A HIGH RESOLUTION STUDY OF THREE TOP INTERNAL ROTORS: THE MICROWAVE SPECTRA OF TRIMETHYLSILANE,$(CH_3)_3SiH$, TRIMETHYLSILYLACETYLENE, $(CH_3)_3SiC{\equiv}CH$, and TRIMETHYLSILYL-DIACETYLENE, $(CH_3)_3SiC{\equiv}C\text{-}C{\equiv}CH$

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The microwave spectra of $(CH_3)_3SiH$, $(CH_3)_3SiC{\equiv}CH$, and $(CH_3)_3SiC{\equiv}C\text{-}C{\equiv}CH$, as well as some of their Si isotopomers have been studied with FTMW spectroscopy. $(CH_3)_3SiC{\equiv}C\text{-}C{\equiv}CH$ was generated by passing a jet, consisting of a 1% one to one mixture of $(CH_3)_3SiC{\equiv}CH$ and acetylene in an argon carrier gas, through a 900 volt discharge. The internal rotational splitting of $(CH_3)_3SiH$ and $(CH_3)_3SiC{\equiv}CH$ have been observed.