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Mechanical models for Electromagnetically induced transparency and quantum amplification by superradiant emission of radiation STEVEN LANIER, YURI ROSTOVTSEV, Department of Physics, University of North Texas — Quantum amplification by superradiant emission of radiation is a new promising path to develop powerful sources of coherent radiation. It is related on the quantum spatial coherence excited in an atomic medium via interaction with laser radiation. We develop mechanical models that allow us to gain physical insights on how the spatial coherence build. Also we develop a mechanical model for electromagnetically induced transparency where the temporal coherence is excited in the atomic system and "dark" states are formed allowing light to be decoupled from the interaction with atomic system.

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