INFRARED SPECTROSCOPY OF ASTROPHYSICAL GAS, GRAINS, AND ICES 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 stellar evolution process for many decades. SOFIA spectroscopic science applications will be discussed, with special emphasis on investigations related to infrared spectroscopy of astrophysical gas, grains, and ices. Examples will be given of spectroscopic studies of the interstellar medium, protostars, obscured sources in molecular cloud cores, circumstellar disks around young stellar objects, remnants of nova and supernova explosions, and winds of evolved stellar systems.