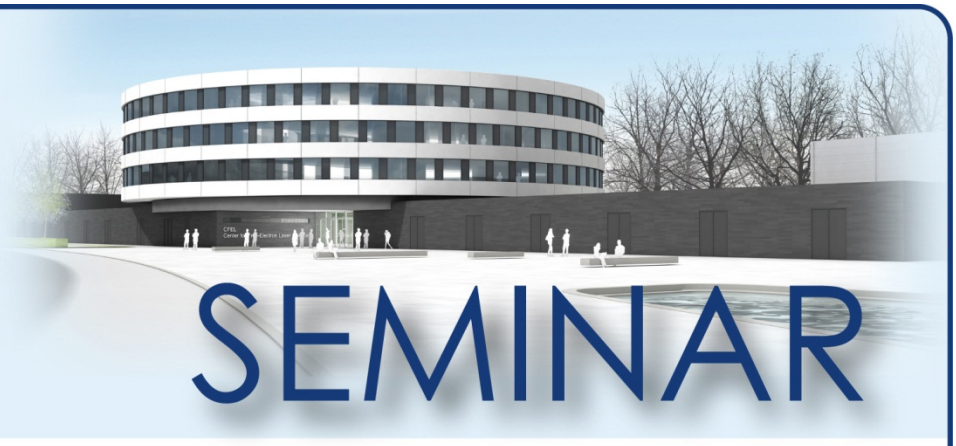
CFEL SCIENCE



SEMINAR

July 17th 2013, 16:00

Seminar Room IV, CFEL (Bldg. 99, 01.111)

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Transport through two interacting resonant levels connected by a Fermi sea

ABSTRACT: We study transport at finite bias, i.e. beyond the linear regime, through two interacting resonant levels connected by a Fermi sea, by means of time-dependent density matrix renormalization group. We first consider methodological issues, like the protocol that leads to a current-currying state and the characterization of the steady state. At finite size both the current and the occupations of the interacting levels oscillate as a function of time. We determine the amplitude and period of such oscillations as a function of bias and extension of the Fermi sea. In particular, the occupations on the two dots oscillate with a relative phase which depends on the distance between the impurities and on the Fermi momentum of the Fermi sea, as expected for RKKY interactions. Also the approximant to the steady-state current displays oscillations as a function of the distance between the impurities. Such a behavior can be explained by resonances in the free case. We discuss finally the incidence of interaction on such a behavior.

Host: Martin Eckstein, MPSD / CFEL