Seminar

Monday, 4 November 2024 - h. 14:00

AULA FISICA DELLA MATERIA (Department of Physics)

Prof. Alexei A. MAILYBAEV

IMPA, Rio de Janeiro

"Renormgroup analysis of spontaneous stochasticity"

Abstract

The motivation for this talk comes from the inviscid limit of the Navier-Stokes equations as a model of developed turbulence. We design a discrete toy model, leading to a dynamic system on a fractal space-time lattice. We then show that the inviscid limit can be expressed as renormalization group (RG) dynamics, in the spirit of Feigenbaum theory. We then demonstrate that the RG dynamics has several types of attractors (and their bifurcations), such as fixed point, periodic and chaotic attractor. The chaotic RG dynamics is related to the phenomenon of spontaneous stochasticity in turbulence.