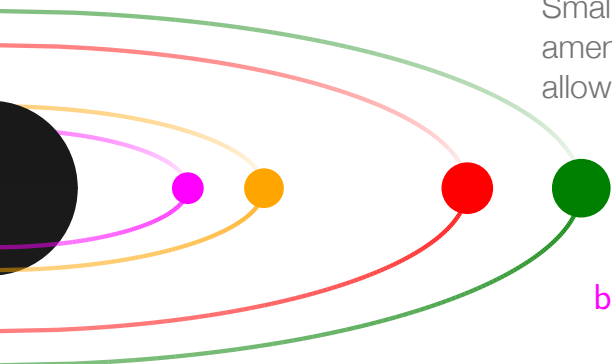




# Discovery of an exoplanet quartet transiting HD 108236

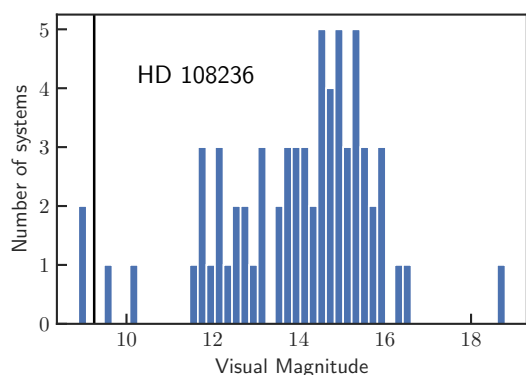
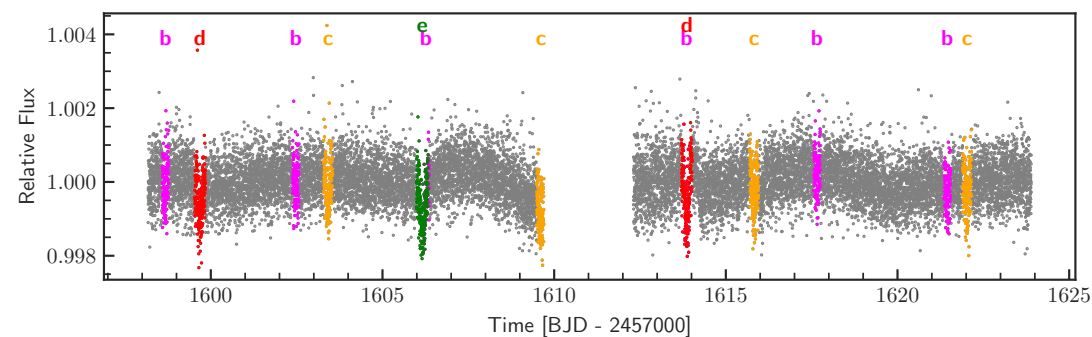
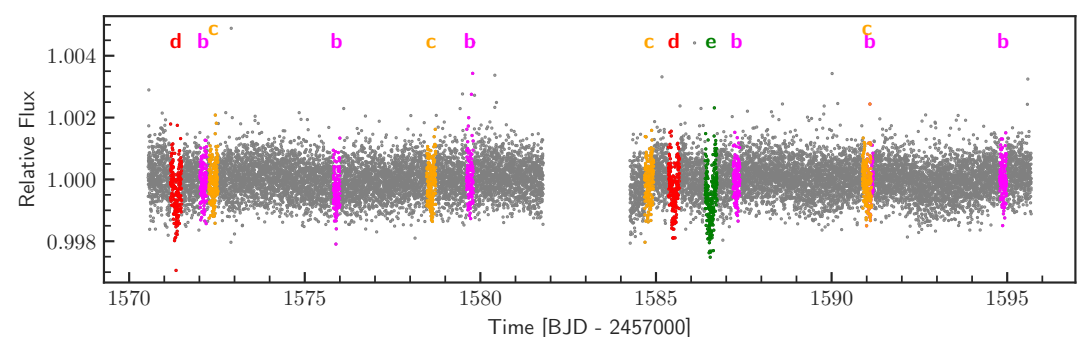
Tansu Daylan (Kavli Fellow, MIT) et al., <https://arxiv.org/abs/2004.11314>



Small exoplanets transiting **bright** stars are **opportune** systems that are amenable to mass measurements and atmospheric characterization and allow us to place our planet Earth in context.

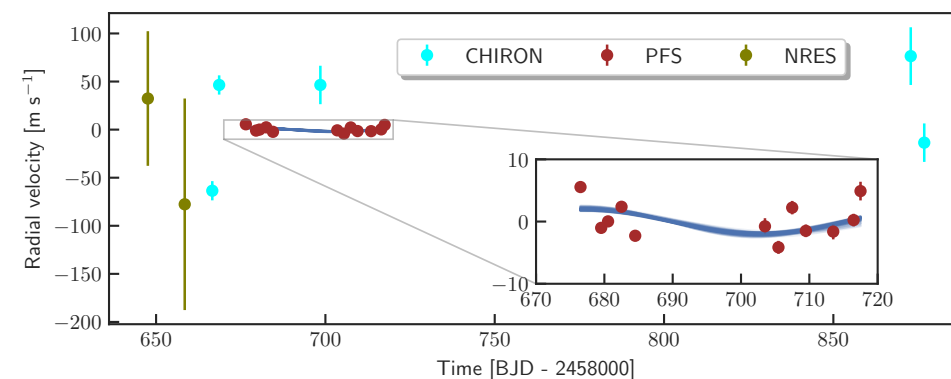
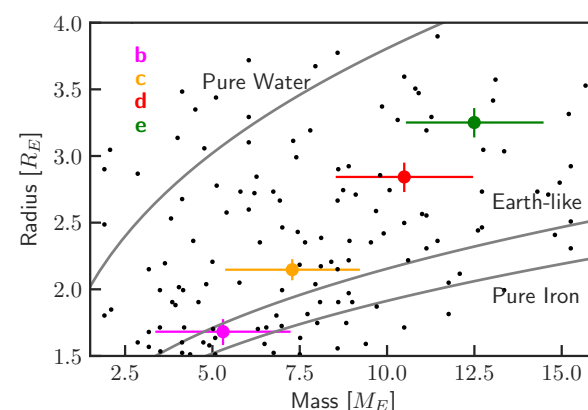
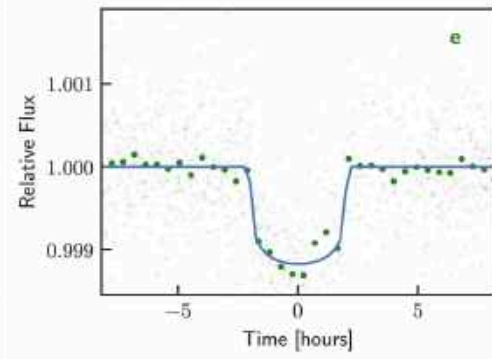
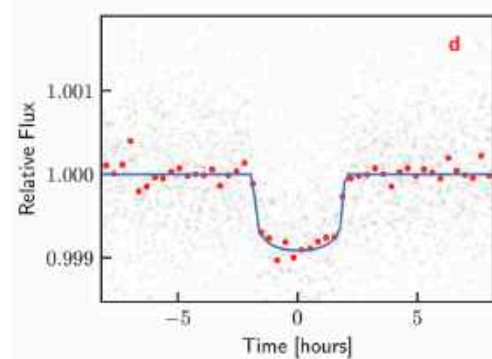
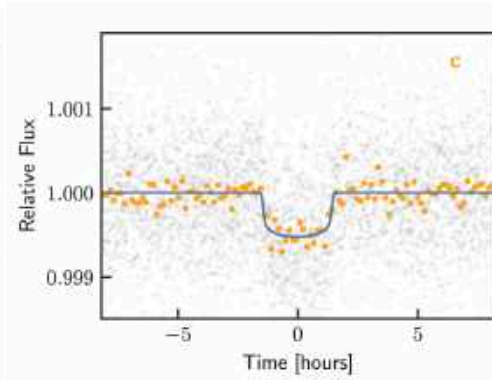
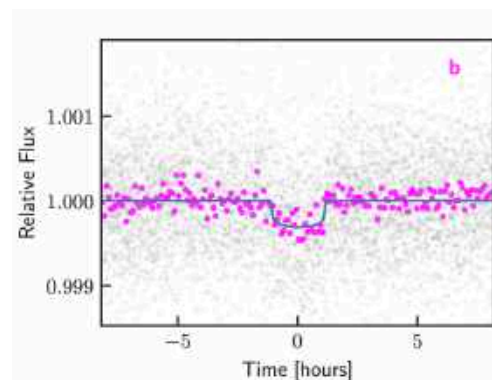
Furthermore, **multiple small** exoplanets hosted by the same **bright** star provide cosmic laboratories to perform controlled tests of models of planet formation, atmospheric evolution, and orbital dynamics.

A recent highlight from the TESS mission is the discovery of a super-Earth and three sub-Neptunes hosted by the bright, Sun-like star HD 108236.

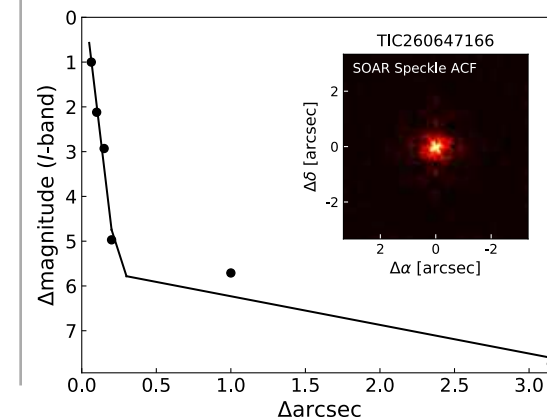
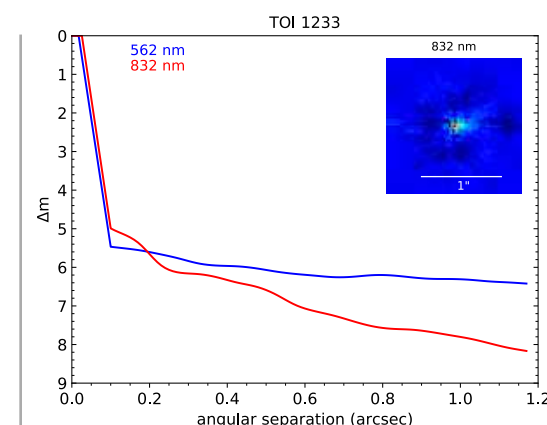


**HD 108236 is the third brightest star hosting at least four transiting exoplanets, behind Kepler 444 and HIP 41378.**

**It is also the brightest Sun-like star hosting at least four transiting exoplanets.**



Radial velocity follow-up ruled out eclipsing binary hypothesis.



Speckle imaging ruled out wide binaries.

## Conclusion

- We validated four transiting planet candidates and showed that the system is dynamically stable.
- No TTVs have been observed in the TESS data.
- Discovered exoplanets span a wide range of bulk compositions and insulations.
- Mass measurements of TOI 1233 b, c, d, and e are underway. It is likely that b is a rocky super-Earth and the outer planets are sub-Neptunes.