Seminar in Mathematical Physics

LUNDS TEKNISKA HÖGSKOLA
Lunds universitet

Tuesday, 1st February 2005, 13:30
Matematisk Fysik
Seminar Room F
(Fysikum, Building K)

Quantum Pumping and Dissipation in Closed Systems

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The amount of charge which is pushed by a moving scatterer is $dQ = GdX$, where dX is the displacement of the scatterer. The question is what is G. Does it depend on the transmission g_0 of the scatterer? Does the answer depends on whether the system is open (with leads attached to reservoirs) or closed? In the latter case: what are the implications of having "quantum chaos" and/or non-adiabaticity and/or coupling to to the environment? The answers to these questions illuminate some fundamental considerations in the theory of quantum pumping. For the analysis we take a network (graph) as a model system, and use the Kubo formula approach.

Lecture notes: `http://www.bgu.ac.il/~dcohen/ARCHIVE/pme.pdf`

Everybody is welcome to join!