

MICROWAVE SPECTRA, DIPOLE MOMENTS AND EQUILIBRIUM STRUCTURES OF (Z)-PENT-2-ENE-4-YNENITRILE AND MALEONITRILE

SEAN A. PEEBLES and ROBERT L. KUCZKOWSKI, *Department Of Chemistry, University Of Michigan, Ann Arbor, MI 48109-1055*; ROBERT J. HALTER, RYAN L. FIMMEN and ROBERT J. McMAHON, *Department Of Chemistry, University Of Wisconsin, Madison, WI 53706-1396*; JOHN F. STANTON, *Department Of Chemistry And Biochemistry, University Of Texas At Austin, Austin, TX 78712*.

The rotational spectra of 10 isotopomers of (Z)-pent-2-ene-4-yne nitrile and 6 isotopomers of maleonitrile were measured using pulsed supersonic nozzle, Fourier-transform microwave spectroscopy. The ground state rotational constants in each case were adjusted for vibration-rotation interaction effects using *ab initio* force field calculations. The resulting equilibrium rotational constants were in very good agreement with those from high level *ab initio* calculations. Stark effect measurements allowed dipole moments of 3.53(3) D and 5.32(6) D, respectively to be determined for the two molecules. The equilibrium structural parameters and comparisons with calculated values will be presented.