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Nota di contenuto	Introduction -- Independent atoms -- Thin cell spectroscopy -- Atom-surface interactions -- Atom-atom interactions -- Giant refractive index -- Fast light in dense thermal vapour -- Fluorescence lifetime -- Coherent dynamics -- Project outlook.
Sommario/riassunto	The propagation of light in 'dense media' where dipole-dipole interactions play a role is a fundamental topic that was first studied in the work of Clausius, Mossotti, Lorenz and Lorentz in the latter half of the nineteenth century. However, until recently there remained some areas of controversy: for example, whereas the Lorentz model for a gas predicts a resonance shift, a discrete dipole model does not. This thesis makes the first combined measurement of both the Lorentz shift and the associated collective Lamb shift. This clear experimental result stimulated new theoretical work that has significantly advanced our

understanding of light propagation in interacting media.