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**Die Graduiertenschule MUSIC lädt ein zum Vortrag im Auftaktseminar
„Multiscale Methods for Interface Coupling"**

Dienstag, 21. September 2010, 15:00, Appelstr. 11, Hörsaal A134

Relaxation results for nematic elastomers

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We present some variational models that describe the order–strain interaction in large samples of nematic liquid crystal elastomers. We work under the assumption of small deformations (linearized kinematics) and consider both compressible and incompressible materials. Adopting the uniaxial order tensor theory (Frank model) to describe the liquid crystal order, we prove that the minima of the asymptotic energies exhibit an effective biaxial nematic texture, as in the de Gennes order tensor model. In particular, this justifies the stripe-domain formation and the 'blurring' effect observed in large specimens of nematic elastomers under traction. According to the language of Gamma-convergence and relaxation, we compute the Gamma-limits of the energy considered and we show a significant connection with the recent theory of A-quasiconvexification.

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