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Mechanisms of Dissociative Electron Attachment to CO_2 and NH_3[1] WILLIAM MCCURDY[2], Department of Chemistry, University of California, Davis, DANIEL HAXTON, Chemical Sciences Division, Lawrence Berkeley National Laboratory, SPIRIDOULA MATSIKA, Departent of Chemistry, Temple University, THOMAS RESCIGNO, Chemical Sciences Division, Lawrence Berkeley National Laboratory — Recent experiments at LBNL on the angular dependence of dissociative electron attachment (DEA) to CO_2 and NH_3 have raised new questions about the mechanism of DEA in both cases. In the case of CO_2, for attachment via the shape resonance at 4 eV, the angular distribution of O^- is peaked along the axis of the incident direction of the electron, even though the resonance through which the electron is attached is of $^2\Pi$ symmetry. We present an explanation based on both the attachment amplitude from *ab initio* complex Kohn scattering calculations and the identification of two conical intersections, one involving a Σ/Π intersection, that may both be involved in the surprisingly complicated mechanism for this low energy DEA process. In NH_3, complex Kohn scattering calculations identify the $^2A'$ Feshbach resonance near 5 eV that produces both H^- and NH_2^- fragments in the experiment, also involving at least one conical intersection.

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