

Abstract Submitted
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Enhanced Single-Photon Multi-Detachment in Anions of C_{60} and Observation of a Scaling Law¹ R.C. BILODEAU, M. HOENER, N. BERRAH, Western Michigan U., Kalamazoo MI, S. SCHIPPERS, A. MÜLLER, Justus-Liebig-Universität, Giessen, D.A. ESTEVES, R.A. PHANEUF, U. of Nevada, Reno NV, N.D. GIBSON, C.W. WALTER, Denison U., Granville OH, A. AGUILAR, LBNL-ALS, Berkeley CA, J.M. ROST, Max-Planck-Institut, Dresden — Absolute single-photon multi-detachment cross sections in C_{60}^- have been measured. We observe a large enhancement (2 and 2.5 times for double and triple detachment, respectively) of the oscillator strength in the anion compared to neutral C_{60} . Although the anion spectra is qualitatively similar to that of multi-photoionization in C_{60} , the anion spectra are substantially compressed in photon energy. The effect of the additional screening provided by the excess electron in the anion on the knock-off process is proposed in order to explain the observed energy scaling. We can also deduce from the results that plasmon resonances do not couple strongly into two- and three-electron removal channels in either the anion or the neutral systems, a surprising result given the intrinsic multi-electron character of the plasmon resonances.

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