ISOTOPIC SELECTIVITY IN THE ELECTRONIC PREDISSOCIATION DYNAMICS OF $CN - Ar_n$ CLUSTERS

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$CN - Ar_n$ clusters with an average size of n=100, were prepared in a supersonic expansion. Electronic excitation of the clusters to CN($B^2\Sigma^+$)-Ar_n was followed by electronic predissociation. In a previous low-resolution study[a], it was proposed that predissociation involved the ejection of free CN($A^2\Pi$) from the surface of the cluster. In the present work, OODR techniques were used to demonstrate that free CN($A^2\Pi$) was produced. Interestingly, although a natural isotopic mixture of CN was used (1% ^{13}CN), similar quantities of ^{12}CN and ^{13}CN fragments were detected. The product state distributions resulting from predissociation, and the isotopic selectivity of the dynamics will be discussed.

[a] H.-S. Lin, M. G. Erickson, Y. Lin, W. H. Basinger, W. G. Lawrence, M. C. Heaven, Chem. Phys. **189**, 235 (1994)