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Strongly-Driven Triatomic Molecules: Pathways to Formation of Highly Excited Neutral Atoms AGAPI EMMANOUILIDOU, University College London — We present theoretical calculations for the formation of highly excited neutral atoms in molecules. We do so using a 3-d sophisticated quasiclassical technique that fully accounts for the Coulomb singularity. We account for nuclear and electronic motion at the same time. We show that two pathways underlie the formation of highly excited neutral fragments. One resembles "frustrated" enhanced ionization while the other resembles "frustrated" non-sequential double ionization. That is two-electron effects prevail in one of the two pathways. We discuss how elliptical laser fields can be used to control the contribution of each one of these two pathways.

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[2] Emmanouilidou, C. Lazarou, A. Staudte and U. Eichmann, "Routes to formation of highly excited neutral atoms in the breakup of strongly driven hydrogen molecule," Phys. Rev. A (Rapid Communication) 85, 011402 (R) (2012).

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