

Abstract Submitted
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Suppression of molecular cold collisions in a field¹ J.L. BOHN, JILA, University of Colorado, A.V. AVDEENKOV, Institute of Physics and Power Engineering, Obninsk, Russia — We have found that state-changing collisions of heteronuclear polar molecules in Σ ground states can be suppressed by orders of magnitude in the presence of strong electric fields. The fields required to initiate this suppression are determined by introducing Stark shifts that are comparable to rotational intervals in the molecules. Under these circumstances, the field can induce qualitative changes in the structure of adiabatic curve-crossings, dramatically altering the collision physics. This result has implications for trapping and cooling polar Σ -state molecules in electrostatic traps.

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