
KOLOKVIJ FIZIČKOG ODSJEKA

Vrijeme: utorak, 1. 9. 2009., 14:15 sati (točno)

Mjesto: Fizički odsjek, Bijenička c. 32, predavaonica F201

Thermalization in isolated classical and quantum systems

Dr. Vanja Dunjko

Department of Physics
University of Massachusetts at Boston

That many-body systems thermalize is a ubiquitous fact, but there are still open questions as to precisely why this happens. On the classical side, we will review some recent results on thermalization in the classical field theory that approximates the Bose-Hubbard model. We find that chaos and thermalization are highly, but not perfectly, correlated, and that the transition from regular to chaotic dynamics is not explained by the usual theory of overlapping nonlinear resonances (or, for that matter, by any other theory we are aware of). On the quantum side, we demonstrate thermalization in an isolated generic (i.e. far-from-semiclassical) quantum system. Time evolution turns out to play a merely auxiliary role in relaxation; thermalization instead happens at the level of individual eigenstates, in accordance with the Eigenstate Thermalization Hypothesis of Deutsch [Phys. Rev. A 43, 2046 (1991)] and Srednicki [Phys. Rev. E 50, 888 (1994)].

Voditelj seminara FO

Hrvoje Buljan, hbuljan@phy.hr
