CONSIGLIO NAZIONALE DELLE RICERCHE
ISTITUTO NAZIONALE DI OTTICA

AVVISO DI SEMINARIO

Il giorno giovedi 2 maggio 2013 alle ore 11,00
presso l'Area della Ricerca di Pisa
Aula 44, primo piano, Edificio "A"

*La Dr**.ssa Fabienne Goldfarb***

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terrà un seminario sul tema:

Coherent processes in metastable helium and application to the study of the decay time of a cavity filled with a highly dispersive medium

Abstract.

Electromagnetically induced transparency (EIT) or coherent population oscillations (CPO) are resonant phenomena resulting in the cancellation of the absorption of the system for a probe field in an otherwise opaque medium. These two phenomena are physically very different and the width of CPO resonances is usually broader that EIT ones. Our group showed that a Lambda-system can exhibit ultranarrow resonances, as narrow as EIT ones, due to the transfer of coherent population oscillations to its lower states. The dispersion associated with such resonances leads to major changes of the group velocity of a pulse propagating in the medium and it has been suggested that it could be used to increase the sensitivity of sensors such as laser gyroscopes. Nevertheless the fundamental noise of these devices depends on the lifetime of photons inside the cavity, that we studied experimentally and theoretically.