

IN THIS ISSUE

ISSN 1744-683X CODEN SMOABF 11(19) 3737-3948 (2015)



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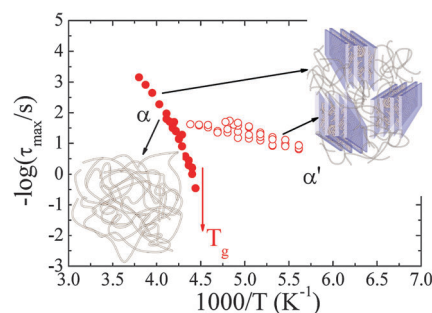
REVIEW

3746

Effects of nanoscopic-confinement on polymer dynamics

Kiriaki Chrissopoulou and Spiros H. Anastasiadis*

Polymer dynamics under severe confinement show distinct differences from the behavior in the bulk.



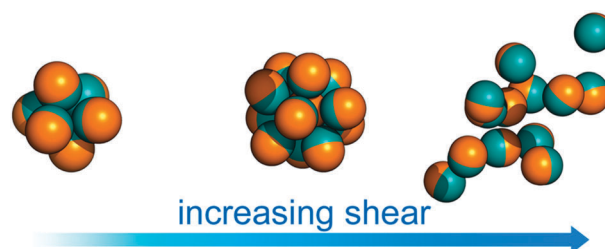
COMMUNICATION

3767

Self-assembly of Janus particles under shear

Emanuela Bianchi, Athanassios Z. Panagiotopoulos and Arash Nikoubashman*

Shear-induced growth and breakup of a spherical Janus micelle.



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Soft Matter (print: ISSN 1744-683X; electronic:
ISSN 1744-6848) is published 48 times a year by
The Royal Society of Chemistry, Thomas Graham
House, Science Park, Milton Road, Cambridge, UK
CB4 0WF.

All orders, with cheques made payable to
The Royal Society of Chemistry, should be sent to
RSC Order Department, Royal Society of Chemistry,
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2015 Annual (print+electronic) subscription price:
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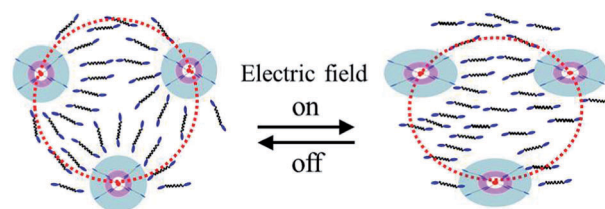


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Optically isotropic liquid crystal media formulated by doping star-shaped cyclic oligosiloxane liquid crystal surfactants in twin nematic liquid crystals

Namil Kim, Dae-Yoon Kim, Minwook Park, Yu-Jin Choi, Soeun Kim, Seung Hee Lee and Kwang-Un Jeong*

The formation of an optically isotropic liquid crystal (LC) medium by doping the star-shaped LC molecular surfactant in a nematic LC medium may allow us to develop new electro-optical LC devices.

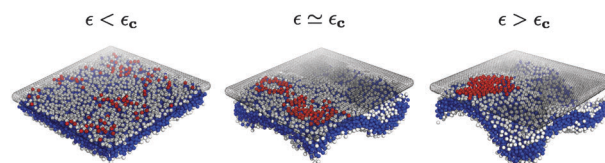


3780

Formation of adhesion domains in stressed and confined membranes

Nadiv Dharan and Oded Farago

We use computer simulations of a coarse-grained molecular model of supported lipid bilayers to study the formation of adhesion domains in confined membranes, and in membranes subjected to a non-vanishing surface tension. When the membrane is subjected to compression, the condensation of the adhesion domains triggers membrane buckling.

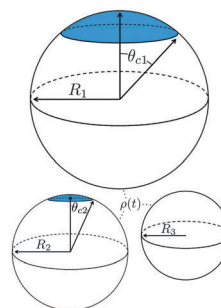


3786

Cluster coarsening on drops exhibits strong and sudden size-selectivity

Aidan I. Brown and Andrew D. Rutenberg*

Protein clusters localize to larger drops while coarsening, providing a physical size-selectivity mechanism for autophagy receptor proteins.

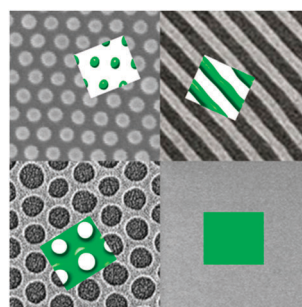


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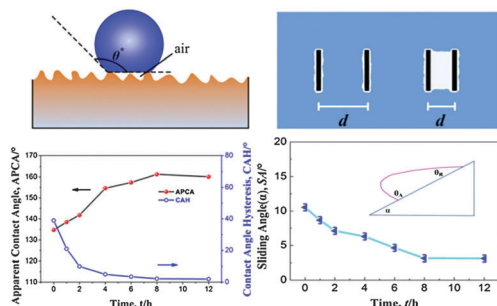
Simulation methods for solvent vapor annealing of block copolymer thin films

A. F. Hannon, W. Bai, A. Alexander-Katz and C. A. Ross*

Simulations using implicit and explicit models of solvent vapor annealed block copolymer thin films enhance the understanding of SVA experiments.



3806

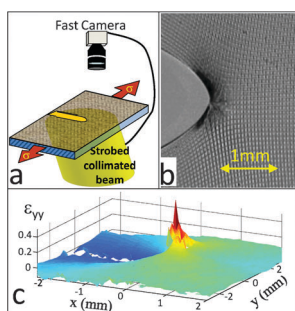


Nanostructures in superhydrophobic Ti6Al4V hierarchical surfaces control wetting state transitions

Yizhou Shen, Jie Tao,* Haijun Tao, Shanlong Chen, Lei Pan and Tao Wang

This paper mainly reports the wetting state of liquid droplets on a Ti6Al4V micro–nanoscale hierarchical structured hydrophobic surface.

3812

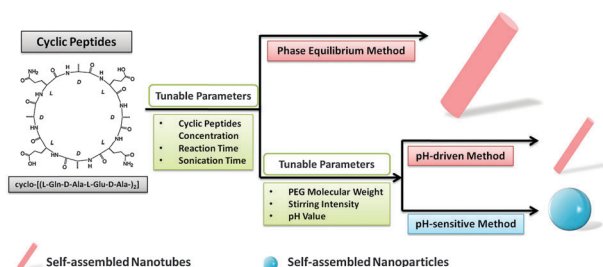


Failing softly: a fracture theory of highly-deformable materials

T. Goldman Boué, R. Harpaz, J. Fineberg and E. Bouchbinder*

A fracture theory of highly-deformable materials has been developed and shown to quantitatively agree with extensive experiments.

3822

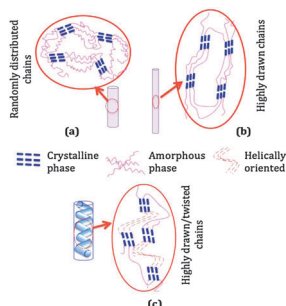


Tunable synthesis of self-assembled cyclic peptide nanotubes and nanoparticles

Leming Sun, Zhen Fan, Yongzhong Wang, Yujian Huang, Michael Schmidt and Mingjun Zhang*

Different sizes and morphologies of cyclic peptide self-assembled nanostructures were obtained through phase equilibrium, pH-driven, and pH-sensitive methods.

3833



A multiscale approach for modeling actuation response of polymeric artificial muscles

Soodabeh Sharafi and Guoqiang Li*

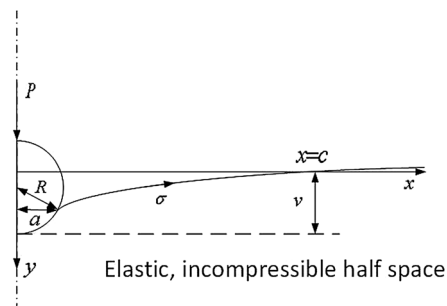
Artificial muscles are emerging materials in the field of smart materials with applications in aerospace, robotic, and biomedical industries.

3844

Adhesive contact of a rigid circular cylinder to a soft elastic substrate – the role of surface tension

Tianshu Liu, Anand Jagota and Chung-Yuen Hui*

This article studies the effects of surface tension on the adhesive contact mechanics of a long rigid cylinder on an infinite half space comprising an incompressible elastic material.

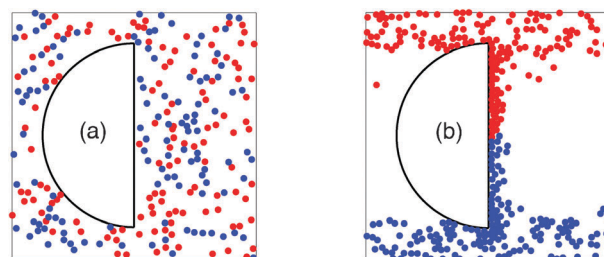


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Chirality separation of mixed chiral microswimmers in a periodic channel

Bao-quan Ai,* Ya-feng He* and Wei-rong Zhong*

We numerically studied the dynamics and separation of mixed chiral microswimmers in a channel with regular arrays of rigid half-circle obstacles. Mixed chiral microswimmers can be separated by applying the shear flow or the constant load.

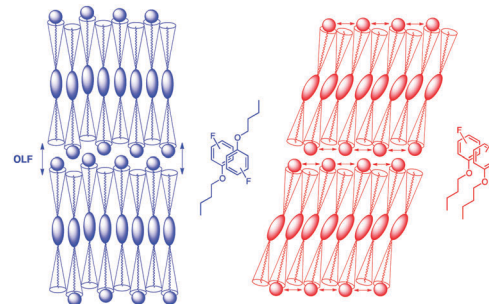


3860

Tuning the mesomorphic properties of phenoxy-terminated smectic liquid crystals: the effect of fluoro substitution

Matthew Thompson, Carolyn Carkner, Nicholas J. Mosey, Nadia Kapernaum and Robert P. Lemieux*

The mesomorphic properties of phenoxy-terminated liquid crystals can be tuned with fluoro substituents on the phenoxy end-group.

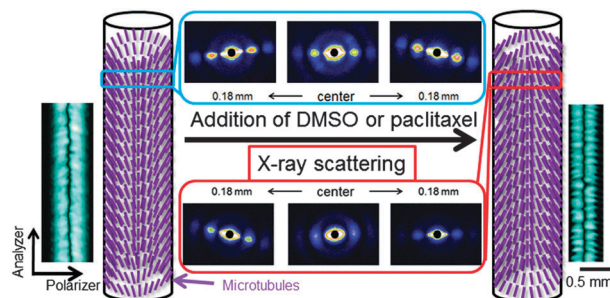


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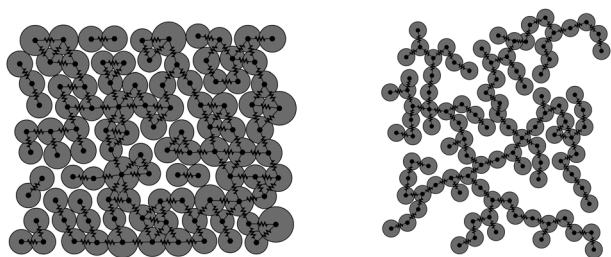
Helical alignment inversion of microtubules in accordance with a structural change in their lattice

Kazuhiro Shikinaka,* Saori Mori, Kiyotaka Shigehara and Hiroyasu Masunaga

Finely-regulated giant helical alignments of microtubules with centimeter order according to their lattice structure form over a temperature gradient during anisotropic spiral propagation via tubulin dimer addition in a capillary cell.



3875

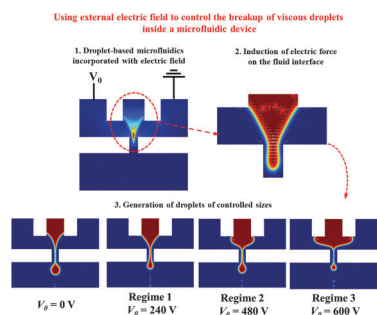


Modeling tensorial conductivity of particle suspension networks

Tyler Olsen and Ken Kamrin*

We have derived and tested a new model that relates the fabric structure of a particle suspension network to its tensorial electrical conductivity.

3884

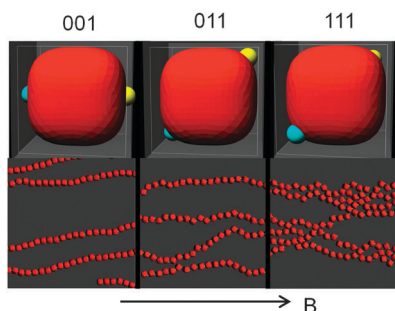


Control of the breakup process of viscous droplets by an external electric field inside a microfluidic device

Yuehao Li, Mranal Jain, Yongting Ma and Krishnaswamy Nandakumar*

Microfluidic devices incorporated with external electric field have demonstrated their capabilities in controlling the breakup process of viscous droplets where conventional microfluidics is ineffective.

3900

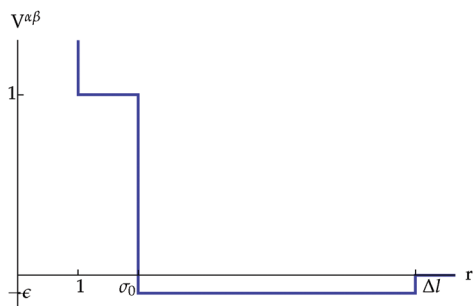


Quasi-2d fluids of dipolar superballs in an external field

Per Linse

(Top) Dipolar superballs with dipole moment in 001, 011, and 111-direction and (bottom) structure in quasi-2d fluids with an external field in the horizontal direction. The degree of attraction between strings depends and the structures formed depends decisively on the direction of the dipole in the principal axis system of the superballs.

3913



A design path for the hierarchical self-assembly of patchy colloidal particles

E. Edlund, O. Lindgren and M. Nilsson Jacobi

Patchy colloidal particles are promising candidates for building blocks in directed self-assembly.

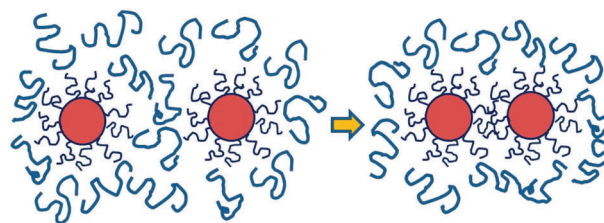
PAPERS

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Solvent-driven interactions between hydrophobically-coated nanoparticles

Stéphanie Hajiw, Julien Schmitt, Marianne Impérator-Clerc and Brigitte Pansu*

Observation of a large attraction between gold nanoparticles covered with hexanethiol or dodecanethiol suspended in flexible linear alkanes.

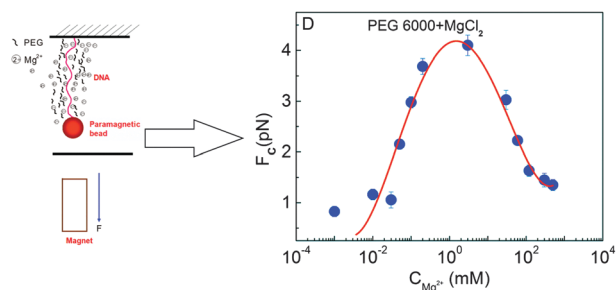


3927

Polyethylene glycol and divalent salt-induced DNA reentrant condensation revealed by single molecule measurements

Chao Cheng, Jun-Li Jia and Shi-Yong Ran*

In this study, we investigated the DNA condensation induced by polyethylene glycol (PEG) with different molecular weights (PEG 600 and PEG 6000) in the presence of NaCl or MgCl_2 by using magnetic tweezers (MT) and atomic force microscopy (AFM).

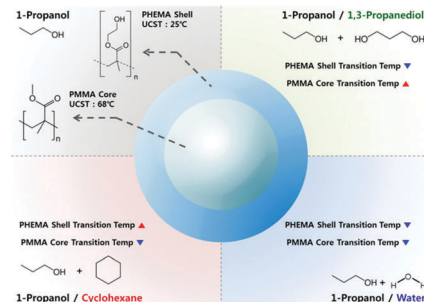


3936

A cosolvency effect on tunable thermosensitive core-shell nanoparticle gels

Sang Min Lee and Young Chan Bae*

Schematic depiction of a core-shell structure composed of the PMMA core and the PHEMA shell, and the influence of three co-solvents on the volume transition temperature of the core-shell gels in 1-propanol solution.



CORRECTION

3946

Correction: Self-assembly of Janus particles under shear

Arash Nikoubashman,* Emanuela Bianchi and Athanassios Z. Panagiotopoulos