Contribution ID: **55** Type: **Poster**

New Astrophysical Insights into Radial Velocity Jitter

For nearly 20 years, the California Planet Search (CPS) has simultaneously monitored precise radial velocities and chromospheric activity levels of stars from Keck observatory to search for exoplanets. This sample provides a useful set of stars to assess the dependence of RV jitter on various astrophysical processes. We measure astrophysical jitter for ˜650 stars in the CPS covering a wide range of stellar parameters (effective temperature, surface gravity, and activity, among others). We highlight empirical evidence for two regimes of RV jitter: activity-dominated and convection-dominated. Combined, these regimes enable us to trace out the jitter evolution of stars – a useful complement to rotation-activity relations. As an outcome of this effort, we present the discovery of several new planets around subgiant stars, including potentially the first known 3-planet systems, increasing the number of known RV planets around subgiant stars by nearly 15%. We also identify additional candidate planetary systems requiring further follow-up as well as a number of non-planetary companions to subgiants. Finally, we calculate possible transit times, durations, depths, and probabilities for all known CPS planets around subgiant stars in time for TESS observations and follow-up.

Primary author: Mr LUHN, Jacob (Penn State University)

Co-authors: Prof. BASTIEN, Fabienne (Penn State University); Prof. WRIGHT, Jason (Penn State University); Prof. HOWARD, Andrew (Caltech); Prof. ISAACSON, Howard (UC Berkeley); Prof. JOHNSON, John (Harvard-Smithsonian Center for Astrophysics)

Presenter: Mr LUHN, Jacob (Penn State University)

Track Classification: Stellar signals