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Dynamics of magnetic colloids ARTUR ERBE, MICHAEL KOEPPL, LARYSA BARABAN, FLORIAN MERKT, PAUL LEIDERER, FB Physik, Universitaet Konstanz, Germany — Colloidal suspensions are fascinating examples of soft matter, but also model systems for studying the behavior of atoms and molecules. Here we present the dynamic behavior of superparamagnetic particles and the fabrication and characterization of magnetically anisotropic particles. Transport of the superparamagnetic particles (diameter of $4.7 \mu\text{m}$) is characterized through narrow constrictions on the scale of $60 - 100 \mu\text{m}$ in an externally applied magnetic field. In this system we observe the formation of lanes depending on the interparticle interactions and the particle densities. In order to create a larger range of interparticle interactions we also produce anisotropic particles by evaporation of metallic caps on top of the colloidal particles (for these experiments we use nonmagnetic silica colloids). These particles can have a well-defined magnetic moment, given by the material of the cap. We determine this moment using the magneto-optic technique.

Artur Erbe

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