SPECTROSCOPY AND STRUCTURE OF THE -Ar_1 AND -Ar_2 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 S_1-S_0 electronic spectra of the -Ar_1 and -Ar_2 van der Waals clusters of ortho- and meta- difluorobenzene (DFB). The vibrational structure near the S_1-S_0 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 -Ar_1 and -Ar_2 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 -Ar_1 clusters have also been examined using dispersed fluorescence spectroscopy.