

PHYSICS DEPARTMENT COLLOQUIUM

"FLUCTUATIONS IN ELECTRONIC, SPINTRONIC AND
PHOTONIC SYSTEMS"

BY

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I will present both the experimental results and the theory for the non-equilibrium fluctuations of electric current in mesoscopic systems (diffusive wires and chaotic quantum dots). Non-interacting electrons exhibit Poissonian statistics while correlations in mesoscopic systems lead to the universal suppression of current fluctuations. I will consider the effects of spin-polarized transport on the noise and magneto resistance of spintronic devices. Finally, the electron-optical analogies will be discussed in relation to the fluctuations of radiation from chaotic absorbing ('grey body') and amplifying ('random laser') optical media.

THURSDAY, FEBRUARY 12, 2004
4:00 PM IN 102 JFB
REFRESHMENTS AT 3:30 PM IN 219 JFB