

SMALL SULFUR CLUSTERS IN THE GAS PHASE: PURE ROTATIONAL SPECTROSCOPY OF S<sub>3</sub> (THIOZONE) AND S<sub>4</sub>

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The  $C_{2v}$  forms of thiozone, S<sub>3</sub>, and tetrasulfur, S<sub>4</sub>, have been investigated by Fourier transform microwave spectroscopy of a supersonic molecular beam. Both molecules represent the global minima on their respective potential energy surfaces. Besides the parent molecules the mono-<sup>34</sup>S isotopomers have been investigated in natural abundance. For thiozone, a substantial number of vibrational satellites has been detected in addition. The analysis of the spectroscopic data will be discussed and a comparison to recent high-level quantum chemical calculations at the CCSD(T) level of theory will be given. From a calculation of the cubic force field the rotation-vibration interaction constants have been calculated and the mixed experimental-theoretical  $r_e$  structures have been obtained.