

Abstract Submitted
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Fragmentation dynamics of highly symmetric molecules VANDANA SHARMA, JILA, University of Colorado, Boulder, CO, 80303, USA, BHAS BAPAT, Physical Research Laboratory, Ahmedabad 380009, India, MARGARET MURNANE, HENRY KAPTEYN, JILA, University of Colorado, Boulder, CO, 80303, USA — We have probed the fragmentation dynamics of CCl_4 and SF_6 molecules which are highly symmetric. The common thread between the dissociation pattern of the two molecules is the formation of an ion which is not ‘obvious’ ($\text{Cl}_2^+:\text{CCl}_4$ and $\text{F}_2^+:\text{SF}_6$). The ground state geometry of the two does not support the formation of these unusual dissociative products. This implies that the geometry of the dissociating molecular ion is significantly altered from the geometry of the parent neutral. These observations suggest relocation of certain atoms within the molecular ion during dissociation. We made a successful attempt to determine the geometry of electronically excited dicationic precursor in the CM frame. Experimentally determined geometry is in good agreement with the theoretically generated structure.

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