

ROTATIONALLY-RESOLVED INFRARED SPECTROSCOPY OF CH₃F ISOLATED IN SOLID PARAHYDROGEN

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The high-resolution infrared spectrum of CH₃F isolated in solid parahydrogen is studied via FT-IR methods. The CH₃F doped parahydrogen crystals are prepared using the rapid vapor deposition method developed by Fajardo and co-workers. CH₃F was studied as a prototypical symmetric top molecule in a quantum cavity. The infrared spectroscopy suggests CH₃F undergoes nearly free rotation indicating it occupies a single substitution site. Spectroscopic results and analysis on the CH₃F rovibrational dynamics and nuclear spin relaxation will be presented.