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U. Hartmann and H. H. Mende
THE STRAY-FIELD-INDUCED BIREFRINGENCE OF FERROFLUIDS APPLIED TO THE STUDY OF MAGNETIC DOMAINS

The magneto-optical properties of Bitter patterns on polycrystalline Si-Fe sheets have been investigated by a polarizing microscope. The colloid deposits exhibit a stray-field induced birefringence under the influence of the local magnetic microfield distribution. This leads to new possibilities in the exploration of domain wall fine structures.

J. Magn. Magn. Mat. ***41****, 244 (1984)*

U. Hartmann and H. H. Mende
THE INFLUENCE OF ANISOTROPY-CONTROLLED NEEL RELAXATION ON MAGNETOSTATIC PROPERTIES OF FERROFLUIDS

Sufficiently small ferromagnetic particles dispose of a non-rigid coupling between particle and particle magnetic dipole moment and thus exhibit the phenomenon of Neel relaxation. In a theoretical analysis the influence of anisotropy-controlled Neel relaxation effects on magneto-static properties of a ferrofluid in thermodynamic equilibrium is investigated.

Phys. Stat. Sol. (a) ***82****, 481 (1984)*

U. Hartmann and H. H. Mende
EXPERIMENTAL INVESTIGATION OF NEEL RELAXATION EFFECTS ON MAGNETOSTATIC PROPERTIES OF FERROFLUIDS

Ferrofluid particles with sufficiently small magnetic anisotropy show a non-permanent fixation of their magnetic dipoles. Anisotropy-controlled Néel relaxations of the magnetic moments within the particles determine the degree of correlation between field-induced particle alignment and magnetization of a ferrofluid. The influence of this correlation on the optical anisotropy in the liquid phase and the magnetization anisotropy of the textured ferrofluid in the solid phase has been investigated for a commercial water-based Fe_3O_4 magnetic liquid. The experimental data are compared to theoretically obtained results.

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