Einladung

zum Vortrag im Rahmen des **SFB Colloquiums** (Standort Linz), mit dem Titel

Uniform distribution, approach to equilibrium and Boltzmann

VORTRAGENDER: **Prof. Jozsef Beck**, Rutgers - State University of New Jersey
DATUM: Mittwoch, 17. Juni 2015
ZEIT: 13:45 Uhr
ORT: Science Park 2, S2 053, JKU Linz

Abstract:
Why does the typical time evolution of a many-particle mechanical system (e.g., gas molecules in a box), starting from off-equilibrium, approach equilibrium quickly, and stay in equilibrium for a very, very long time? In what sense does "equilibrium" reflect "randomness"? The same questions were raised by Maxwell, Boltzmann and Gibbs when they developed statistical mechanics. To answer these questions, Boltzmann gave a well-known probabilistic intuition (based on the probability of macrostates).
To make Boltzmann's intuition mathematically rigorous, we have to explain "why does a probability argument work for the short-term time evolution of a large mechanical system", that is, we have to rigorously prove the approximation: "phase-space average" almost equal to the "short-term time average". In other words, we have to solve the "realistic ergodic problem".

In my lecture I outline a solution to the "realistic ergodic problem" based on a new branch of Uniform Distribution, called "strong uniformity", applied in the very high dimensionsional configuration space.

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