MOLECULAR BEAM OPTICAL STARK SPECTROSCOPY OF SiCH AND GeCH

TONY C. SMITH, AND DENNIS J. CLOUTHIER, *Department of Chemistry, University of Kentucky, Lexington, KY 40506-0055*; TIMOTHY C. STEIMLE, *Department of Chemistry and Biochemistry, Arizona State University, Tempe, Az 85287-1604*.

Laser-induced fluorescence spectra of selected features of the band $\tilde{A}\ ^2\Sigma^+$ - $\tilde{X}\ ^2\Pi_i$ systems of the SiCH and GeCH radicals have been recorded at sub-Doppler resolution. As in previous studies,[ab] the radicals were produced in a pulsed discharge jet source using methyltrichlorosilane and methyltrichlorogermane as precursors. With linewidths of 35 MHz, the proton magnetic hyperfine splittings have been resolved and the upper state Fermi contact parameter determined. In addition, optical Stark experiments were performed to measure the ground and excited state permanent electric dipole moments. The analysis of the Stark and hyperfine data will be presented and the derived parameters will be discussed.

[a]T. C. Smith, H. Li, D. J. Clouthier, C. T. Kingston and A. J. Merer, *J. Chem. Phys.* **112**, 3662 (2000).
[b]T. C. Smith, H. Li, D. J. Clouthier, C. T. Kingston and A. J. Merer, *J. Chem. Phys.* **12**, 8417 (2000).