INFRARED SPECTROSCOPY OF THE AR-C_2HD COMPLEX: POTENTIAL ENERGY SURFACES

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The argon-acetylene complex has been studied by a number of experimental and theoretical groups, with the aim in mind of determining an accurate potential energy surface for this system. Both microwave and infrared spectroscopy have provided detailed rotational and vibrational constants for this system. In addition, scattering experiments have been reported and *abinitio* calculation performed. Even with all of this, there are still some fundamental questions that remain unanswered with regards to the shape of the potential surface. We will review some of this work to outline the current situation. In the present study we have obtained high resolution infrared spectra of the Ar-C_2HD complex with the aim of providing additional molecular constants that could be used to help constrain the potential. Collocation calculations are reported, using a number of potential surfaces, for this and the normal isotopomer. This additional data helps to answer some of these open questions.