The New Mexico Tech Extrasolar Spectroscopic Survey Instrument (NESSI) is a near-infrared spectrometer designed to study the atmospheres of exoplanets — planets in orbit around stars other than our own.

NESSI is the first spectrometer that will be purpose-built to study exoplanetary atmospheres, which will help answer fundamental questions such as:

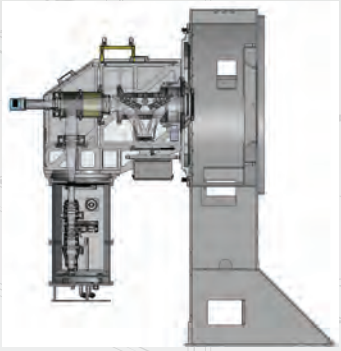
- What is the chemical composition and structure of these atmospheres?
- Do exoplanet atmospheres experience variability, like weather?
- How are exoplanets similar and dissimilar to each other; how do they compare to the planets in the Solar System?

Of the 763 known exoplanets,[1] the atmospheres of only a handful have been characterized. NESSI will be a resource to enable research in exoplanet characterization.

Although primarily designed for exoplanet studies, NESSI will also contribute significantly to many other areas of astronomical research, such as:

- Extragalactic chemistry and distributions
- Solar system objects
- Abundance determinations of comets
- Basic stellar spectroscopy of single and hierarchical systems

NESSI is being developed, constructed, and tested by engineers at MRO and is supported by funding from NASA EPSCoR, NMT, and MRO. It is expected to be in use on the MRO 2.4-meter telescope by the end of 2012.



1 As of May 9, 2012; The Extrasolar Planets Encyclopedia website, http://exoplanet.eu/catalog.php

For questions or inquiries please contact Dr. Ifan Payne, MRO Program Director
info@mro.nmt.edu tel 575 835-6431

MRO Magdalena Ridge Observatory

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