



## **Astronomy Program Opening Workshop August 22-26, 2016**

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“Separating Stellar Activity from Doppler Shifts”

In the advent of ultra-precise spectrometers designed exclusively to make Doppler (or radial velocity) measurements of nearby stars, instrumental measurement noise is no longer the chief impediment to the discovery of Earth-mass exoplanets in the Solar neighborhood. Instead, it is the astrophysical noise arising from the atmospheric motions of the stars themselves. If we are to make confident detections of Earthlike exoplanets with reasonable allotments of telescope time, we must make progress towards the efficient separation of radial velocity signals originating from stellar activity and true Doppler motion. I will describe the basic challenges of extracting exoplanet signals from astrophysical noise, and highlight some of the astrophysical phenomena that give rise to Doppler noise. I will also discuss specific examples of activity-induced noise in radial velocity studies, and some of the techniques used to minimize its impact.