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Collisional effects in the dynamics of a dipolar gas[1] ANDREW SYKES, LPTMS, CNRS, Univ. Paris-Sud, Universit Paris-Saclay, 91405 Orsay, France — In this talk, we discuss the role of collisions in dipolar gases which are far from equilibrium. We compare and contrast collisional mechanisms with mean-field effects. We consider several cases of dynamical behaviour. We begin with cross-dimensional relaxation, where the time-scale of equilibration is studied following a quench in the trap parameters. We also discuss the damping of monopole and quadrupole excitations. Finally we discuss time-of-flight expansion dynamics. Our results demonstrate that collisions can play a significant role. We use these results to extract an estimate of the deca-heptuplet s-partial-wave scattering length of bosonic dysprosium, and to improve the accuracy of experimental time-of-flight expansion imaging.

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