

THE MILLIMETER/SUBMILLIMETER SPECTRUM OF 2-CHLOROETHANOL

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2-chloroethanol, the simplest chlorohydrin, is known to exist in 5 distinct conformers. The lowest energy conformer is gauche-gauche, designating the internal rotation around the C-C bond and the C-O bond, respectively. High resolution microwave^a and far-infrared^b spectra of the gauche-gauche conformer have been reported in the literature. 2-chloroethanol may play a role in interstellar chemistry. Since HCl constitutes at least 90% of the chlorine in the interstellar medium and its reaction with other known interstellar constituents (i.e., oxirane or ethylene glycol) is predicted to form 2-chloroethanol. However, attempts at its detection towards Sgr B2(N) have been unsuccessful. It is not clear if the lack of detection arises from its lack of presence in this sightline, its weak spectrum, or whether the extrapolated spectral information for 2-chloroethanol is not of sufficient accuracy to guide astronomical searches. Therefore, we have measured the spectrum of 2-chloroethanol in the millimeter/submillimeter region to further improve the constants and provide spectral frequencies directly comparable to telescopes such as ALMA. In this talk we will report on the experimental results and the progress on analysis of the 2-chloroethanol spectrum.

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