

Theoriekolloquium

Am **18. Mai 2017** um **14.15 Uhr** in **W2 1-143** hält

Frau Prof. Dr. Annette Zippelius (Göttingen)

einen Vortrag mit dem Titel

Dense Granular Media

Granular media are a popular subject of current research which is owed partly to the striking phenomena which they reveal and partly to their ubiquity in nature and industry. Examples are sand, snow, gravel, and seeds to mention but a few. The materials are composed of macroscopic particles, which are big enough to render thermal agitation negligible. The interactions are in general dissipative, so that granular fluids are inherently out of equilibrium.

The focus of this talk is on the jamming transition, which occurs for sufficiently large density and separates a fluid phase from a so called jammed state in which a finite yield stress has to be overcome in order to make the system flow. Whereas jamming of frictionless particles has attracted a lot of interest and is reasonably well understood, the effects of friction are less clear, even though almost all experimental realizations of granular fluids involve frictional forces between the grains. The phase diagram of frictional grains is substantially different from the frictionless case. It resembles an equilibrium first order phase transition with a nonzero yield stress at jamming and reentrance as a function of applied stress. Small systems show discontinuous shear thickening and hysteresis as a function of the applied strain rate, whereas large systems display rheological chaos with time-dependent heterogeneous flow.

Interessierte sind herzlich eingeladen.

gez. Prof. Dr. Alexander Hartmann