



## Microwave Kinetic Inductance Detectors for Exoplanet Imaging

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Microwave Kinetic Inductance Detectors (MKIDs) have great potential as integral field units for coronagraphic high-contrast astronomy, specifically Exoplanet imaging. Currently, the dominant noise source in coronagraphic instruments is from scattered coherent starlight interfering in the image plane, which generates a randomly varying "speckle" pattern with intensity comparable to the flux from planetary companions. Speckles are chromatic and vary on several characteristic timescales, with the most problematic ones changing on  $\sim 1$  second timescales - too slow to average out with long exposures and too fast to control in real time with conventional detectors. Removal of these speckles requires a science camera with energy resolution, microsecond time resolution, and no added noise. MKIDs are presently the only viable technology for overcoming the contrast ceiling imposed by these speckles. I will present our progress in developing MKID based integral field spectrographs for high-contrast astronomy applications. Three such instruments are currently funded, with the first, DARKNESS, scheduled for commissioning in Winter 2016.