

## Quantum Physics

# Ultralong trapping of light using double spin coherence gratings

B.S. Ham, J. Hahn

*(Submitted on 8 Jan 2009 (v1), last revised 9 Jan 2009 (this version, v2))*

Ultralong trapping of light has been observed in an optically dense three-level solid medium interacting with a pair of counterpropagating coupling fields. Unlike the light trapping based on standing-wave gratings excited by the same frequency pair of counterpropagating light fields (M. Bajcsy et al., Nature 426, 638 (2003)), the present method uses resonant Raman optical field-excited spin coherence gratings. The observed light trapping time is two orders of magnitude longer than the expected value of the spin dephasing time, where the extended storage time has potential for quantum information processing based on nonlinear optics.

Comments: 4 pages, 4 figures

Subjects: **Quantum Physics (quant-ph)**Cite as: **arXiv:0901.1082v2 [quant-ph]**

## Submission history

From: Byoung Ham [[view email](#)]**[v1]** Thu, 8 Jan 2009 16:32:51 GMT (277kb)**[v2]** Fri, 9 Jan 2009 06:44:19 GMT (276kb)*[Which authors of this paper are endorsers?](#)*

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