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Superradiance in Inverted Multi-level Atomic Clouds[1] R.T. SUTHERLAND, FRANCIS ROBICHEAUX, Purdue University — This work examines superradiance in initially inverted clouds of *multi-level* atoms. We simulate clouds containing hundreds of radiating atoms, while eschewing the approximation of symmetric dipole-dipole interactions. We then explore the effects that dephasing caused by elastic dipole-dipole interactions, as well as competition between multiple transitions, have on superradiance. Both of these mechanisms place strong restrictions on a given transition's ability to superradiate. These results are important to recent experiments that probe superradiance in Rydberg atoms.

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