Abstract Submitted
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Tunable inelastic collisions between magnetically trapped hydroxyl radicals (OH) HAO WU, DAVID REENS, TIM LANGEN, JILA, Univ of Colorado - Boulder, GOULVEN QUÉMÉNER, CNRS, Laboratoire Aimé Cotton (France), JUN YE, JILA, Univ of Colorado - Boulder — We experimentally study collisional properties of cold polar hydroxyl (OH) molecules, which are directly loaded from a Stark-decelerated beam into a strongly confining permanent magnet trap. The OH molecule is both magnetically and electrically polar, which enables the tuning of inelastic collisions as a function of an applied electric field. Based on the experimental data and detailed simulations of the in-trap evolution we find that the OH two-body loss rate depends not only on the magnitude of the magnetic and electric fields, but also on their relative angles. This provides an important step towards a quantitative understanding of the inelastic collisional property and for further evaporative cooling of the molecular sample.

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