



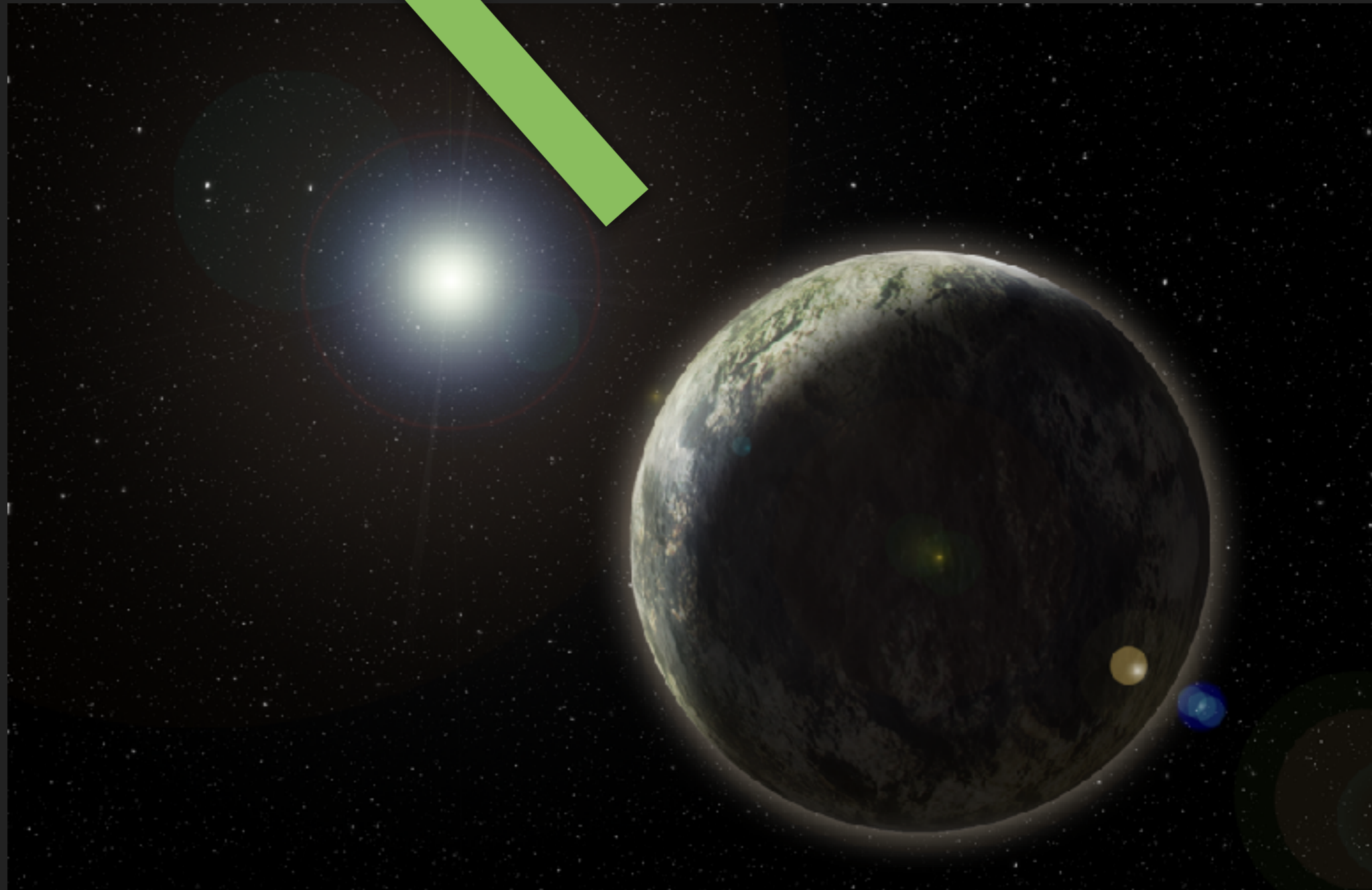
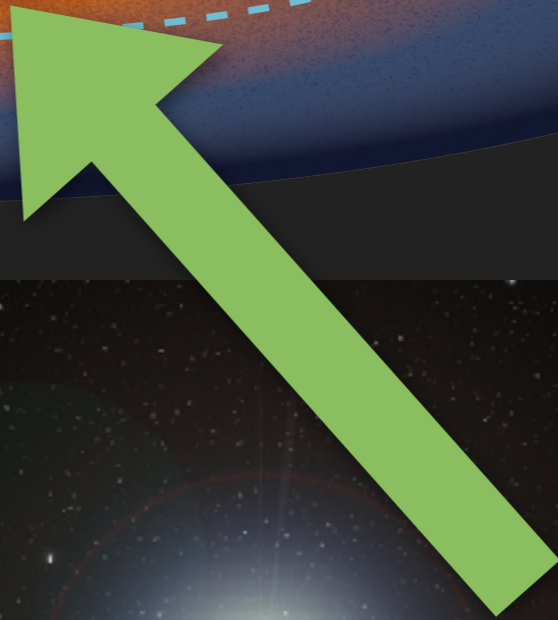
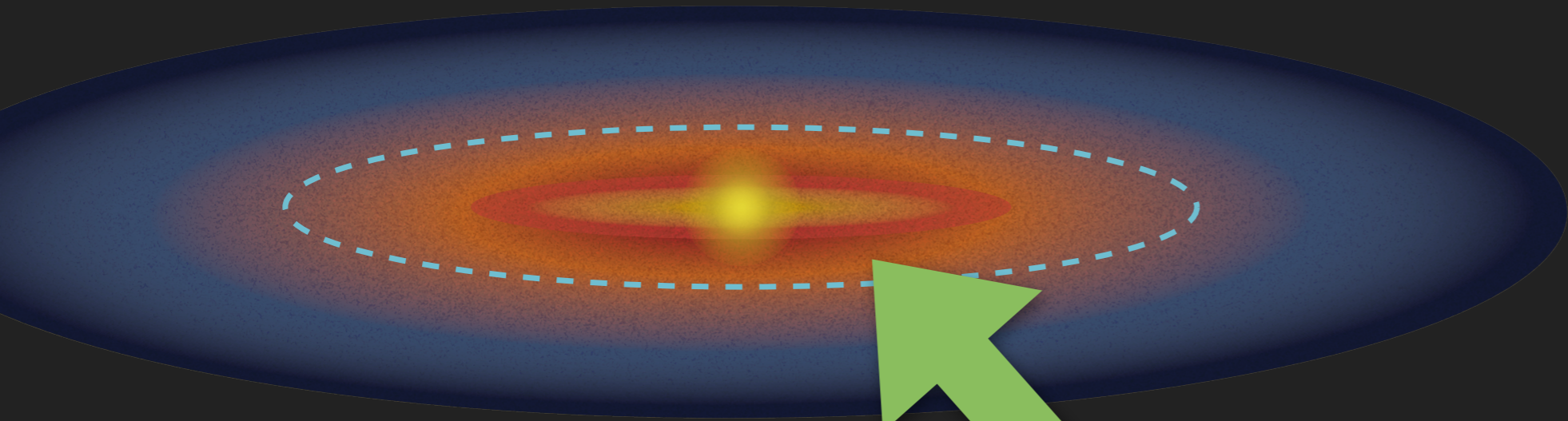
CALIBRATING THE CHEMISTRY

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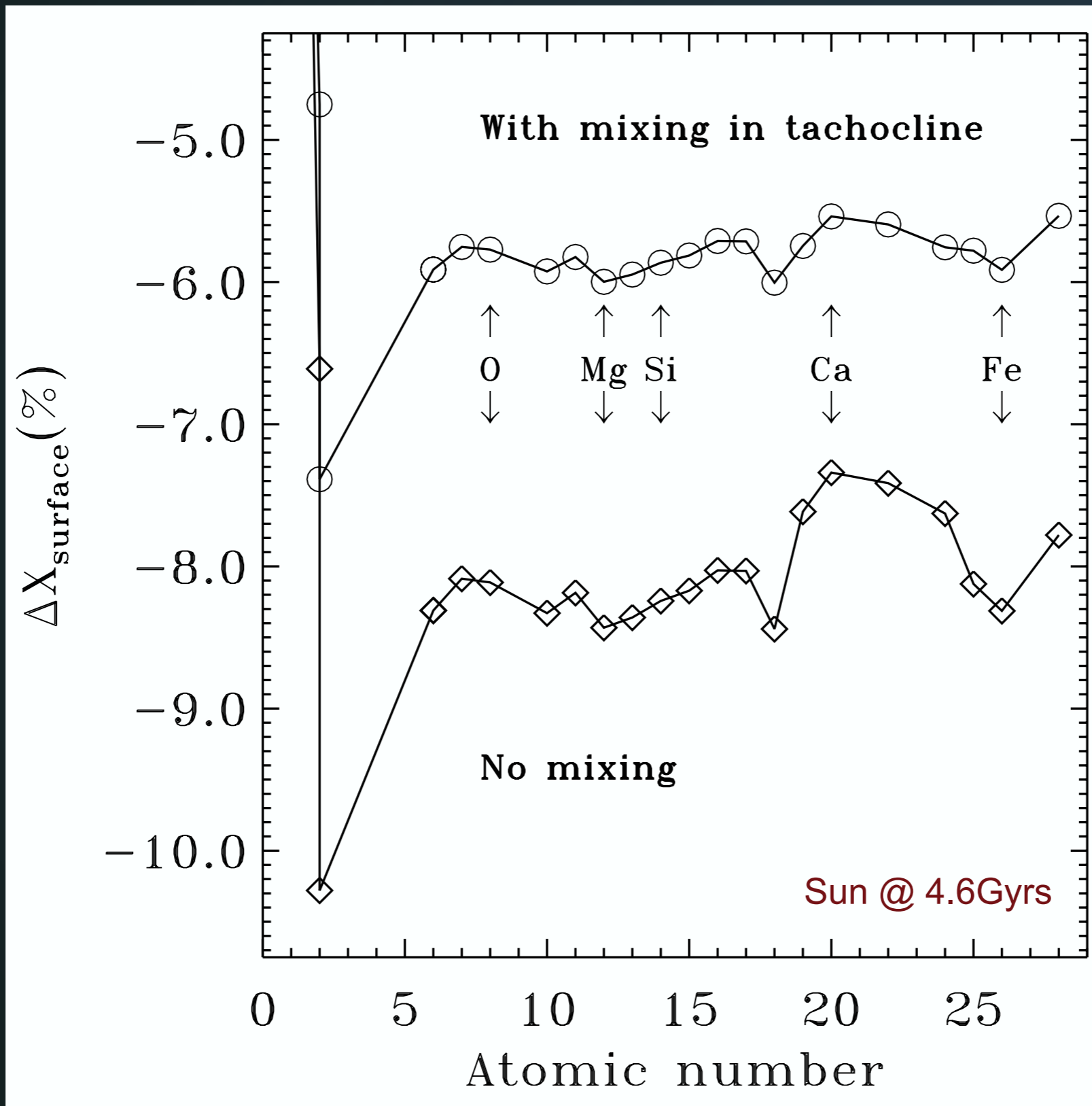
# OF PLANET FORMATION

John M. Brewer - Yale University, Columbia University

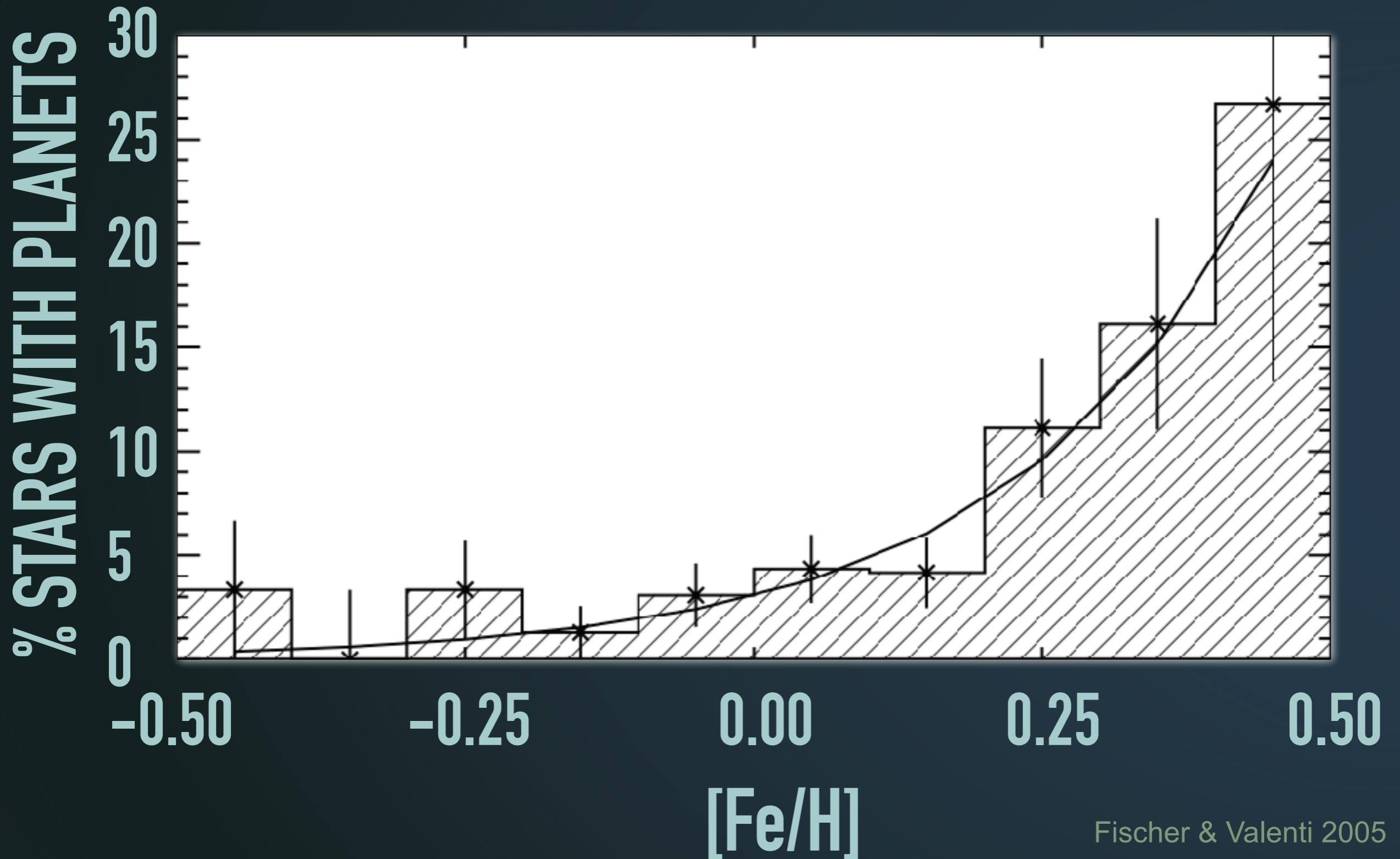
Know Thy Star, Know Thy Planet - Oct 9, 2017



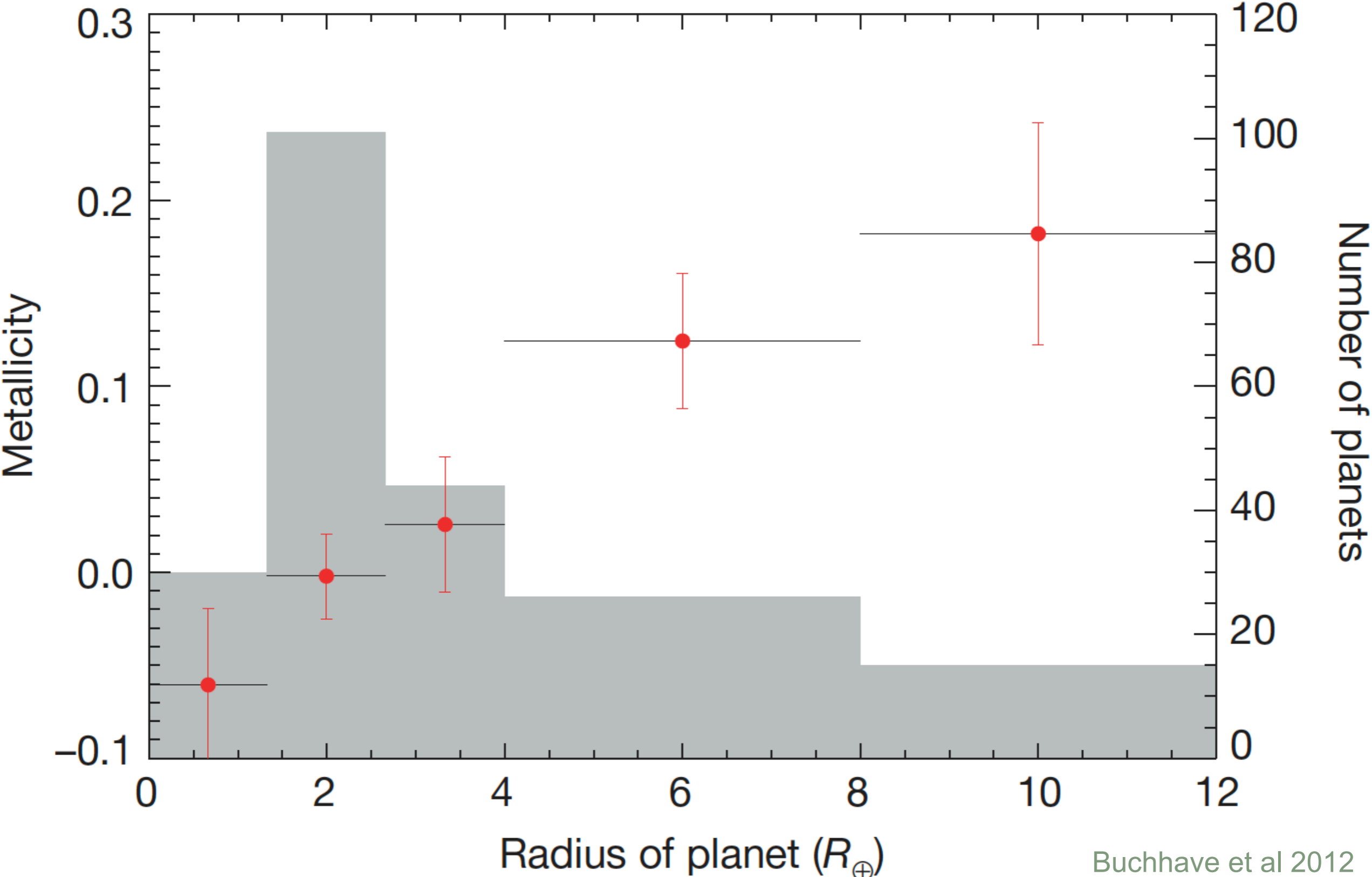
# SLOWLY EVOLVING PHOTOSPHERES



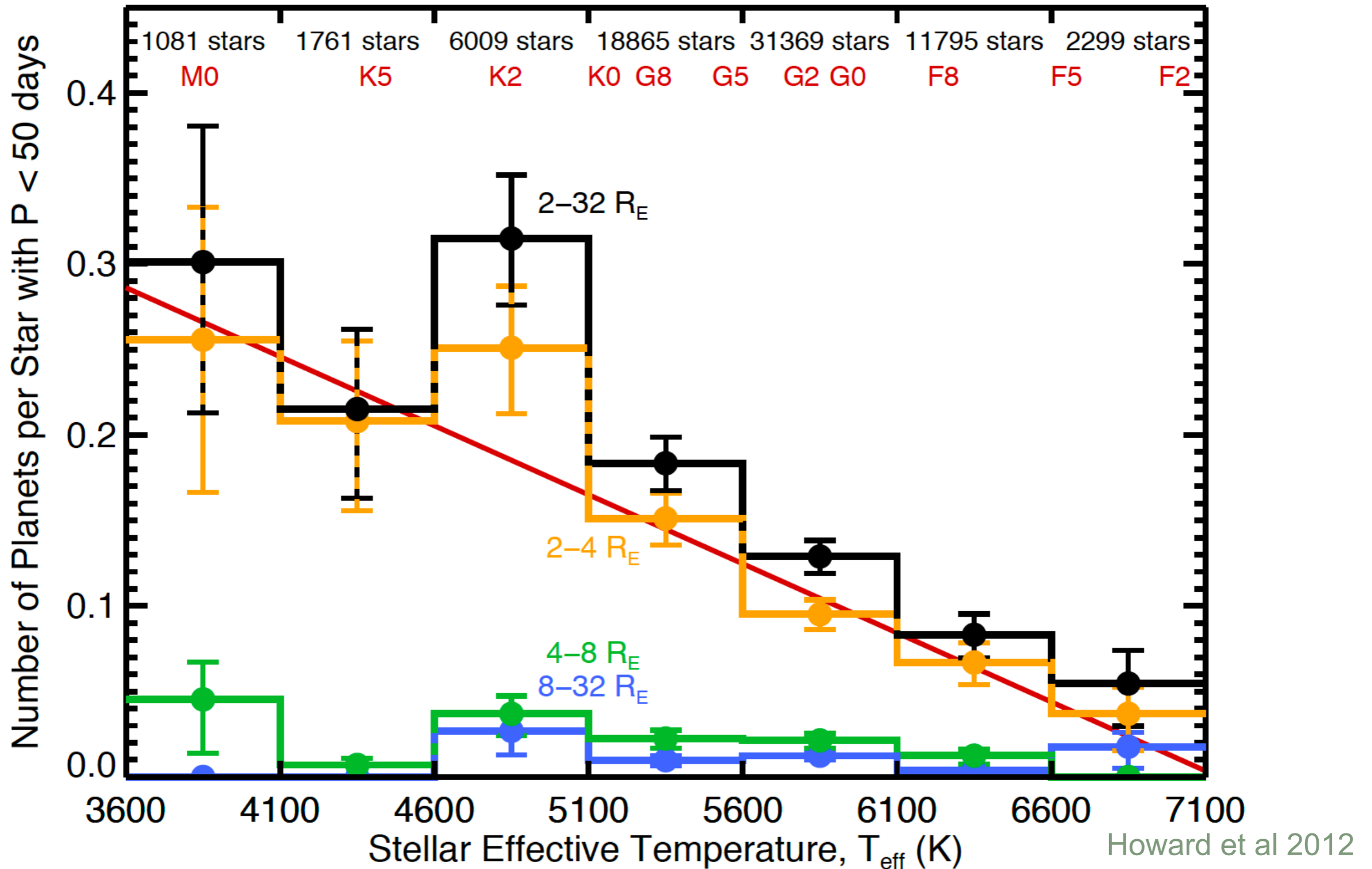
# PLANET-METALLICITY RELATION



# AVERAGE METALLICITY BY RADIUS

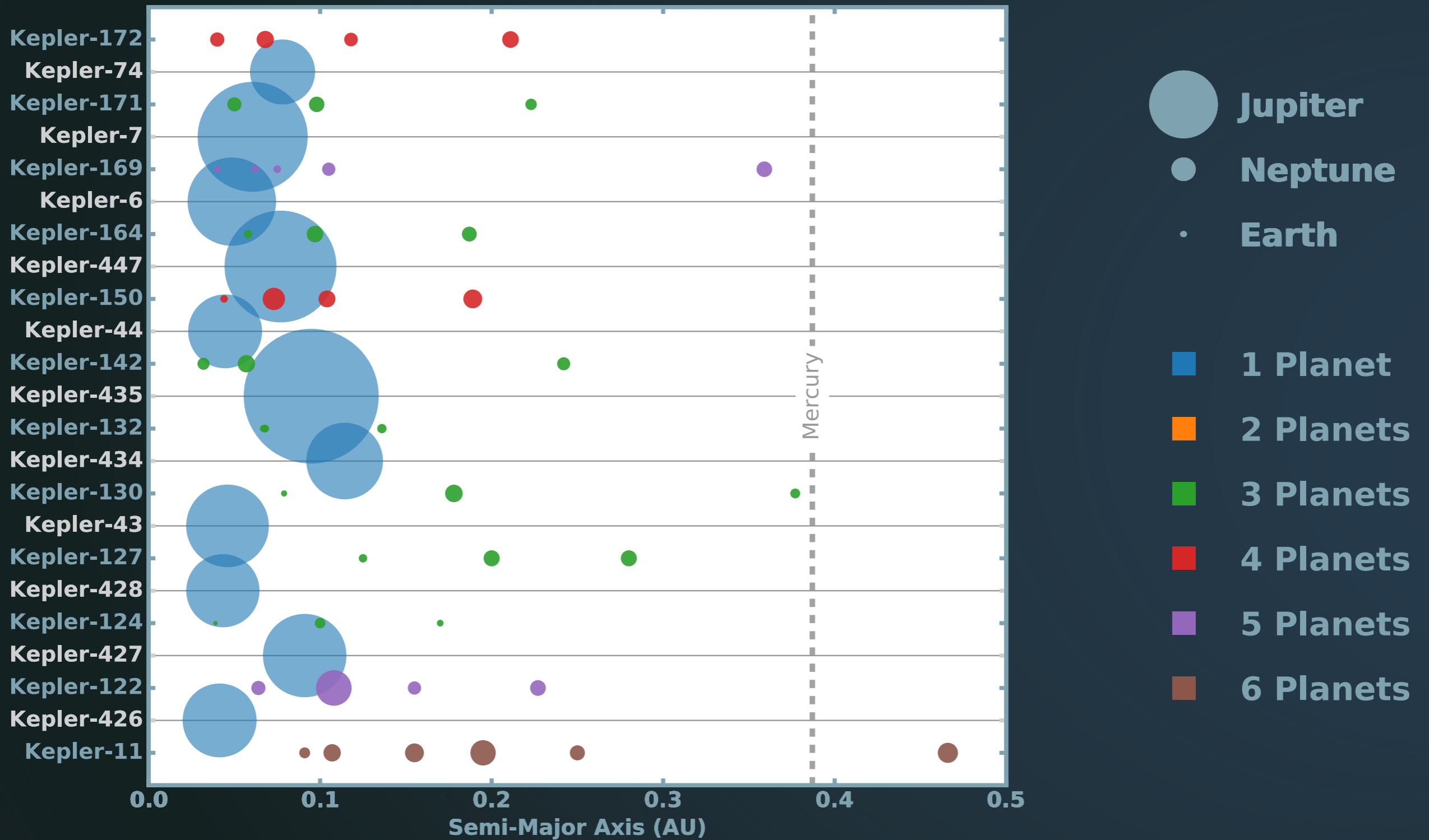


# SMALL PLANETS HARD TO DETECT

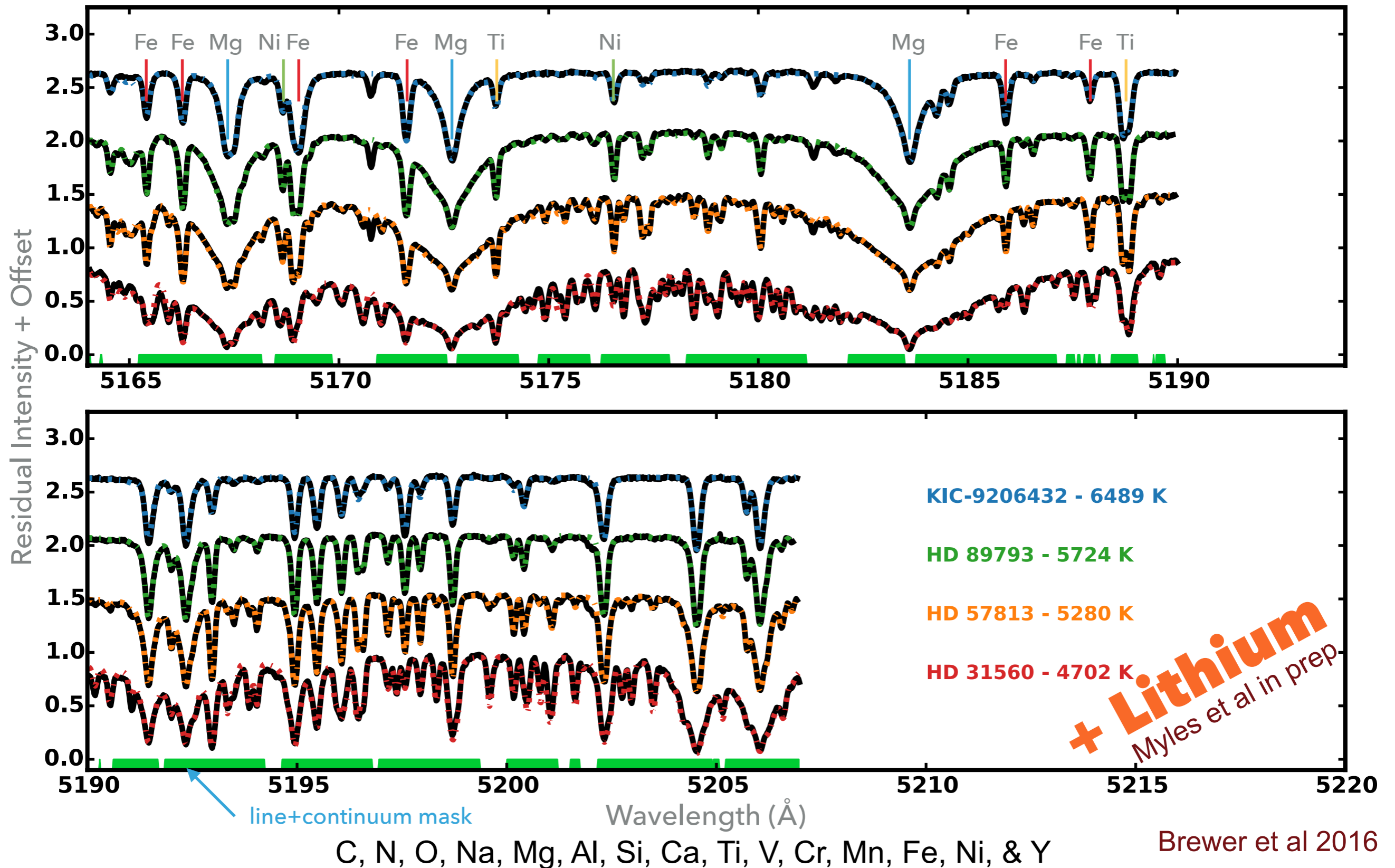


# HOT JUPITERS VS COMPACT SYSTEMS OF SMALL PLANETS

## COMPLETE COMPARISON SAMPLES

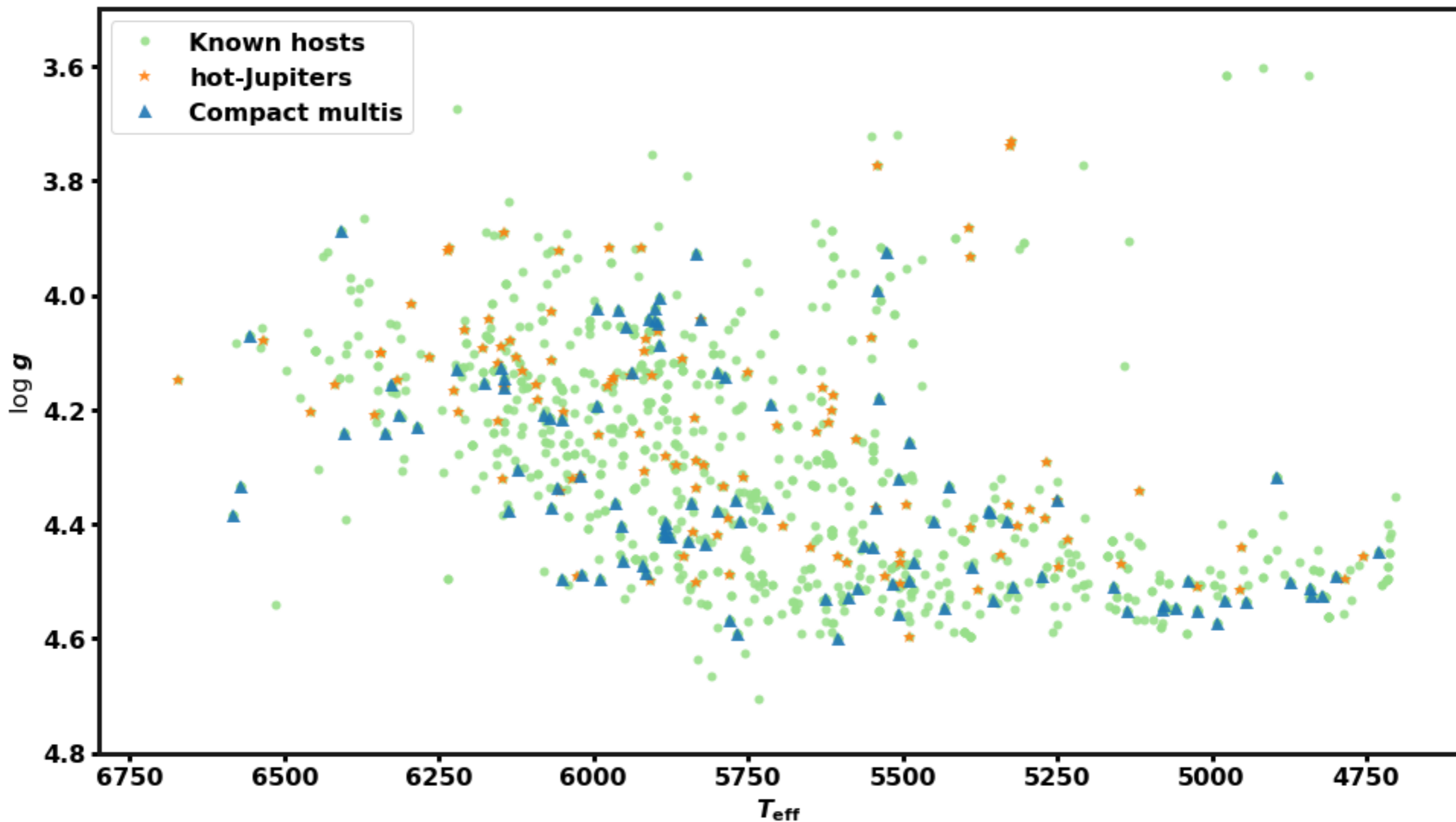


# FORWARD MODELING OF OBSERVED SPECTRA WITH SME

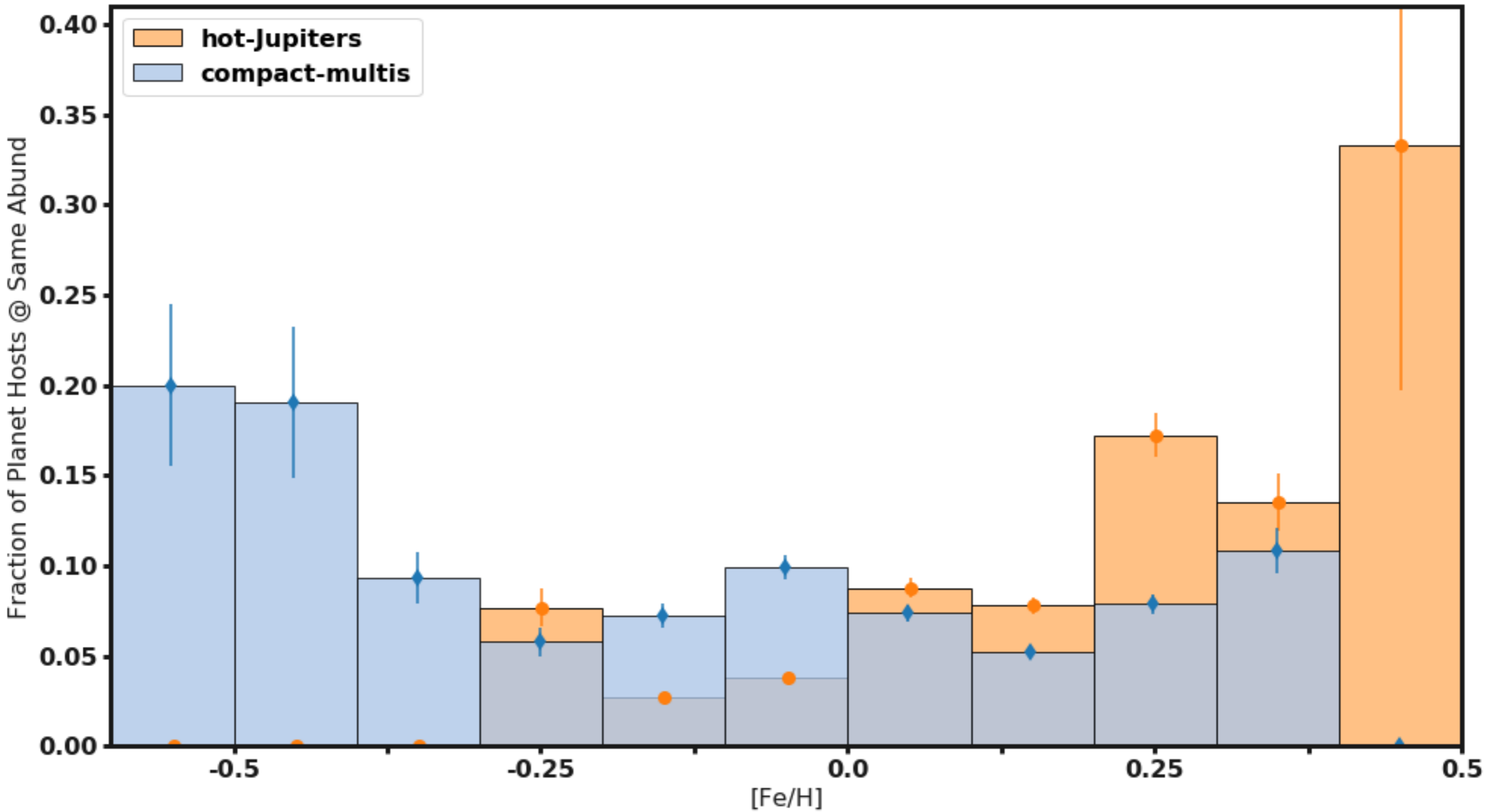




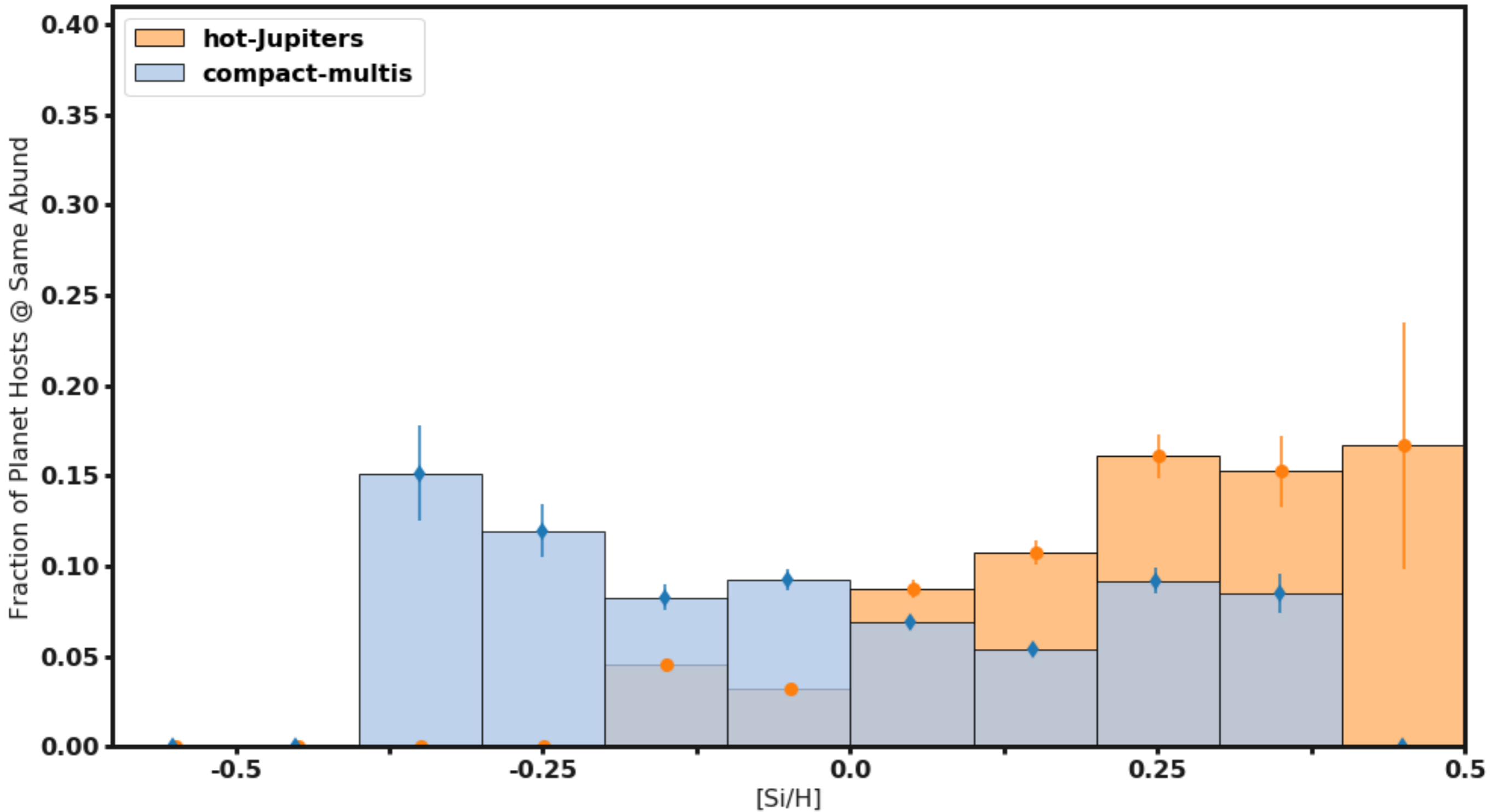
# SAME ABUNDANCES, MORE PLANETS



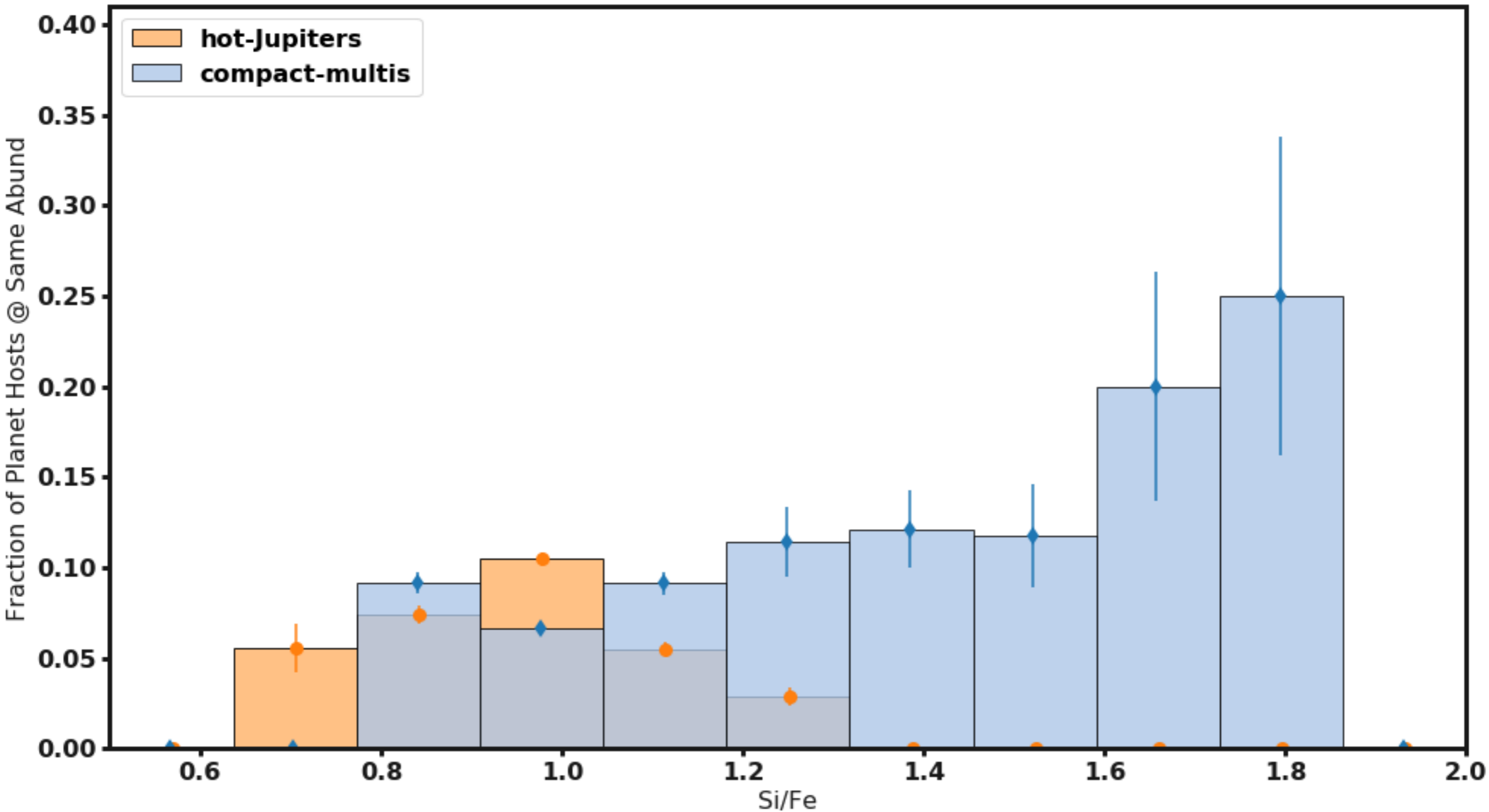
# METALLICITY — [Fe/H]



# ROCKS — [Si/H]



# SILICATES vs METALS — Si/Fe



## CHEMICAL TRACERS OF PLANET FORMATION

- ▶ Comparing planetary system architectures
- ▶ Expanded abundance catalog
- ▶ Composition, not just mass important in formation
- ▶ Si/Fe ratio may help identify systems with rocky planets



THANKS

Questions?

John M. Brewer  
<http://dotastro.org>