



## **Einladung zum Vortrag**

von

**28. November 2014**

**Prof. Dr. Wolfgang König**

Weierstrass Institute for Applied Analysis and Stochastics, Berlin

### **Cluster size distribution in classical many-body systems with Lennard-Jones potential**

We study a classical many-body system with pair-interaction given by a stable Lennard-Jones potential. This interaction has a repellent term that prevents the particles from collapsing, and an attractive term, which induces the formation of clusters of the particles. For fixed inverse temperature and fixed particle density, we derive a large-deviation principle for the distribution of the cluster sizes in the thermodynamic limit. Afterwards, we show that the rate function Gamma-converges, in the low-temperature dilute limit towards some explicit rate function. This function has precisely one minimising cluster size configuration, which implies a kind of law of large numbers for the cluster sizes in this decoupled limit.

This is joint work with S. Jansen and B. Metzger. We also report on ongoing work with S. Jansen, B. Schmidt and F. Theil on details of the low-temperature behaviour of the system for fixed particle density in one dimension.

**Termin: Mittwoch, 17. Dezember 2014, 9:00 Uhr**

**Ort: Universität Ulm, Helmholtzstr. 18, Raum 2.20**

Der Vortrag findet im Rahmen des Mathematischen Kolloquiums der Universität Ulm statt.  
Alle Interessenten sind herzlich eingeladen.

gez. V. Schmidt