

## SEMINAR

**Tuesday, 1st of July 2014 at 11:30**

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### **Abstract**

#### Nonlinear Quantum Liquids In One Dimension

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 allows one to circumvent the difficulty. The new theory describes dynamic responses of a fluid consisting of particles with a generic spectrum. It also provides a pathway for developing kinetic theory of a quantum fluid. The developed new description is applicable to a diverse group of systems, including, for example, electrons in quantum wires, one-dimensional spin liquids, and cold atomic gases in one-dimensional traps.