



Seminar

of the Department of complex matter F7

Thursday, 27. 6. 2019 at 14:15

Seminar room F7

ELECTROSTATIC INTERACTION BETWEEN MAGNETIC NANOPLATELETS IN ALCOHOLS

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In a room-temperature liquid magnet barium hexaferrite (BHF) nanoplatelets are spontaneously ordered and form a ferromagnetic nematic phase. In concentrated suspension in 1-butanol the nanoplatelets with magnetic moments perpendicular to their basal plane align in large macroscopic regions, forming magnetic domains. The key parameter for the suspension stability and the formation of the ferromagnetic nematic phase are electrostatic interactions, which can be influenced by the solvent and the concentration of surfactant, i.e., dodecylbenzenesulfonic acid (DBSA). We investigated the parameters that affect the electrostatic interaction between the BHF nanoplatelets in alcohol suspensions. The measurements of electrophoretic mobility and conductivity were performed in tert-butanol, 1-hexanol, 1-butanol and 2-propanol suspensions to consider also the effect of solvent's dielectric constant. I will present our results of the alcohol's dielectric constant effect on the equilibrium between dissolved and adsorbed DBSA and consequently on the electrostatic interaction and the Debye screening length.

The lecture will be held in English.

Cordially invited to attend.

