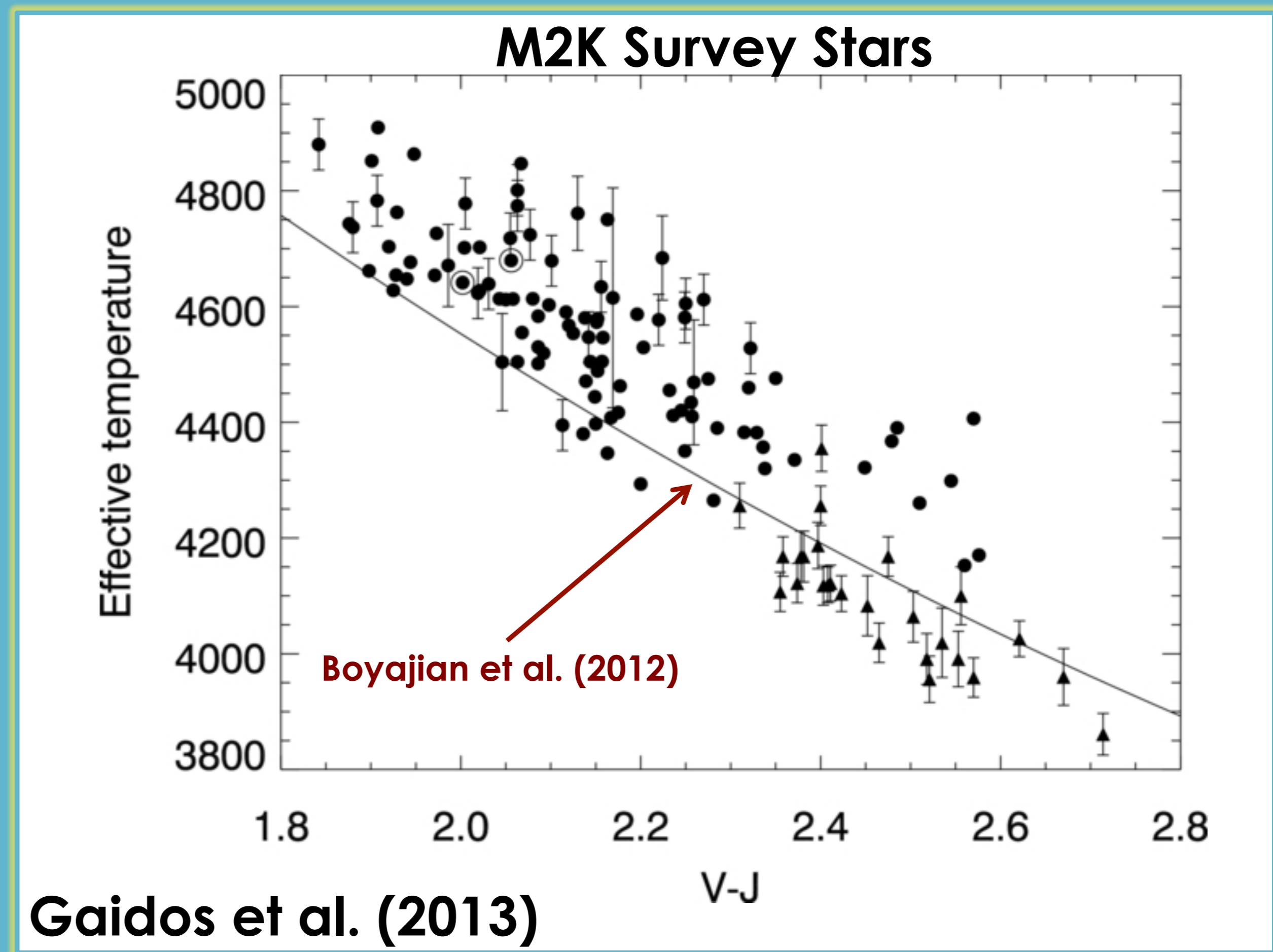
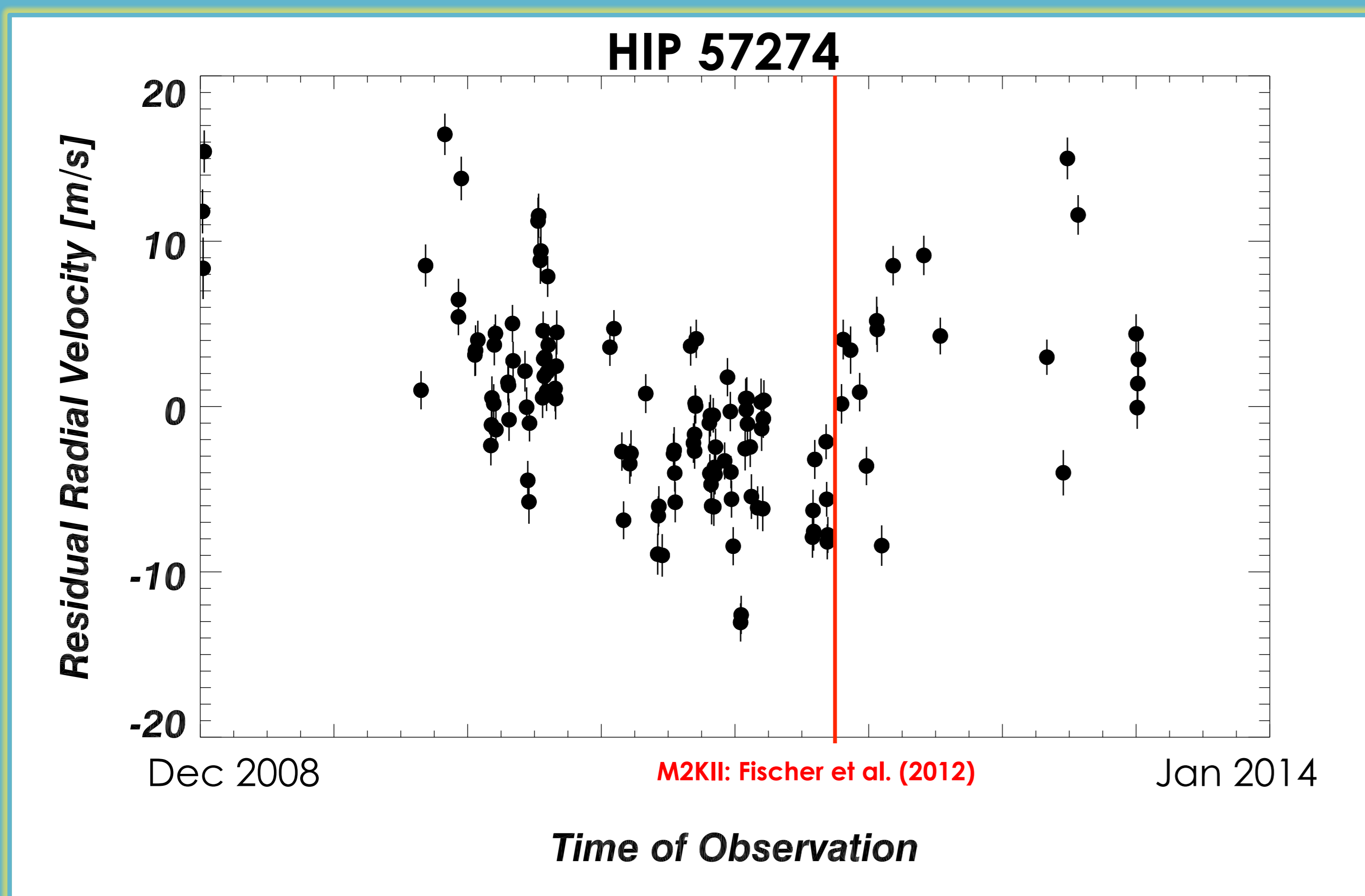


Exoplanets in the M2K Survey

Tabetha Boyajian, Debra Fischer, Eric Gaidos, Matt Giguere

Late type stars are ideal targets for the detection of low-mass planets residing in habitable zones. In such systems, not only is the stellar noise a minimum, but the lower stellar mass affords larger reflex velocities and the lower stellar luminosity moves the habitable zone inward. The M2K program is a high precision Doppler survey monitoring a couple hundred late-type stars over the past few years in search for such important exoplanetary systems. We present updated orbits of known exoplanet systems and newly detected exoplanet systems that have resulted from this program.



Stellar effective temperature vs. (V-J) color of late K dwarfs in the M2K Doppler survey. Circles represent temperatures from SME analyses of high-resolution spectra (Valenti & Piskunov 1996); triangles represent temperatures from fitting medium-resolution spectra to PHOENIX synthetic spectra (A. W. Mann et al. 2013, in prep.) and calibrating on stars in Boyajian et al. (2012). Only some error bars are shown for clarity.

Table 5. Orbital Parameters for the four companions detected orbiting HIP 57274

Parameter	HIP 57274b	HIP 57274c	HIP 57274d	HIP 57274e
P(d)	32.03 ± 0.01	418.01 ± 2.32	8.1392 ± 0.0012	1615.65 ± 28.05
T _P (JD)	16456.78 ± 4.39	16797.49 ± 7.53	14800.87 ± 216.90	13189.63 ± 2756.53
e	0.04 ± 0.01	0.27 ± 0.03	0.21 ± 0.08	0.08 ± 0.18
ω	345.53 ± 131.31	191.58 ± 6.65	88.10 ± 39.40	337.06 ± 119.34
K (m s ⁻¹)	32.14 ± 0.43	16.70 ± 0.58	4.37 ± 0.40	13.05 ± 4.26
a (AU)	0.1974 ± 0.0000	1.0943 ± 0.0041	0.0792 ± 0.0000	2.6950 ± 4.0702
M sin i (M _{Jup})	0.50 ± 0.01	0.59 ± 0.02	0.04 ± 0.00	0.75 ± 0.55
SNR	118.1	61.4	16.1	47.9
N _{obs}	126			
Jitter (m s ⁻¹)	0.0			
rms (m s ⁻¹)	3.05			
χ _r ²	6.26			

- ✧ These late K-dwarfs have the most stable photospheres of all dwarfs, and they "bridge" the better studied solar-type stars and M-dwarfs.
- ✧ Giant planet occurrence as a function of stellar mass? (Gaidos et al. 2013)
- ✧ Additional M2K planets are ~Neptune mass and are currently being monitored

100,000 Eyes: "Guest Scientist" Program

- ✧ Ever wish you could sit down and look at Kepler light curves by eye to make classification selections?
- ✧ The planethunters.org Guest Scientist Program allows you to do just that:

Make requests to the public to collect particular light curves!

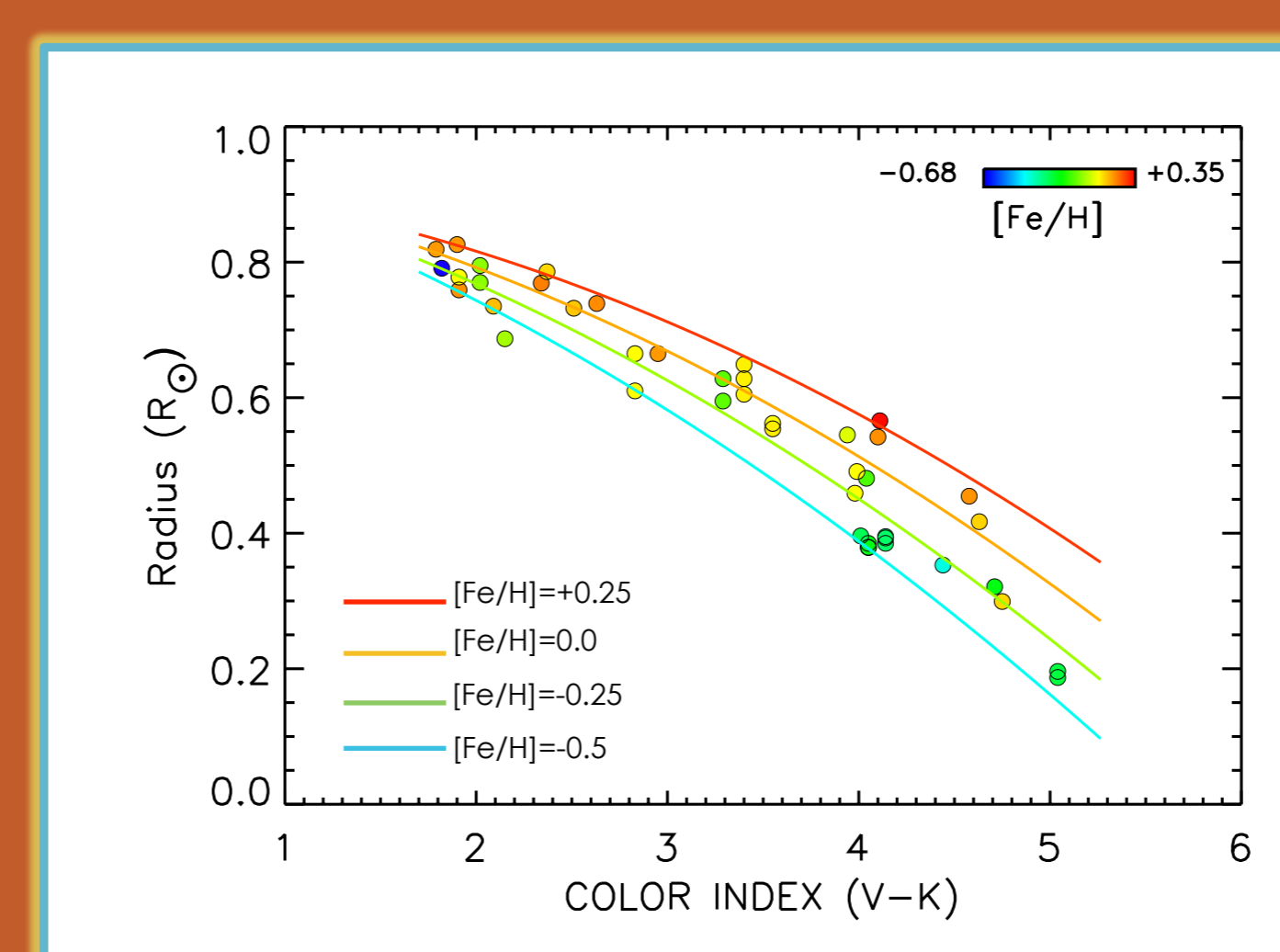


Contact:
tabetha.boyajian@yale.edu

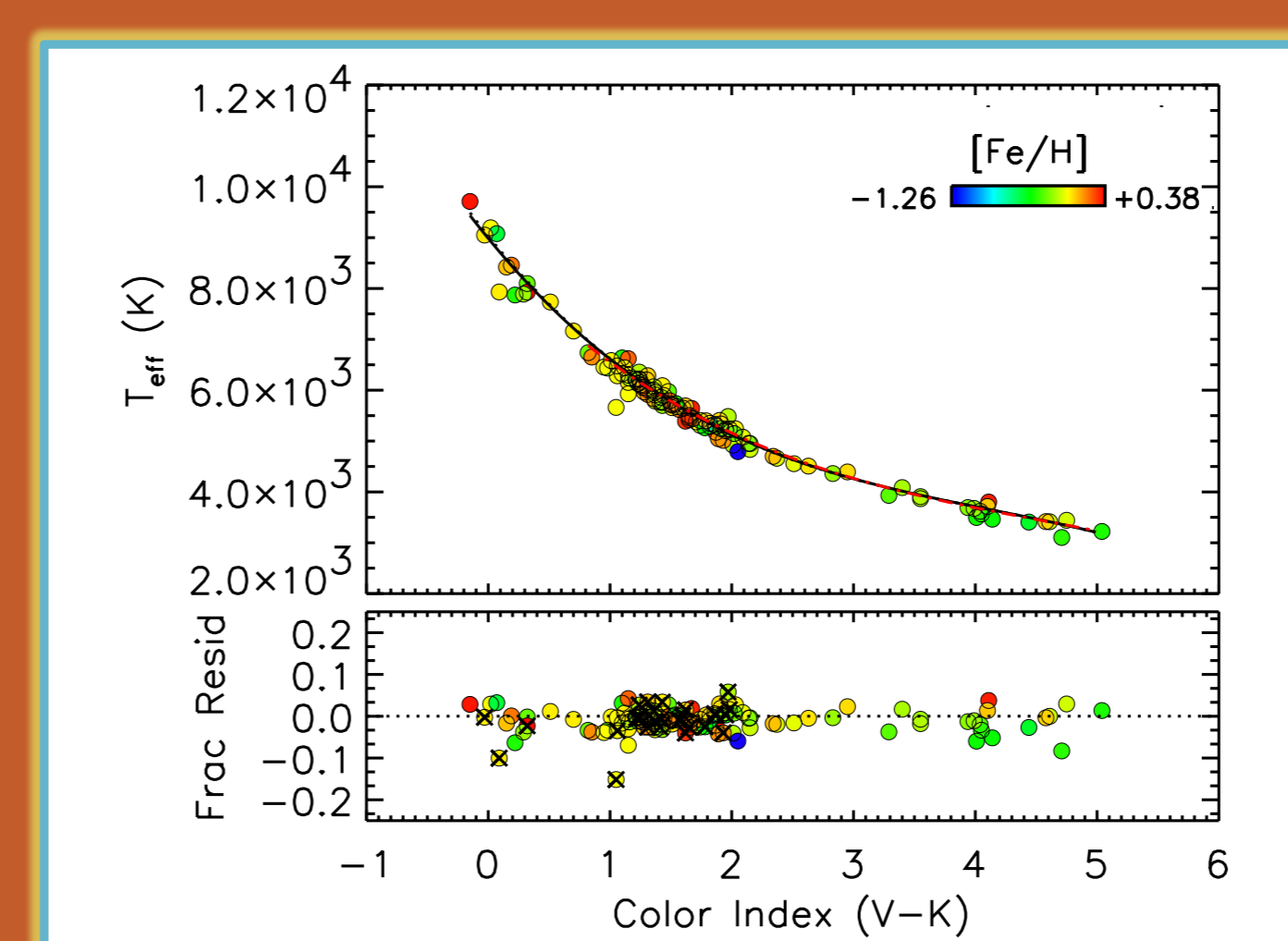
Other awesome planethunters results:
Joey Schmitt (2K038); **Ji Wang** (2G005);
Meg Schwamb (2K036)

Stellar Diameters & Temperatures

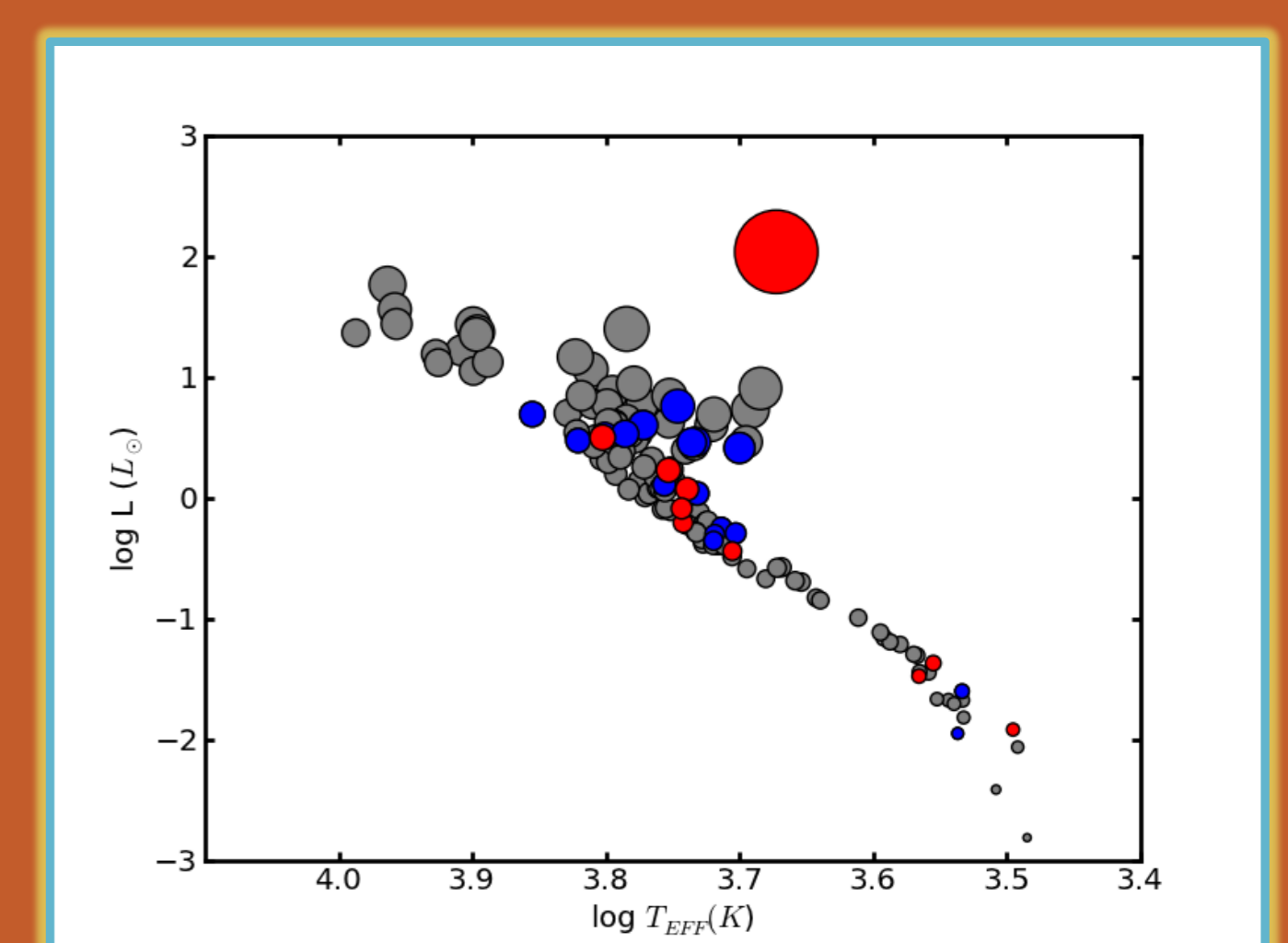
- ✧ Empirical measurements of fundamental stellar properties with long-baseline optical/infrared interferometry



Empirical Color-Radius (above) and Color-T_{eff} (below) relations: Boyajian et al. (2012, 2013)



Characterization of exoplanet host stars with interferometric observations



New host star measurements shown as red points: von Braun et al. (in prep)
Kaspar von Braun (2K060)