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Photo-multidetachment and Fragmentation of C_{60}^- [1] R.C. BILODEAU, M. HOENER, N. BERRAH, Western Michigan U., Kalamazoo MI, S. SCHIPPERS, A. MÜLLER, Justus-Liebig-Universitat, Giessen, D.A. ESTEVES, R. 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 and fragmentation cross sections of C_{60}^- fullerene anions have been measured as a function of energy with the merged ion-photon beam apparatus at the ALS. Multiple electron ejection was substantial at all photon energies, allowing product charge states up to C_{60}^{3+} to be measured. We argue that q-fold detachment spectra of C_{60}^- relate directly to q-fold ionization of neutral C_{60}, except the loosely bound excess electron of C_{60}^- results in a significant change of the energy scale and increase of the absolute cross section, with otherwise little change in the structure. Fragmentation into cations of C_{58} and C_{56} was also studied. We conclude from the determination of appearance thresholds that fragmentation occurs at significantly lower photoexcitation energies in C_{60}^- than in C_{60}.

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