

Abstract Submitted
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Ultracold collisions of Ca + Ca⁺ MARKO GACESA, NASA Ames Research Center, ROBIN CÔTÉ, University of Connecticut — We report the results of our study of Ca + Ca⁺ collisions at ultracold temperatures in the presence of a magnetic field. We are primarily interested in characterizing magnetic Feshbach resonances and determine scattering properties of interest for sympathetic cooling of Ca⁺ ions. Our investigation is based on potential energy curves obtained by recent ab-initio electronic structure calculations that are expected to be insufficiently accurate to agree with experiments. We account for this by exploring the dependence of positions and widths of Feshbach resonances on variation of potential energy curves in an effort to determine their shared properties that could be detected at certain magnetic field values. Our study is aimed at guiding future experiments with cold Ca + Ca⁺ mixtures.

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