

M A T H E M A T I C A L P H Y S I C S S E M I N A R

Rutgers University
Hill Center - Room 705

**Soliton and Vortex Dynamics and
Tunneling-Hydrodynamic Analysis**

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Abstract

I will describe a method, based on the hydrodynamic formalism of Quantum mechanics, to study the problem of soliton and vortex tunneling from wells, and related phenomena. In particular, I show how this approach uncovers a new structure of tunneling processes, for both the LINEAR and nonlinear Schrödinger equations. This new process, in which the tunneled wave appears as blips outside the well, has been observed experimentally.