INFRARED SPECTROSCOPIC STUDIES WITH THE STRATOSPHERIC OBSERVATORY FOR INFRARED ASTRONOMY (SOFIA)

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The joint U.S. and German Stratospheric Observatory for Infrared Astronomy (SOFIA) will be a premier facility for studying the physics and chemistry of the interstellar medium and the stellar evolution process for many decades. SOFIA's first-generation instrument complement includes broadband imagers, moderate resolution spectrographs capable of resolving broad features due to dust and large molecules, and high resolution spectrometers suitable for kinematic studies of molecular and atomic gas lines at km/s resolution. SOFIA spectroscopic science applications will be discussed, with special emphasis on investigations related to infrared spectroscopy of astrophysical gas, grains, and ices. First light images and early science results related to these topics will be presented.