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Photo double detachment of CN^-: Electronic decay from an inner-valence hole in molecular anions[1] R.C. BILODEAU, Western Michigan University and Lawrence Berkeley National Laboratory - ALS, C.W. WALTER, Denison U., I. DUMITRIU, WMU and LBNL, N.D. GIBSON, Denison U., G.D. ACKERMAN, J.D. BOZEK, B.S. RUDE, LBNL, R. SANTRA, Argonne National Lab. and ITAMP, L.S. CEDERBAUM, U. Heidelberg, N. BERRAH, WMU — The first measurements of inner-valence photodetachment from CN^- as well as theoretical calculations around the 2-electron threshold (25–90 eV) will be presented. Measured absolute cross sections for CN^+ production by photo double detachment of CN^-, and for C^+ and N^+ fragments produced from the dissociation of the excited molecule will be reported. The measurements also reveal the signature of inner-valence autoionization, similar to the interatomic Coulombic decay (ICD) phenomenon. This work confirms the predicted effect, which should in general be present for molecular anions, even in very small molecules.

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