

Soutenance de thèse

Thermoelectric transport in quantum point contacts and chaotic cavities: Thermal effects and fluctuations

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Abstract

Scanning Gate Microscopy (SGM) is a technique of imaging quantum transport coefficients due to the presence of an AFM charged tip. The interference pattern of the conductance change of a quantum point contact, obtained with this technique will be explained. The decay law of the fringes is obtained assuming a resonant level model we exactly solve. Moreover, the result of the analytical formulation of the problem suggests an unusual effect of thermal enhancement of the fringes that we explain analytically and verify numerically. We propose also, the SGM of the Seebeck coefficient of a QPC. Here again, we give the analytical decay law of the fringes and discuss the Cuttler-Mott formula of thermopower. To finish, we look at the statistics of thermopower in chaotic cavities. We give the exact expression of the probability density function of the Seebeck coefficient and discuss the energy dependence of this probability distribution.

Vous êtes tous cordialement conviés au pot qui suivra.

