NONPLANAR FOUR-MEMBERED RINGS CAUSED BY VAN DER WAALS-ARGON FORCES

DAVID McCAMANT, MICHAELEEN R. MUNROW, STEWART E. NOVICK, RANJITH PREMASIRI, WEI CHEN, and WALLACE PRINGLE, *Department of Chemistry, Wesleyan University, Middletown, CT 06459*.

Microwave spectra of the C-13 and S-34 isotopomers of the argon-van der Waals complexes of thietane, oxetane and cyclobutanone have been obtained and assigned using a pulsed jet Fourier transform microwave spectrometer. The van der Waals forces perturb the geometries of the four-membered rings leading to non-planar or more non-planar rings in the ground vibrational states of the complexes. The balance of the torsional and ring strain forces will be discussed as will the coupling of the vdW vibrations to the ring-puckering motions.