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Optical resonance shifts in thermal and cold Rb atomic gases JANNE RUOSTEKOSKI, S. D. JENKINS, University of Southampton, J. JAVANAINEN, University of Connecticut, R. BOURGAIN, S. JENNEWEIN, Y. R. P. SORTAIS, A. BROWAEYS, Institut d'Optique, CNRS, Univ Paris Sud, UNIVERSITY OF SOUTHAMPTON COLLABORATION, UNIVERSITY OF CONNECTICUT COLLABORATION, INSTITUT D'OPTIQUE, CNRS, UNIV PARIS SUD COLLABORATION — We show that the resonance shifts in fluorescence of a cold gas of rubidium atoms substantially differ from those of thermal atomic ensembles that obey the standard continuous medium electrodynamics. The analysis is based on large-scale microscopic numerical simulations and experimental measurements of the resonance shifts in light propagation.

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