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Observation of selective charge separation following strong-field single ionization CHUNLEI GUO, University of Rochester — We report on an apparently anomalous observation in the dissociation channels of singly ionized nitric oxide (NO) molecules. We observe that the NO molecules, when oriented perpendicular to the laser polarization, appears to preferentially dissociate into a channel that is energetically unfavorable. A careful examination of the unique electronic structure of NO molecule suggests that this observation is due to the influence of the detailed electronic structure of NO on its strong field ionization dynamics, which leads singly ionized NO created in strong fields to dissociate differently from that in weak fields. This study reinforces our understanding of the fundamental differences between ionization dynamics in strong fields versus weak fields.

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