

Seminar

Znanstvenog centra izvrsnosti
QuantiXLie i Fizičkog odsjeka

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Relation between Boltzmann and Gibbs entropy and examples

By simple derivation it is demonstrated that a general relation between mean Boltzmann entropy and Gibbs entropy exists. Their difference is equal to fluctuation entropy, quantity that has a Gibbs like form and represents the entropy of fluctuations of macroscopic quantities that determine the macroscopic state of the system. It is shown that the ratio of fluctuation entropy and mean Boltzmann entropy, or Gibbs entropy, vanishes in the thermodynamic limit for a system of distinguishable and independent particles. The described behaviour is examined on the example of Ising 3D model with ferromagnetic transition. In case that in thermodynamic limit the fluctuation entropy is not negligible compared to mean Boltzmann entropy and Gibbs entropy, this may indicate that the standard statistical approach should be modified, or extended using other methods like renormalization group.

Četvrtak, 15. 3. 2018., 11h

Fizički odsjek, Plava soba (1. kat)



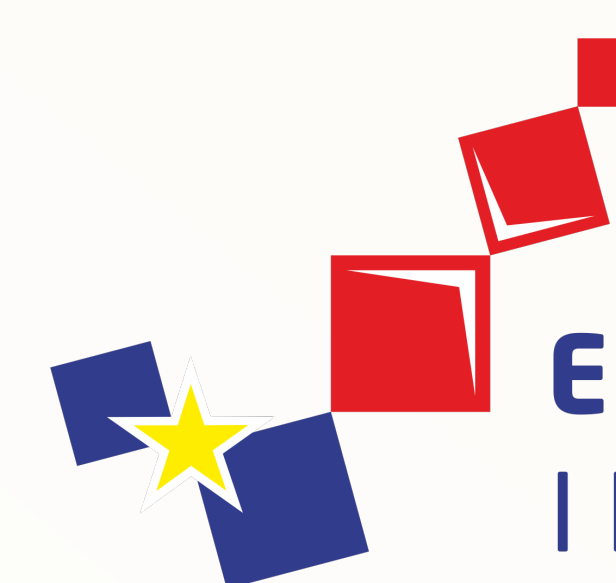
Znanstveni centar izvrsnosti
za kvantne i kompleksne sustave te
reprezentacije Liejevih algebri

Projekt KK.01.1.1.01.0004

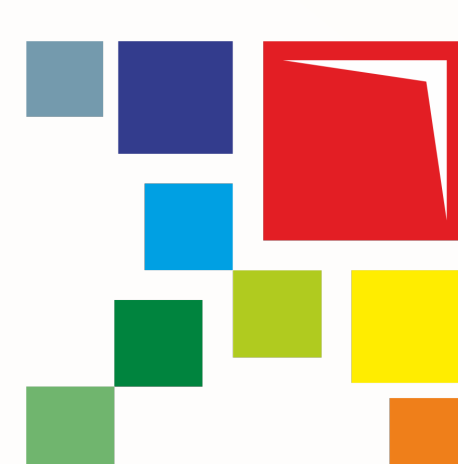
Projekt je sufinancirala Europska unija iz
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Sadržaj ovog seminara isključiva je
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