

ORIENTATIONAL AND OPTICAL BISTABILITIES
IN THE CELL FILLED WITH FERROMAGNETIC
PARTICLES

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S u m m a r y

We have developed an approximate theory of orientational and optical bistabilities in a ferronematic – colloidal suspension of single-domain needle-like ferroparticles in a nematic liquid crystal. The theory is based on a new analytical approach and accounts for the interaction of magnetic moments of particles with an external magnetic field, anchoring-induced ferronematic interaction, and redistribution of the ferroparticle concentration induced by a magnetic field (segregation effect). The homeotropic anchoring of nematic molecules is assumed at the cell bounding surfaces and ferroparticle surfaces. Possibilities to control the bistability effect are discussed.