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Università di Roma Tor Vergata
Dipartimento di Fisica

Seminar

Friday, 6 June 2014 - h. 15:30

Sala Grassano (Dipartimento di Fisica)

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"Localization-delocalization transition for particles in minima of temperature"

Abstract

We consider particles driven by spatially non-uniform random stationary forces. The latter could be due to microscopic thermal fluctuations with non-uniform temperature or macroscopic turbulent fluctuations of the fluid. The particles are well-known to concentrate in minima of temperature or intensity of turbulence (localization). In this talk we will demonstrate the new phenomenon that there is a critical inertia beyond which the effect changes sign: the particles become "repelled" from the minima (delocalization). Quite surprisingly this classical phenomenon is described by equations similar to those that occur in the problem of localization of quantum particle in random potential. The practical implications of this transition will be considered.

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