ROTATIONAL SPECTROSCOPIC STUDY OF He_n-OCS CLUSTERS

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The rotational spectrum of the He_2-OCS complex[a] was reported by us two years ago at this meeting. More recently, Tang and McKellar investigated the infrared spectra of the He_n-OCS with n=1 to 8.[b] In this talk, we present detailed isotopic studies of the series of He_n-OCS (n=2-8) clusters that were done using a cavity Fourier transform microwave spectrometer. Nuclear hyperfine structures due to the quadrupolar ^{33}S and ^{17}O nuclei were observed and analyzed. The resulting isotopic rotational, distortion, and hyperfine constants were used to derive information about the structures and dynamics of these clusters. Investigations of microwave spectra of higher He_n-OCS clusters are currently underway.

[a] Y. Xu and W. Jäger, *Chem. Phys. Lett.* **350**, 417 (2001).
[b] J. Tang and A. R. W. McKellar, private communication (2001).