

STRUCTURAL DETERMINATION OF SILACYCLOBUTANE AND SILACYCLOPENTANE USING FOURIER TRANSFORM MICROWAVE (FTMW) AND CHIRPED PULSE FOURIER TRANSFORM MICROWAVE (cp-FTMW) SPECTROSCOPY

ZIQU CHEN, CODY VAN DIJK AND JENNIFER VAN WIJNGAARDEN, *Department of Chemistry, University of Manitoba, Winnipeg MB R3T 2N2 Canada.*

The pure rotational spectra of the ground states of silacyclobutane (SCB) and silacyclopentane (SCP) were measured in a supersonic jet in the 6-24 GHz range using Fourier transform microwave spectroscopy and the chirped-pulse variant of this technique. Heavy atom isotopic substitution for the silicon and each of the carbon atoms within the rings enabled the accurate determination of the  $r_s$  and  $r_0$  structural parameters of the ring backbones of both SCB and SCP. For SCB, splitting due to ring inversion in the ground state has been observed and analyzed.