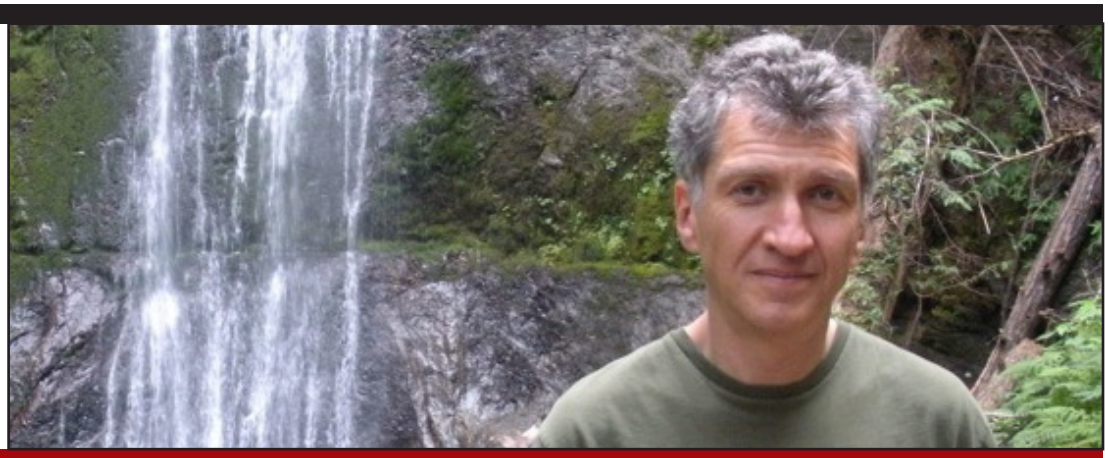
3:30 pm • Friday April 5, 2013 • 2241 Chamberlin Hall • Coffee at 4:30 pm

Leonid Glazman

Yale

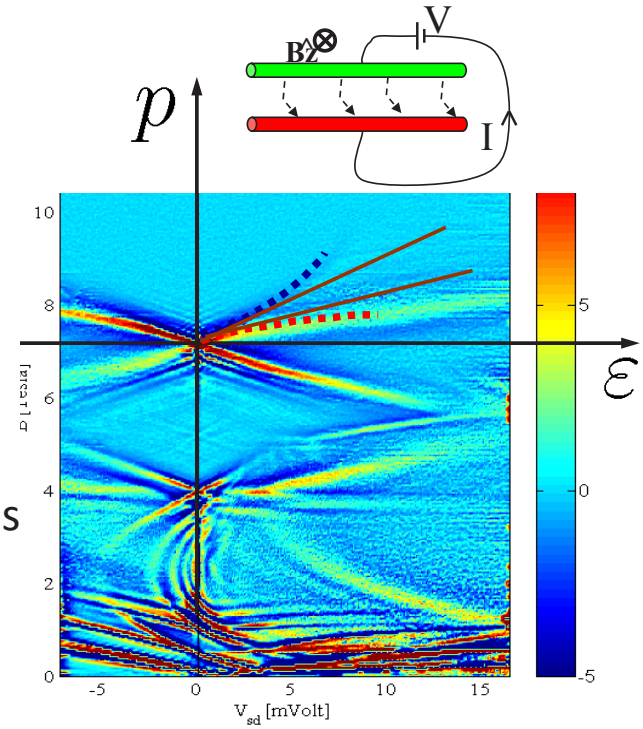


Nonlinear Quantum Liquids in One Dimension

Department of Physics Colloquium

WISCONSIN

The conventional description of one-dimensional quantum fluids is based on the Luttinger liquid theory. In that theory, the true energy-momentum relation of particles making up the fluid is replaced by a linear one. This simplification is crucial for the theory, and abandoning it has proven to be difficult. The talk presents a breakthrough which allowed one to circumvent the difficulty. The new theory describes dynamic responses of a fluid consisting of particles with a generic spectrum. It is applicable to a diverse group of systems, including, for example, electrons in quantum wires and cold atomic gases in one-dimensional traps.



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