chemisch
physikalische
gesellschaft

Gegründet im Jahre 1869 von H. Hlasiwetz, J. Loschmidt, J. Petzval und J. Stefan

EINLADUNG

zum Vortrag
von

Prof. Dr. Jan K. G. Dhont

Institute of Complex Systems, Forschungszentrum Jülich, Deutschland

Rod-like Colloids in External Electric Fields

am
Dienstag, 23. Juni 2015, um 17:30 Uhr

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmanngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmanngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract:

Electric fields can induce interactions between charged colloids that lead to the formation of new phases and dynamical states. In this presentation, the phase/state behavior of very long and thin, highly charged rod-like colloids (fd-virus particles) under oscillating external electric fields is discussed. Fd-virus suspensions exhibit an isotropic-nematic phase transition. For concentrations of fd-virus particles within the two-phase isotropic-nematic coexistence region, various field-induced phase transitions and dynamical states are observed, depending on the field-amplitude and frequency. A non-chiral nematic, a chiral nematic, a homeotropically aligned homogeneous phase, and a dynamical state where non-chiral nematic domains persistently melt and form are observed. The molecular origin of the various phases is discussed, and a semi-quantitative theory is presented for the dynamical state.