

COLD COLLISIONS AND RADIATIVE HEATING OF MAGNESIUM ATOMS

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Cold atomic collisions in the presence of a light field can lead to loss and heating of atoms. Especially at strong laser fields and near resonance heating can have an important role. Here we describe how to simulate binary collisions at strong fields within the partial wave approximation using Monte Carlo wave packet dynamics. The studies are targeted at Mg atoms, but they are applicable to other alkaline earth atoms. We also discuss how to link the simulation results to actual heating rates.

¹ K.-A. Suominen, *J. Phys. B* **29**, 5981 (1996).

² M. Machholm, P.S. Julienne, and K.-A. Suominen, *Phys. Rev. A* **64**, 033425 (2001).

³ J. Piilo, E. Lundh, and K.-A. Suominen, *Phys. Rev. A* **70**, 013410 (2004).

⁴ J. Piilo, E. Lundh, and K.-A. Suominen, *Eur. J. Phys. D*, to appear