

A HIGH RESOLUTION STUDY OF THREE TOP INTERNAL ROTORS: THE MICROWAVE SPECTRA OF TRIMETHYLSILANE, $(\text{CH}_3)_3\text{SiH}$, TRIMETHYLSILYLACETYLENE, $(\text{CH}_3)_3\text{SiC}\equiv\text{CH}$, and TRIMETHYLSILYL-DIACETYLENE, $(\text{CH}_3)_3\text{SiC}\equiv\text{C}-\text{C}\equiv\text{CH}$

LU KANG, and STEWART E. NOVICK, *Department of Chemistry, Wesleyan University, Middletown, CT 06459.*

The microwave spectra of $(\text{CH}_3)_3\text{SiH}$, $(\text{CH}_3)_3\text{SiC}\equiv\text{CH}$, and $(\text{CH}_3)_3\text{SiC}\equiv\text{C}-\text{C}\equiv\text{CH}$, as well as some of their Si isotopomers have been studied with FTMW spectroscopy. $(\text{CH}_3)_3\text{SiC}\equiv\text{C}-\text{C}\equiv\text{CH}$ was generated by passing a jet, consisting of a 1% one to one mixture of $(\text{CH}_3)_3\text{SiC}\equiv\text{CH}$ and acetylene in an argon carrier gas, through a 900 volt discharge. The internal rotational splitting of $(\text{CH}_3)_3\text{SiH}$ and $(\text{CH}_3)_3\text{SiC}\equiv\text{CH}$ have been observed.