



Population redistribution in optically trapped polar molecules

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We investigate the rovibrational population redistribution of polar molecules in the electronic ground state induced by spontaneous emission and blackbody radiation. As a model system we use optically trapped LiCs molecules formed by photoassociation in an ultracold two-species gas. The population dynamics of vibrational and rotational states is modeled using an ab-initio electric dipole moment function and experimental potential energy curves. Comparison with the evolution of the $v''=3$ electronic ground state yields good qualitative agreement. The analysis provides important input to assess applications of ultracold LiCs molecules in quantum simulation and ultracold chemistry.

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