

Tel Aviv University , Astronomy and Astrophysics Seminar

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Holzblat hall

Project NIRRVs: Precise Near-Infrared Radial Velocity Survey

We present precise radial velocity time-series from a 2.3 micron pilot survey to detect exoplanets around red, low mass, and young stars. We use the CSHELL spectrograph with an isotopic methane absorption gas

cell for common optical path relative wavelength calibration at the NASA InfraRed Telescope Facility. We present an overview of our Nelder-Mead simplex optimization pipeline for extracting radial velocities. We will also present first light data at 1.6 microns from a near-infrared fiber scrambler used in tandem with our gas cell and CSHELL at IRTF. The fiber scrambler makes use of non-circular core fibers to stabilize the illumination of the slit and echelle grating against changes in seeing, focus, guiding and other sources of systematic radial velocity noise, complementing the wavelength calibration of a gas cell. We will conclude with an overview of our current survey plans, and discuss current progress on the MINERVA spectrograph and telescope array.