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Fine-structure changing collisions in atomic titanium MEI-JU LU, KYLE HARDMAN, JONATHAN WEINSTEIN, University of Nevada, Reno —
Fine-structure changing collisions are of interest for understanding interstellar evolution, and may play an important role in experiments with anisotropically- interacting atoms. We use helium buffer-gas cooling and optical pumping techniques to measure cold titanium–helium collisions that cause transitions between the fine-structure levels of the $[3d^2 4s^2]\ {}^3F_J$ electronic ground state of atomic ^{48}Ti, over a temperature range from 5 to 20 K. The Ti–He inelastic collision rate is strongly suppressed compared to collision rates of non-transition-metal atoms with noble gas atoms.

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