RISØ

Optics and Plasma Research Department

SEMINAR

Tuesday April 18, 2006 at 13:00 Hrs.

OPL Meeting Room Building 108
RISØ National Laboratory, 4000 Roskilde

Collective self-focusing and instabilities in a cold atomic gas

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Abstract:
We discuss collective atom-optical dynamics for near resonant light propagating through a trapped cloud of cold atoms. The light field creates long range coupling in the cloud of incoherent atoms leading to novel effects including combined atom-optical solitons, modulational instability for a self-defocusing nonlinearity, and atomic pattern formation. Experimental observations of light induced density redistribution and modulational instability gain obtained in a Cs Magneto Optical Trap will be presented.