

# Identifying Atomic and Molecular Absorption in an Extrasolar Planet Atmosphere

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Total Budget Amount: \$42,798

Theory: Yes

## Abstract

A significant amount of Hubble Space Telescope time has been spent observing a normal bright main-sequence star, HD209458, which happens to also be home to one of the few transiting extrasolar planets. Time-series spectroscopic data taken with STIS and ASC are available in the archive covering numerous planetary transits over the past 7 years. These data have allowed the discovery of sodium absorption in HD209458b's atmosphere along with a hydrogen-rich extended exosphere. There is great potential for significant new discoveries with these data that could further constrain the chemical composition and chemical evolution of HD209458b. This proposal outlines steps toward improving our understanding of the chemical composition of extrasolar giant planet atmospheres by developing new models for the wavelength-dependent eclipse depth that may be directly compared to archival Hubble Space Telescope observations.

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**Investigators:**

	Investigator	Institution	Country
PI	Dr. Travis Stuart Barman	Lowell Observatory	USA/AZ

Number of investigators: 1

**Dataset Summary:**

Instrument	No. of Datasets	Retrieval Method	Retrieval Plan
STIS	128	DVD	DVDs of archived data will be mailed to the PI
ACS	81	DVD	DVDs of archived data will be mailed to the PI