

Abstract Submitted
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Dissociation of CO molecular ions produced in collisions with 2.5 MeV/u Xe(34+) VLADIMIR HORVAT, RAND WATSON, Texas A&M University — The breakup of CO molecular ions following multiple electron removal by 2.5 MeV/u Xe(34+) ions has been re-examined by means of recoil-ion momentum spectroscopy (RIMS) using a position-sensitive 80 mm diam microchannel plate detector backed by a hexagonal delay-line anode. Fragment pairs originating from molecular ions with charge up to 8e were isolated and analyzed in order to determine the distribution of total recoil-ion kinetic energy released in the breakup (KER) and the angular distribution of the ion momenta with respect to the beam direction. The results are significantly improved compared to those reported previously in terms of accuracy, resolution and overall counting statistics. The KER distributions were determined with a resolution of 1 eV (FWHM) or better. While most of the KER distributions displayed only a single broad asymmetric peak, a few of them showed a combination of well-resolved narrow peaks and partially overlapping broader peaks. The angular distributions were found to be essentially isotropic, except for those ion pairs originating from highly charged molecular ions, which indicated a slight preference for emission in the beam direction.

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