TWO DIMENSIONAL ROVIBRATIONAL SPECTROSCOPY OF MONODEUTERATED METHANE

TRINITY G SMITH, AMANDA M CAMPBELL, *Department of Chemistry and Biochemistry, Spelman College, Atlanta, GA, USA*; PETER CHEN, *Department of Chemistry, Spelman College, Atlanta, GA, USA*.

Two dimensional (2D) spectroscopy is a technique that can be used to identify vibrational couplings between two regions of the IR spectrum. This technique is well-established for molecules in condensed phases. A recently demonstrated technique, 2D rovibrational spectroscopy of gas phase molecules, introduces new possibilities because numerous rovibrational peaks can form unique and informative patterns. This talk presents 2D spectra of monodeuterated methane (CH3D) that show rovibrational patterns created by couplings between vibrations in the NIR and MIR regions. New 2D methods of analysis lead to assignments in the MIR and NIR region and greater understanding of the molecule's behavior.