NEID and the new precision era of Doppler exoplanet science by Paul Robertson (UCI)

**Date:**
Wednesday, November 27, 2019 - 3:00pm

**Series:**
Astronomy/Astrophysics Colloquium

Abstract: As exoplanet science continues to flourish, with many new instrumental and analysis techniques being brought to bear on the detection and characterization of nearby planets, radial velocity (RV) measurements continue to occupy a prominent place in the field. RVs are critical to extracting the full scientific potential of space missions such as TESS, Plato, and JWST, and will detect the planets that are eventually imaged with next-generation space telescopes. However, the 1 meter-per-second measurement precision that has qualified as the industry standard for more than a decade will no longer suffice. In this context, I will discuss the NEID spectrometer, a publicly-accessible ultra-precise Doppler instrument currently being commissioned on the 3.5m WIYN Telescope at Kitt Peak National Observatory. NEID will provide RV precision better than 0.5 m/s, and the technical innovation behind this performance serves as a roadmap for even more precise instruments in the coming years. I will describe NEID's heritage and performance, and introduce some early science cases for the instrument.

**Location:**
PAB 1-434