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Dissociative Dynamics of Electron Attachment to Carbon Dioxide A. MORADMAND, Department of Physics, Auburn University, D.S. SLAUGHTER, D.J. HAXTON, Lawrence Berkeley National Laboratory, Chemical Sciences, A.L. LANDERS, Department of Physics, Auburn University, C.W. MCCURDY, Department of Chemistry and Applied Science, University of California, T.N. RESCIGNO, Lawrence Berkeley National Laboratory, Chemical Sciences, M. FOGLE, Department of Physics, Auburn University, A. BELKACEM, Lawrence Berkeley National Laboratory, Chemical Sciences — Three-dimensional momentum imaging is used to observe the dissociative dynamics of O^- production from electron attachment to CO_2 at two resonances, a $^2\Pi_u$ shape resonance at 4.4 eV and a Feshbach resonance at 8.2 eV. At 8.2 eV, images of the attachment dynamics are contrasted with existing data on the angular distribution of the resonant dissociation, while the 4.4 eV resonance momentum shows a breakdown of the axial recoil approximation with an asymmetry favoring dissociation and ejection of the O^- opposite the direction of the incoming electron's momentum vector. Measurements from two independent experiments are interpreted in light of new ab initio calculations to describe the electron attachment dynamics.

Ali Moradmand
Department of Physics, Auburn University

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