

FOURTH GENERATION BUFFER GAS CELL FOR MICROWAVE SPECTROSCOPY

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Cryogenic buffer gas cells have been widely used in experimental chemistry and physics, and have seen recent success and adoption for use for microwave spectroscopy of reactive species as well as precision measurement. Here, I present the latest in buffer gas-cooled microwave spectroscopy, including the highest resolution microwave spectroscopy ever performed, in a cryogenic, cavity enhanced buffer gas beam. The high averaging rate and low noise temperature lends extreme sensitivity to the this instrument, and measures of sensitivity will also be presented on isotopologues of carbonyl sulfide (OCS). Limitations of this technique will also be discussed.