STRUCTURE DETERMINATION OF 5 MEMBERED SILANE RINGS USING MICROWAVE SPECTROSCOPY

FRANK E MARSHALL, AMANDA JO DUERDEN, NICOLE MOON, DAVID JOSEPH GILLCRIST, *Department of Chemistry, Missouri University of Science and Technology, Rolla, MO, USA*; IVAN SEDLACEK, *Chemistry, Missouri University of Science and Technology, Rolla, Missouri, United States*; GRIER JONES, THEODORE CARRIGAN-BRODA, GAMIL A GUIRGIS, *Department of Chemistry and Biochemistry, College of Charleston, Charleston, SC, USA*; G. S. GRUBBS II, *Department of Chemistry, Missouri University of Science and Technology, Rolla, MO, USA*.

Rotational spectra of 1,1-difluorosilacyclopent-3-ene, silacyclopent-3-ene, 1-(chloromethyl)-1-fluorosilacyclopentane, 1,1-difluorosilacyclopentane, and 1,1-difluorosilacylopent-2-ene were observed in the 6 to 18 GHz range of the electromagnetic spectrum. The molecular structure for the parent and various isotopically substituted species were obtained from their respective spectra. The differences in structure between these similar molecules will be presented, showing how different functional groups and bond locations affect the overall structure and behavior of each system (ring puckering effects, etc.). Comparisons to similar known cyclopentane and silacyclopentane species will be presented.