

Modeling Stellar Variability in the Full Spectrum

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A variety of radial velocity extraction methods, including template-matching, forward modeling, and cross-correlation, are all capable of measuring RVs at the photon noise limit under a set of assumptions about the data. Stellar variability in the spectrum inevitably violates these assumptions, resulting in noisy and biased RV measurements. In this talk, I will argue that the best way forward in the face of spectral variability is to build physically-motivated models which account for this variability as it manifests across the entire spectrum. I will present an overview of recent work along these lines, including an interpretable data-driven model that regresses the full spectrum against relevant basis vectors to capture astrophysical variability.