

COLD RYDBERG INTERACTIONS IN A MAGNETIC FIELD

James Martin

Department of Physics, University of Waterloo, Ontario, Canada

Transitions between Rydberg states can be driven using microwave sources, which offer stability, linewidth and modulation capabilities unrivaled by lasers. The linewidths of microwave-driven transitions can be used as a direct, sensitive probe of interactions between cold Rydberg atoms. We use this technique to demonstrate that resonant electric dipole-dipole interactions between cold Rydberg atoms are partially suppressed by DC magnetic fields. A quantitative model is presented which explains these results. Work performed in collaboration with K. Afrousheh, P. Bohlouli-Z., J. Carter and A. Mugford, and supported by NSERC (Canada).