



NEID

NN-explore
Exoplanet
Investigations with
Doppler spectroscopy

*Pronounced knew-id. "to see" in the
language of the Tohono O'odham



National Optical Astronomy Observatory
www.noao.edu



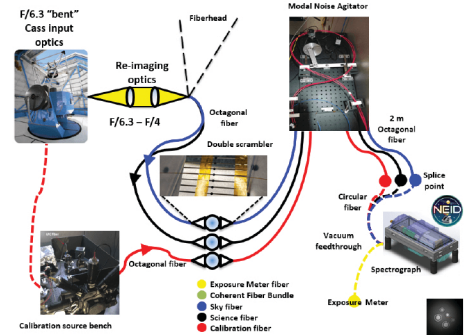


PI Suvrath Mahadevan (PSU) with the NEID vacuum chamber
 Credit: Pennsylvania State University

NEID

NEID is being developed as part of a joint effort between NASA and the NSF called NN-EXPLORE, which seeks to provide the astronomical community with a state-of-the-art spectrograph dedicated to high-precision Doppler observations of exoplanets around nearby stars. It will be deployed in 2019 on the 3.5-meter WIYN Telescope at Kitt Peak National Observatory in Arizona.

NEID will support a number of cutting-edge scientific endeavors, mainly related to the discovery and study of exoplanets. Its measurement precision will enable the discovery of Earth-mass planets in the so-called “habitable zones” of the nearest stars, where liquid water—and perhaps life—can exist on their surfaces. These “Earth twins” will be prime targets for space-based exoplanet characterization missions, which will obtain spectra and images of nearby planets. NEID will also provide highly precise masses and densities for transiting planets discovered by the upcoming TESS spacecraft. Such measurements are critical for better understanding the composition, formation, and dynamical evolution of exoplanets.



Credit: Pennsylvania State University

NEID is on schedule to be installed and commissioned at the 3.5-m WIYN telescope in April 2019 and to be available to the community in the 2019B semester.

NEID will support the NASA TESS mission, which launched in April 2018 and is already producing data.

NEID will be available to the exoplanet community for up to roughly 120 nights per semester.

NEID will be operated in queue observing mode. The design goal is to reach a radial velocity

single-measurement precision of 30 cm per second.

Typical GO programs could target HZ Earth-mass planets orbiting M-K stars.

