

1050-35-39

Panayotis Kevrekidis* (kevrekid@math.umass.edu), Lederle Graduate Research Tower,
Department of Mathematics & Statistics, University of Massachusetts, Amherst, MA 01003. *Dark Solitons in Bose-Einstein Condensates: Experimental Findings, Numerical Computations and Theoretical Directions.*

In this talk, we plan to summarize some of the experimental activity on the dynamics of dark solitons that has been enabled by the very controllable atomic physics setting of Bose-Einstein condensates, focusing especially on some of the most recent developments in quasi-1d settings. We will then illustrate how to connect these findings to numerical computations of one- and multi-soliton solutions and their linearization in appropriately tailored variants of the nonlinear Schrodinger equation which account for the transverse dimensions of the atomic clouds. Finally, we will motivate and compare to numerics and experiments simple particle-based theoretical models which capture the essential physics of the system. (Received February 07, 2009)