

Abstract Submitted
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Dipole-dipole molecular scattering in electric and magnetic fields¹

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The scattering of two molecules is determined in free space by their inter-molecular potential. In cold and ultracold gases this interaction can be dominated by long-range dipole forces, which can be manipulated by electric and magnetic fields. We investigate the scattering of two molecules possessing both electric and magnetic dipole moments, taking OH molecules as an example, in the presence of an electric and a magnetic field with an arbitrary relative angle. We will compare the effect of these long-range interactions on the differential cross sections with the field-free case. We will discuss the possibility of changing differential cross sections by adjusting different combinations of fields. We will focus on collisions in the ultracold regime as well as in the cold regime ($T \sim 100$ mK). We will also discuss the fate of these collisions if they occur in an optical lattice.

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