

SPECTROSCOPY AND STRUCTURE OF THE -Ar₁ AND -Ar₂ VAN DER WAALS COMPLEXES OF ORTHO- AND META- DIFLUOROBENZENE

ALAN E. W. KNIGHT, DAMON J. CURREN and JAMES L. SPRINGFIELD, *Molecular Dynamics Laboratory, School of Science, Griffith University, Brisbane, QLD 4111, Australia.*

One-colour resonance enhanced two-photon ionisation (1C-R2PI) spectroscopy has been used to measure the S₁-S₀ electronic spectra of the -Ar₁ and -Ar₂ van der Waals clusters of ortho- and meta- difluorobenzene (DFB). The vibrational structure near the S₁-S₀ origin band of the cluster species yields information concerning the van der Waals vibrational motion. Rotational band contours measured for several of these transitions for the -Ar₁ and -Ar₂ complexes assist in establishing the cluster geometries. A simple model for the van der Waals motion serves to rationalise our observations. The vibrational predissociation dynamics of the -Ar₁ clusters have also been examined using dispersed fluorescence spectroscopy.