

Sonderforschungsbereich 1060

The Mathematics of Emergent Effects

Einladung zu einem Vortrag im SFB-Seminar

Alessia Nota

Sapienza University of Rome, Italy

spricht zum Thema

**Derivation of the Fick's law for the Lorentz model
in a low density regime**

Zeit: Dienstag, den 09. Dezember 2014, 14.15 Uhr

Ort: Seminarraum 0.008, Endenicher Allee 60

Kaffee/Tee: anschl. im Plücker-Saal 1.015

gez. **Juan López-Velázquez**

Abstract: In this talk we consider a simple microscopic model given by the Lorentz gas, a system of non interacting light particles in a distribution of scatterers, in contact with two mass reservoirs. We show that, in a low density regime, there exists a unique stationary solution for the microscopic dynamics which converges to the stationary solution of the heat equation, namely to the linear profile of the density. In the same regime the macroscopic current in the stationary state is given by the Fick's law, with the diffusion coefficient determined by the Green-Kubo formula. These results are obtained in collaboration with G. Basile, F. Pezzotti and M. Pulvirenti.