

MOLECULAR SPECTROSCOPY AT THE JET PROPULSION LABORATORY

BRIAN DROUIN, *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA.*

Quantitative spectrometry is a primary source for determination of composition as well as physical properties of planetary atmospheres, including the Earth's and exo-planetary atmospheres. NASAs charter to explore the universe, the solar system, and to observe Earth from space results in several different challenges for molecular spectroscopy, including: (1) a desire for comprehensive spectral databases; (2) extreme physical characterizations of bulk atmospheric gases; (3) characterization of transient molecules; (4) development of sensors for extraterrestrial deployment. Along with colleagues across the world, the molecular spectroscopy laboratory at NASAs Jet Propulsion Laboratory works towards these goals, providing both critical information for specific missions as well as general knowledge to support a broad community of planetary scientists, astronomers, and Earth scientists. This presentation will show examples in each challenging area with highlights for spectral characterization efforts to support the Herschel/HIFI and Cassini missions, high-pressure spectroscopy to support the OCO missions and exoplanet research, characterizations of radical and ion species, as well as the development of miniaturized cavity spectrometers that may enable molecular and enantiomeric specific detections *in-situ*.