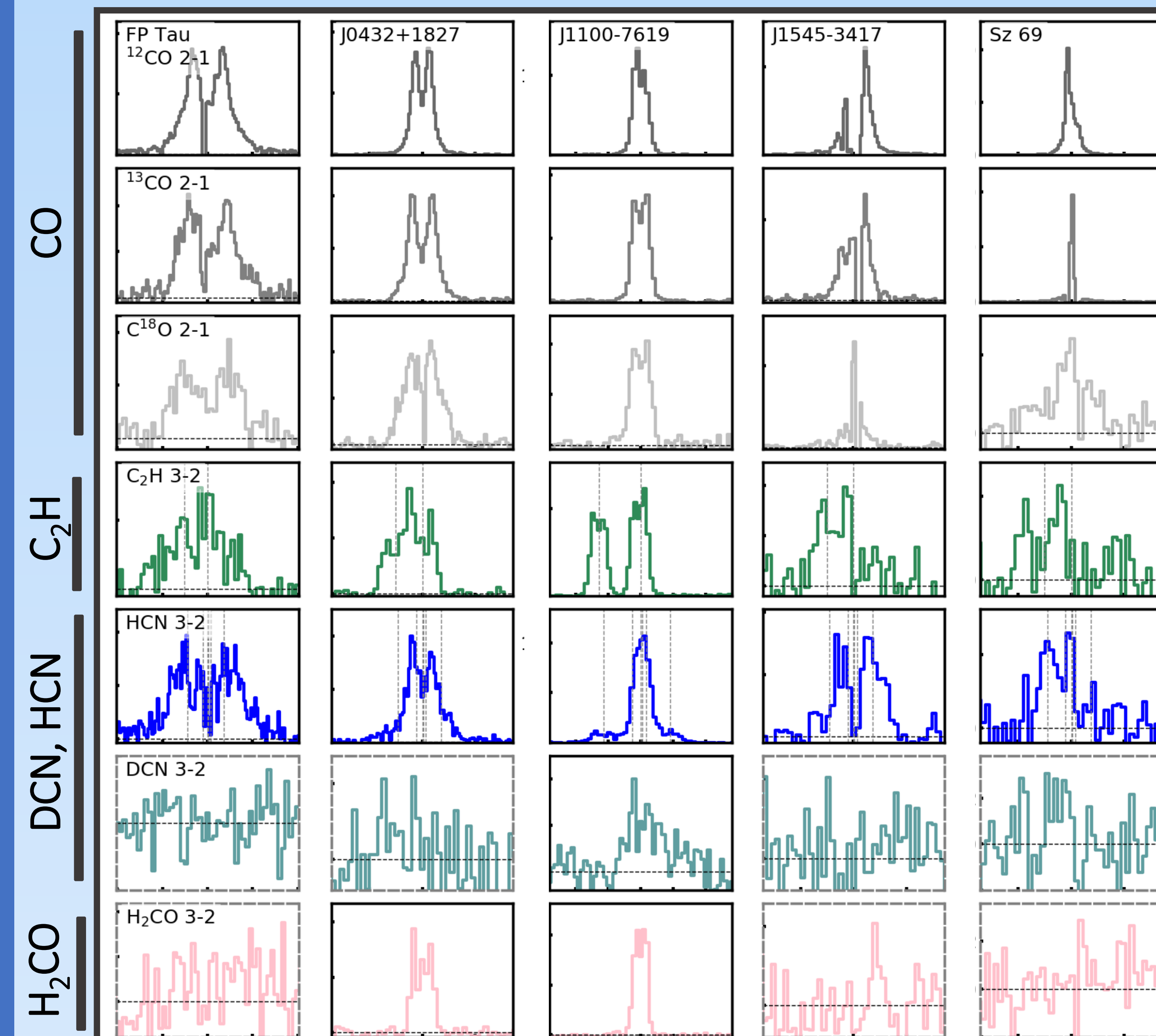
Starspot stellar evolutionary models (Somers+2020) *can* accurately reproduce the dynamical masses!



(Check out our paper in ApJ! Pegues+2021)

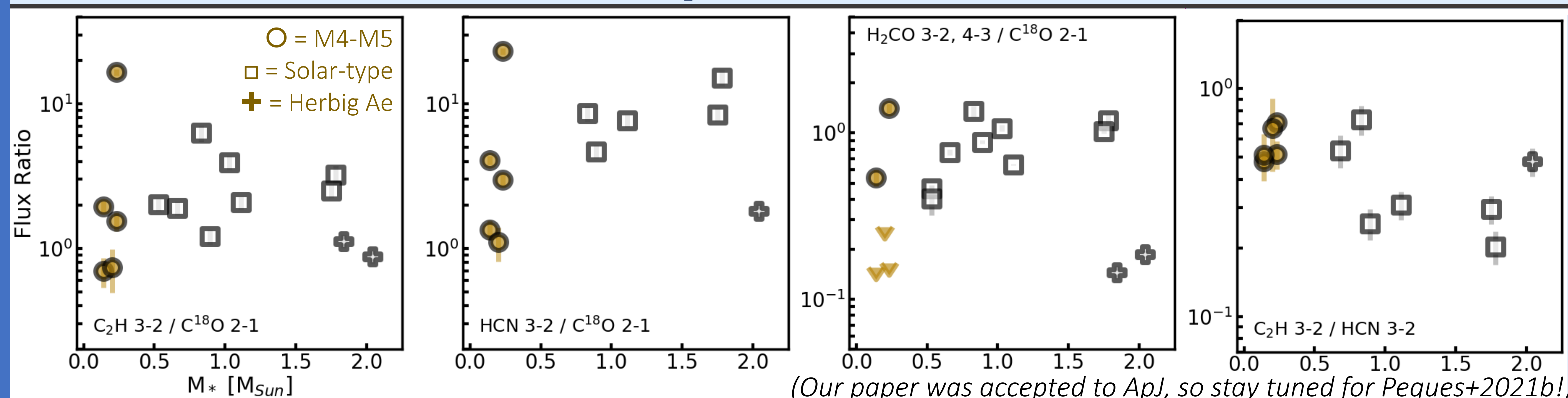


3. Characterizing the Disk Chemistry.

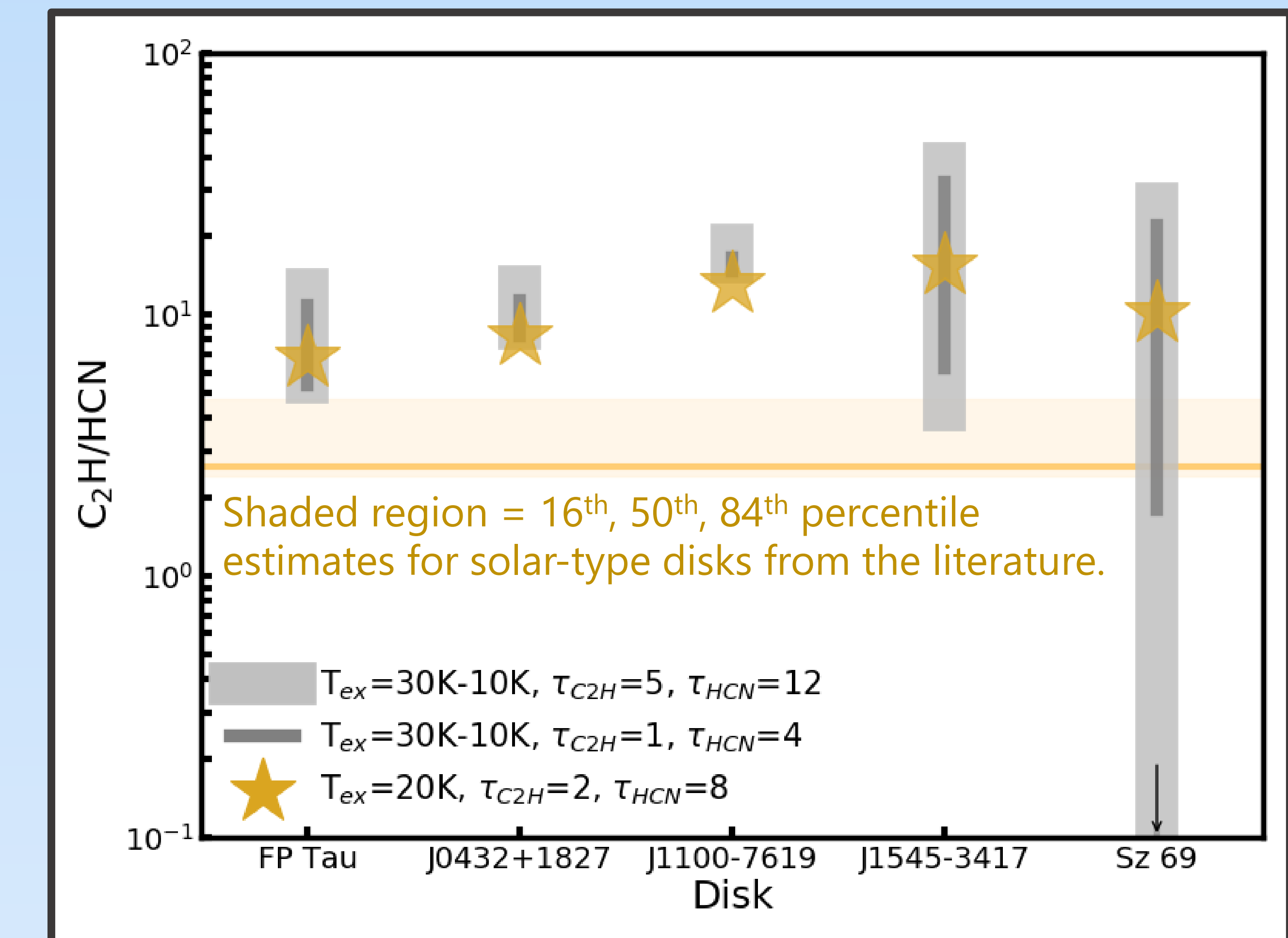


We detected all CO isotopologues, C₂H, and HCN toward all five disks. We detected H₂CO and DCN toward 2/5 and 1/5 disks, respectively.

Flux ratios show no clear trend with stellar mass. The cool M-star disks show a tight correlation for C₂H vs. HCN.



We surveyed CO and other small organics toward our disk sample. We compared flux ratios, excitation temperatures, and column densities to disks around warmer stars.



Median C₂H/HCN column density estimates for our sample exceed typical estimates for solar-type disks from the literature.

All literature data from: Huang+2017; Bergner+2019;2020; Pegues+2020.

(Our paper was accepted to ApJ, so stay tuned for Pegues+2021b!)