Quantum Physics

Doppler-free Adiabatic Self-Induced Transparency

Yu. Loiko, C. Serrat, R. Vilaseca, V. Ahufinger, J. Mompart, R. Corbalan

(Submitted on 20 Jan 2009)

We demonstrate that a Doppler broadened two-level medium can be made transparent to a laser pulse by an appropriate adiabatic variation of the laser field amplitude and its nominal detuning. This new technique of adiabatic self-induced transparency (ASIT) is compared with the well known self-induced transparency (SIT) phenomenon, showing that the adiabatic method is much more robust to variations of the system parameters. We also discuss a possible experimental implementation of ASIT using 87-Rb atoms.

Comments: 8 pages and 7 figures
Subjects: **Quantum Physics (quant-ph)**
Cite as: **arXiv:0901.3073v1 [quant-ph]**

Submission history

From: Jordi Mompart [view email]
[v1] Tue, 20 Jan 2009 14:55:28 GMT (336kb)

Which authors of this paper are endorsers?