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Ultracold Collisions with Frequency-Chirped Light: the Influence of Chirp Direction M.J. WRIGHT, J. PECHKIS, University of Connecticut, S.D. GENSEMER, University of Amsterdam, J. VALA, University of California at Berkeley, R. KOSLOFF, Hebrew University, P.L. GOULD, University of Connecticut — We report measurements of collisions between ultracold Rb atoms induced by frequency-chirped laser light. In particular, the influence of the direction of the chirp is studied. A typical chirp sweeps 1 GHz in 100 ns. The red-to-blue (positive) chirp starts below 800 MHz the $5S_{1/2}$-$5P_{3/2}$cycling transition while the blue-to-red chirp (negative) chirp starts 200 MHz above. If the attractive potential of a pair of atoms is resonant at some point during the chirp, the pair is efficiently and adiabatically transferred to the excited state, resulting in collisional loss from the trap. Simulations show that our measurements are consistent with total adiabatic transfer. On the present time scales of the chirp, the two directions result in similar collision rates. * Work supported by DOE.

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