

Primary MRSEC Support

IRG1

H. Evans, A. Ahmad, K. Ewert, T. Pfohl, A. Martin, R.F. Bruinsma, C.R. **Safinya**, “DNA-dendrimer complexes: Quasi-2 dimensional columnar mesophases,” *Physical Review Letters* **91**, 075501 (2003)

O. Farago, “‘Water-free’ computer model for fluid bilayer membranes, “*J. Chem. Phys.* **119**, 596 (2003)

O. Farago, P. **Pincus**, “The effect of thermal fluctuations on Schulman area elasticity,” *Eur. Phys. J. E* **11**, 399 (2003)

IRG2

B.A. Adair, S. Neeraj, A.K. **Cheetham**, “The role of chains in the formation of extended framework tin(II) phosphates and related materials,” *Chem. Mater.* **15**, 1518 (2003)

D. Andeen, L. Loeffler, N. Padture, F. F. **Lange**, “Crystal chemistry of epitaxial ZnOon (1 1 1) $MgAl_2 O_4$ produced by hydrothermal synthesis, “*J. of Crystal Growth* **259**, 103 (2003)

P.M. Forster, A.K. **Cheetham**, “Hybrid inorganic-organic solids: An emerging class of nanoporous catalysts,” *Topics in Catalysis* **24**, 79 (2003)

P.M. Forster, Z. Yang, A.K. **Cheetham**, “Open framework metal monocarboxylates: Nickel cyclopropionates containing 16- and 18-membered rings,” *Solid State Sciences* **5**, 635 (2003)

G.K.L. Goh, F.F. **Lange**, SM Haile, C.G. **Levi**, "Hydrothermal synthesis of KNbO₃ and NaNbO₃ powders," *J. Mat. Res.* **18**, 338 (2003)

D. Kisailus, J.H. Choi, F.F. **Lange**, "GaN nanocrystals from oxygen and nitrogen-based precursors," *J. Crystal Growth* **249**, 106 (2003)

C.N.R. Rao, P.V. Vanitha, A.K. **Cheetham**, "Phase separation in metal oxides," *Chem. Euro. J.* **9**, 828 (2003)

J.C. Weaver, L.A. Pietrasanta, N. Hedin, B.F. **Chmelka**, P.K. **Hansma**, D.E. **Morse**, "Nanostructural features of demosponge biosilica," *J. Struct. Biology* **144**, 271 (2003)

IRG3

B.S. Gaylord, A.J. **Heeger**, G.C. **Bazan**, "DNA hybridization detection with water-soluble conjugated polymers and chromophore-labeled single-stranded DNA," *J. Amer. Chem Soc.* **125**, 896 (2003)

R. Mezzenga, G.H. **Fredrickson**, E.J. **Kramer**, "Tailoring morphologies in polymeric high internal phase emulsions by selective solvent casting," *Macromolecules* **36**, 4457 (2003)

R. Mezzenga, J. Ruokolainen, G.H. **Fredrickson**, E.J. **Kramer**, "High internal phase polymeric emulsions by self-assembly of colloidal systems," *Macromolecules* **36**, 4466 (2003)

R. Mezzenga, J. Ruokolainen, G.H. **Fredrickson**, E.J. **Kramer**, D. Moses, A.J. **Heeger**, O. Ikkala, "Templating organic semiconductors via self-assembly of polymeric colloidal systems," *Science* **299**, 1872 (2003)

C. Yang, D. Moses, A.J. **Heeger**, "Base-pair stacking of oriented films of DNA surfactant complex," *Advanced Materials* **15**, 1364 (2003)

IRG4

J.J. Benkoski, P. Flores, E.J. **Kramer**, "Diblock copolymer reinforced interfaces between amorphous polystyrene and semicrystalline polyethylene," *Macromolecules* **36**, 3289 (2003)

A.G. Moreira, S.A. Baeurle, G.H. **Fredrickson**, "Global stationary phase and the sign problem," *Phys. Rev. Lett.* **91**, 150201 (2003)

J. Ruokolainen, G.H. **Fredrickson**, E.J. **Kramer**, C.Y. Ryu, S.F. Hahn, S.N. Magonov, "Fracture of nanostructured block copolymers with unentangled, glassy matrices," *Proc. of 12th International Conference on Deformation, Yield and Fracture of Polymers*, IOM Communications, London, UK, 63 (2003)

Partial MRSEC Support

IRG1

D.A. Coleman, J. Fernsler, N. Chattham, M. Nakata, Y. Takanishi,, E. Körblová, D.R. Link, R. F. Shao, W.G. Jang, J.E. Maclennan, O. Mondain-Monval, C. Boyer, W. Weissflog, G. Pelzl, L.-C. Chien, J. Zasadzinski,, J Watanabe, D.M. Walba, H. Takezoe, N.A. Clark, "Polarization-modulated smectic liquid crystal phases," *Science* **301**, 1204 (2003)

J. Dzubiella, A.G. Moreira, P.A. **Pincus**, "Polyelectrolyte-colloid complexes: Polarizability and effective interaction," *Macromolecules* **36**, 1741 (2003)

A. Ekani Nkodo, D. Kuchnir **Fygenson**, "Size exclusion and diffusion of fluoresceinated probes in collagen fibrils," *Physical Review E* **67**, 1909 (2003)

O. Farago, P. **Pincus**, "The effect of thermal fluctuations on Schulman area elasticity," *Eur. Phys. J. E* **11**, 399 (2003)

Y. Li, M. Yasa, O. Pelletier, C.R. **Safinya**, E. Caine, E. Hu, P. Fernandez, "Metal layer Bragg-Fresnel lenses for diffraction focusing of hard x-rays," *Applied Physics Letters* **82**, 2538 (2003)

A. Lin, N. Slack, A. Ahmad, C. George, C. **Samuel**, C.R. **Safinya**, "Three-dimensional imaging of lipid gene-carriers: Membrane charge density controls universal transfection behavior in lamellar cationic liposome-DNA complexes," *Biophysical J.* **84**, 1 (2003)

N.A. Lockwood, R.S. Tu, Z. Zhang, M. **Tirrell**, D.D. Thomas, C.B. Karim, "Structure and function of integral membrane protein domains resolved by peptide-amphiphiles: Application to phospholamban," *Biopolymers* **69**, 283 (2003)

A.G. Moreira, C. Jeppesen, F. Tanaka, C.M. Marques, "Irreversible vs. reversible bridging: When is kinetics relevant for adhesion?" *Europhysics Letters* **62**, 876 (2003)

O. Pelletier, E. Pokidysheva, L.S. Hirst, N. Bouxsein, Y. Li, C.R. **Safinya**, "Structure of actin cross-linked with α -actinin: A network of bundles," *Physical Review Letters* **91**, 148102 (2003)

J. Ross, D. Kuchnir **Fygenson**, "Mobility of taxol in microtubule bundles," *Biophysical Journal* **84**, 3959 (2003)

P.A. Schorr, T.C.B. Kwan, S.M. Kilbey II, E.S.G. Shaqfeh, M. **Tirrell**, "Shear forces between tethered polymer chains as a function of compression, sliding velocity and solvent quality," *Macromolecules* **36**, 389 (2003)

J.C. Sitko, E.M. Mateescu, H.G. **Hansma**, "Sequence-dependent DNA condensation and the electrostatic zipper," *Biophysical Journal* **84**, 419 (2003)

G.C.L. Wong, A. Lin, J.X. Tang, Y. Li, P.A. Janmey, C.R. **Safinya**, "Supramolecular assembly of actin filaments into a lamellar phase of crosslinked two-dimensional rafts," *Physical Review Letters* **91**, 018103 (2003)

J. **Zasadzinski**, H.T. Jung, B. Coldren, E.W. Kaler, "Spontaneous curvature effects on spontaneous vesicles," in Self-Assembly, edited by B. H. Robinson, Ed. IOS Press, Amsterdam, 432 (2003)

IRG2

N. Becker, E. Oroudjev, S. Mutz, J.P. Cleveland, P.K. **Hansma**, C.Y. Hayashi, D.E. Makarov, H.G. **Hansma**, "Molecular nanosprings in spider capture silk threads," *Nature Materials* **2**, 278 (2003)

V. Breedveld, A.J. Levine, "Shear-induced diffusion in dilute suspensions of charged colloids," *Soft Materials* **1**, 235 (2003)

M. Dan, K. Shivashankar, A.K. **Cheetham**, C.N.R. Rao, "Amine-templated metal squarates," *J. Solid State Chem.* **174**, 60 (2003)

P.M. Forster, J. Eckert, J-S. Chang, S-E. Park, G. Férey, A.K. **Cheetham**, "Hydrogen adsorption in nanoporous nickel(II) phosphates," *J. Amer. Chem. Soc.* **125**, 1309 (2003)

I.C. Gebeshuber, J.H. Kindt, J.B. Thompson, Y. Del Amo, H. Stachelberger, M.A. Brzezinski, G.D. **Stucky**, D.E. **Morse**, P.K. **Hansma**, "Atomic force microscopy study of living diatoms in ambient conditions," *J. Microscopy* **212**, 292 (2003)

T. Gutzmann, G.E. Fantner, M. Venturoni, A. Ekani-Nkodo, J.B. Thompson, J.H. Kindt, D.E. **Morse**, D. Kuchnir **Fygenson**, P.K. **Hansma**, "Evidence that collagen fibrils in tendon are inhomogeneously structured in a tube-like manner," *Biophysical Journal* **84**, 2593 (2003)

J.H. Kindt, J.A. Cutroni, T. Gutsmann, P.K. **Hansma**, "New atomic force microscopes (AFM) for the study of enzymatic properties and processes," *AAPPS Bulletin* **13**, 8 (2003)

N. Masciocchi, F. Castelli, P.M. Forster, M.M. Tafoya, A.K. **Cheetham**, "Synthesis and characterization of two polymorphic crystalline phases and an amorphous powder of nickel(II) bis-imidazolate," *Inorg. Chem.* **42**, 6147 (2003)

M. Michenfelder, G. Fu, C. Lawrence, J.C. Weaver, B.A. Wustman, L. Taranto, J.S. Evans, D.E. **Morse**, "Characterization of two molluscan crystal-modulating biomineralization proteins and identification of putative mineral binding domains," *Biopolymers* **70**, 522 (2003)

D.J. Sirbuly, G.M. Lowman, B.J. Scott, G.D. **Stucky**, S.K. Buratto, "Patterned microstructures of porous silicon by dry removal soft lithography," *Adv. Mater.* **15**, 149 (2003)

J.L. Sumerel, D.E. **Morse**, "Biotechnological advances in biosilicification" in: Silicon biomineralization: Biology – Biochemistry – Molecular Biology – Biotechnology (W.E. Müller, ed.), Springer-Verlag, Berlin, 225 (2003)

J.L. Sumerel, W. Yang, D. Kisailus, J. Weaver, J.H. Choi, D.E. **Morse**, "Biocatalytic structure-directing synthesis of titanium dioxide," *Chem. Mater.* **15**, 4804 (2003)

J. Tang, M. White, G.D. **Stucky**, E. **McFarland**, "Electrochemical fabrication of large-area Au/TiO₂ junctions," *Electrochemistry Communications* **5**, 497 (2003)

M. Venturoni, T. Gutsmann, G.E. Fantner, J.H. Kindt, P.K. **Hansma**, "Investigations into the polymorphism of rat tail tendon fibrils using atomic force microscopy," *Biochemical and Biophysical Research Communications* **303**, 508 (2003)

J.C. Weaver, D.E. **Morse**, "Molecular biology of demosponge axial filaments and their roles in biosilicification," *Micro. Res. Tech.* **62**, 356 (2003)

B.A. Wustman, J.C. Weaver, D.E. **Morse**, J.S. Evans, "Structure-function studies of the Lustrin A polyelectrolyte domains, RKSY and D4," *Connective Tissue Res.* **44**, 10-15 (2003)

IRG3

S.-H. Baeck, K-S. Choi, T.F. Jaramillo, G.D. **Stucky**, E.W. **McFarland**, "Enhancement of photocatalytic and electrochromic properties of electrochemically fabricated mesoporous WO_3 thin films," *Adv. Mater.* **15**, 1269 (2003)

S.-H. Baeck, T.F. Jaramillo, G.D. **Stucky**, E.W. **McFarland**, "Synthesis of tungsten oxide on copper surfaces by electroless deposition," *Chem. Mater.* **15**, 3411 (2003)

V. Breedveld, D.J. **Pine**, "Microrheology as a tool for high-throughput screening," *J. Mat. Sci.* **38**, 4461 (2003)

M.R. Hammond, S.W. Sides, G.H. **Fredrickson**, E.J. **Kramer**, J. Ruokolainen, S.F. Hahn, "Adjustment of block copolymer nanodomain sizes at lattice defect sites," *Macromolecules* **36**, 8712 (2003)

B. Liu, B.S. Gaylord, S. Wang, G.C. **Bazan**, "Effect of chromophore-charge distance on the energy transfer properties of water-soluble conjugated oligomers," *J. Amer. Chem Soc.* **125**, 6705 (2003)

A.P. Nowak, V. Breedveld, D.J. **Pine**, T.J. **Deming**, "Unusual salt stability in highly charged diblock copolyptide hydrogels," *J. Amer. Chem. Soc.* **125**, 15666 (2003)

R.A. Segalman, A. Hexemer, R.C. Hayward, E.J. **Kramer**, "Ordering and melting of block copolymer spherical domains in 2 and 3 dimensions," *Macromolecules* **36**, 3272 (2003)

R.A. Segalman, A. Hexemer, E.J. **Kramer**, "Edge effects on the order and freezing of a 2D array of block copolymer spheres," *Phys. Rev. Lett.* **91**, 192101-1 (2003)

R.A. Segalman, A. Hexemer, E.J. **Kramer**, “Effects of lateral confinement on order in spherical domain block copolymer thin films,” *Macromolecules* **36**, 6831 (2003)

B. Tian, X. Liu, B. Tu, C. Yu, J. Fan, L. Wang, S. Xie, G.D. **Stucky**, D. Zhao, “Self-adjusted synthesis of ordered stable mesoporous minerals by acid-base pairs,” *Nature Materials* **2**, 159 (2003)

IRG4

A. Alexander-Katz, A.G. Moreira, G.H. **Fredrickson**, “Field-theoretic simulations of confined polymer solutions,” *J. Chem. Phys* **118**, 9030 (2003)

A. Alexander-Katz, A.G. Moreira, G.H. **Fredrickson**, “Simulations of polymer solutions: A field-theoretic approach,” *ACS Symp. Series: 861* (American Chemical Society, Oxford University Press, 2003)

L. Eastgate, J.S. **Langer**, L. Pechenik, “Dynamics of large-scale plastic deformation and the necking instability in amorphous solids,” *Phys. Rev. Letters* **90**, 045506 (2003)

J.W. Ha, Y. Yoon, L.G. **Leal**, “The effect of compatibilizer on the coalescence of two drops in flow,” *Physics of Fluids* **15**, 849 (2003)

J.S. **Langer**, L. Eastgate, L. Pechenik, “Dynamics of large-scale plastic deformation and the necking instability in amorphous solids,” *Phys. Rev. Letters* **90**, 045506 (2003)

J.S. **Langer**, L. Pechenik, “Dynamics of shear-transformation zones in amorphous plasticity: Energetic constraints in a minimal theory,” *Phys. Rev. E* **68**, 061507 (2003)

C.C. Park, F. Baldessari, L.G. **Leal**, “Study of molecular weight effects on coalescence: interface slip layer,” *Journal of Rheology* **47**, 911 (2003)

Seed

K-S. Choi, E.W. **McFarland**, G.D. **Stucky**, "Electrocatalytic properties of thin mesoporous platinum films synthesized utilizing potential-controlled surfactant assembly," *Advanced Materials* **15**, 2018 (2003)

B.R. Cuenya, S.-H. Baeck, T.F. Jaramillo, E.W. **McFarland**, "Size and support dependent electronic and catalytic properties of Au₀/Au³⁺ nanoparticles synthesized from block co-polymer micelles," *J. Am. Chem. Soc.* **125**, 12928 (2003)

H.G. Hansma, E. Oroudjev, S. Baudrey, L. **Jaeger**, "TectoRNA and 'kissing-loop' RNA: atomic force microscopy of self-assembling RNA structures," *J. Microsc.* **212**, 273 (2003)

T.F. Jaramillo, S.-H. Baeck, B.R. Cuenya, E.W. **McFarland**, "Catalytic activity of supported Au nanoparticles deposited from block copolymer micelles," *J. Am. Chem. Soc.* **125**, 7148 (2003)

J.W. Lu, S. **Stemmer**, "Low-loss, tunable bismuth zinc niobate films deposited by rf magnetron sputtering, " *Appl. Phys. Lett.* **83**, 2411 (2003)

E. **McFarland**, J. Tang, "A photovoltaic device structure based on internal electron emission, " *Nature* **421**, 616 (2003)

W. Siripala, A. Ivanovskaya, T.F. Jaramillo, S.-H. Baeck, E.W. **McFarland**, "A Cu₂O/TiO₂ heterojunction thin film cathode for photoelectrocatalysis," *Solar Energy Material* **77**, 229 (2003)

Shared Facilities

N.A. Alcantar, C. Park, J-M. Pan, J.N. **Israelachvili**, "Adhesion and coalescence of ductile metal surfaces and nanoparticles," *Acta Materialia* **51**, 31 (2003)

A.M. Andrews, K.L. van Horn, T. Mates, J.S. **Speck**, “Antimony segregation in the oxidation of AlAsSb interlayers,” *J. Vac. Sci. Technol. A* **21**, 1883 (2003)

M.H. Bartl, B.J. Scott, G. Wirnsberger, A. Popitsch, G.D. **Stucky**, “Single-photon hot band absorption induced anti-stokes luminescence of rhodamine 101 in mesostructured thin films, *ChemPhysChem* **4**, 392 (2003)

J.N. Cha, M.H. Bartl, M.S. Wong, A. Popitsch, T.J. **Deming**, G.D. **Stucky**, “Microcavity lasing from block peptide hierarchically assembled quantum dot spherical resonators,” *Nano Lett* **3**, 907 (2003)

J.N. Cha, H. Birkedal, L.E. Euliss, M.H. Bartl, M.S. Wong, T.J. **Deming**, G.D. **Stucky**, “Spontaneous formation of nanoparticle vesicles from homopolymer polyelectrolytes,” *J. Am. Chem. Soc.* **125**, 8285 (2003)

B. Coldren, R. van Zanten, M.J. Mackel, J. **Zasadzinski**, H.T. Jung “From vesicle size distributions to bilayer elasticity via cryo transmission and freeze-fracture electron microscopy,” *Langmuir* **19**, 5632 (2003)

F.S. Diana, S.-H. Lee, P.M. Petroff, E.J. **Kramer**, “Fabrication of hcp-Co nanocrystals via rapid pyrolysis in inverse PS-b-PVP micelles and thermal annealing,” *Nano Letters* **3**, 891 (2003)

J. Ding, I. Doudevski, H.E. Warriner, J. **Zasadzinski**, “Nanostructural changes in lung surfactant monolayers induced by interactions between POPG and surfactant protein SP-B,” *Langmuir* **19**, 1539 (2003)

L.E. Euliss, S.G. Grancharov, S. O’Brien, T.J. **Deming**, G.D. **Stucky**, C.B. Murray, G.A. Held, “Cooperative assembly of magnetic nanoparticles and block copolypeptides in aqueous media,” *Nano Letters* **3**, 1489 (2003)

C.A. Evans, J. **Zasadzinski**, “Encapsulating vesicles and colloids in cochleate cylinders,” *Langmuir* **19**, 3109 (2003)

A. Filippetti, N.A. **Spaldin**, “Self-interaction corrected pseudopotential scheme for magnetic and strongly-correlated systems,” *Phys. Rev. B* **67**, 125109 (2003)

A. Filippetti, N.A. **Spaldin**, “Strong-correlation effects in Born effective charges,” *Phys. Rev. B* **68**, 045111 (2003)

G.H. **Fredrickson**, S.W. Sides, “Theory of polydisperse inhomogeneous polymers,” *Macromolecules* **36**, 5415 (2003)

S. Granick, S.K. Kumar, E.J. Amis, M. Antonietti, A.C. Balazs, A.K. Chakraborty, G.S. Grest, C. Hawker, P. Janmey, E.J. **Kramer**, R. Nuzzo, T.P. Russell, C.R. **Safinya**, “Macromolecules at surfaces: Research challenges and opportunities from tribology to biology,” *J. Polym. Sci. Part B: Polym. Phys.* **41**, 2755 (2003)

K.L. Frindell, M.H. Bartl, M.R. Robinson, G.C. **Bazan**, A. Popitsch, G.D. **Stucky**, “Visible and near-IR luminescence via energy transfer in rare earth doped mesoporous titania thin films with nanocrystalline walls,” *J. Solid State Chem.* **172**, 81 (2003)

D. Gourdon, J. **Israelachvili**, “Transitions between complex stick-slip and smooth sliding of surfaces,” *Phys. Rev. E* **68**, 21602 (2003)

D.S. Green, E. Haus, F. Wu, L. Chen, J.S. **Speck**, “Polarity control during molecular beam epitaxy growth of Mg-doped GaN,” *J. Vac. Sci. Technol.B* **21**, 1804 (2003)

B.A. Haskell, F. Wu, M.D. Craven, S. Matsuda, P.T. Fini, T. Fujii, K. Fujito, S.P. DenBaars, J.S. **Speck**, S. Nakamura, “Defect reduction in a -plane gallium nitride via lateral epitaxial overgrowth by hydride vapor-phase epitaxy,” *Appl. Phys. Lett.* **83**, 644 (2003)

B.A. Haskell, F. Wu, S. Matsuda, M.D. Craven, P.T. Fini, S.P. DenBaars, J.S. **Speck**, S. Nakamura,

"Structural and morphological characteristics of planar *a*-plane gallium nitride grown by hydride vapor phase epitaxy," *Appl. Phys. Lett.* **83**, 1554 (2003)

S. Heikman, S. Keller, Y. Wu, J.S. **Speck**, S.P. DenBaars, U.K. Mishra, "Polarization effects in AlGaN/GaN and GaN/AlGaN/GaN heterostructures," *J. Appl. Phys.* **93**, 10114 (2003)

A. Kolmakov, Y. Zhang, G. Cheng, M. **Moskovits**, "Detection of CO and oxygen using tin oxide nanowire sensors," *Adv. Mater.* **15**, 997 (2003)

A. Kolmakov, Y. Zhang, M. **Moskovits**, "Topotactic thermal oxidation of Sn nanowires: Intermediate suboxides and core-shell metastable structures," *Nano Letters* **3**, 1125 (2003)

H. Kosonen, S. Valkama, J. Ruokolainen, M. Torkkeli, R. Serimaa, G. ten Brinke, O. Ikkala, "One-dimensional optical reflectors based on self-organization of polymeric comb-shaped supramolecules," *European Physical Journal E* **10**, 69 (2003)

P.A. Langjahr, T. Wagner, F.F. **Lange**, M. Rühle, "Epitaxial growth and structure of highly mismatched oxides with rock-salt structure on MgO," *J. Crystal Growth* **256**, 162 (2003)

C.G. **Levi**, E. Sommer, S.G. Terry, A. Catanoiu, M. Rühle, "Alumina grown during deposition of thermal barrier coatings on NiCrAlY," *J. Amer. Ceram. Soc.* **86**, 676 (2003)

H.C. Lichtenegger, T. Schöberl, J.T. Rukolainen, J.O. Cross, S.M. Heald, H. Birkedal, J.H. Waite, G.D. **Stucky**, "Zinc and mechanical prowess in the jaws of *Nereis*, a marine worm," *Proc. Natl Acad. Sci. USA* **100**, 9144 (2003)

J.W. Lu, Z.Q. Chen, T.R. Taylor, S. **Stemmer**, "Composition control and dielectric properties of bismuth zinc niobate thin films synthesized by RF magnetron sputtering," *J. Vac. Sci. and Tech. A* **21**, 1745 (2003)

H. Ludtke-Knoedler, G.E. Lucas, C.G. **Levi**, "Morphological stability of copper-silver multilayer thin films at elevated temperatures," *Metallurgical and Material Transactions A*, Vol. **34A**, 1043 (2003)

J.G. Nery, Y.P. Mascarenhas, A.K. **Cheetham**, "A study of the highly crystalline, low silica, fully hydrated zeolite P ion-exchanged with Mn²⁺, Cd²⁺, Pb²⁺, Sr²⁺ and Ba²⁺ cations," *Microporous and Mesoporous Solids* **57**, 229 (2003)

R. Pynn, M.R. Fitzsimmons, H. Fritzsche, J. Major, M.T. Rekveldt, "Does beam divergence matter for neutron reflectometry?" *Physica B* **336**, 1 (2003)

N.R. Rebollo, O. Fabrichnaya, C.G. **Levi**, "Phase stability of Y+Gd do-doped zirconia," *Zeitschrift für Metallkunde* **94**, 163 (2003)

N.R. Rebollo, A.S. Gandhi, C.G. **Levi**, "Phase stability issues in emerging TBC systems," in High Temperature Corrosion and Materials Chemistry IV, eds. E. Opila, P. Hou, T. Maruyama, B. Pieraggi, M. McNallan, D. Shifler, and E. Wuchina, Electrochemical Society Proceedings vol. **PV-2003-16**, 431 (2003)

N.R. Rebollo, M.Y. He, C.G. **Levi**, A.G. Evans, "Mechanisms governing the distortion of alumina forming alloys upon cyclic oxidation," *Zeitschrift für Metallkunde* **94**, 171 (2003)

A.S. Risbud, N.A. **Spaldin**, Z.Q. Chen, S. **Stemmer**, R. **Seshadri**, "Magnetism in polycrystalline cobalt-substituted zinc oxide," *Phys. Rev. B* **68**, 205202 (2003)

M. Ruths, N.A. Alcantar, J.N. **Israelachvili**, "Boundary friction of aromatic silane SAMs measured with the SFA and FFM," *J. Phys. Chem.* **107**, 11149 (2003)

K. Schofield, "A new method for the direct flame calibration of nebulized additive concentrations," *Combustion and Flame* **133**, 147 (2003)

K. Schofield, "A new method to minimize high temperature corrosion resulting from alkali sulfate and chloride deposition in combustion systems. 1. Tungsten Salts," *Energy & Fuels* **17**, 191 (2003)

U. Schulz, S.G. Terry, C.G. **Levi**, "Microstructure and texture of EB-PVD TBCs grown under different rotation modes," *Materials Science and Engineering A* **360A**, 318 (2003)

B. Schwenzer, S. Keller, L. Loeffler, R. **Seshadri**, F.F. **Lange**, S.P. DenBaars, U.K. Mishra, "Group-III Nitride Nanoparticles: Synthesis and Photoluminescence Studies," *Proceedings of the 3rd IEEE Conference on Nanotechnology*, San Francisco, USA, August 2003, 473

B.J. Scott, M.H. Bartl, G. Wirnsberger, G.D. **Stucky**, "Energy transfer in dye-doped mesostructured composites," *J. Phys. Chem. A* **107**, 5499 (2003)

R.A. Segalman, K.E. Schaefer, G.H. **Fredrickson**, E.J. **Kramer**, "Topographic templating of islands and holes in highly asymmetric block copolymer films," *Macromolecules* **36**, 4498 (2003)

S.W. Sides, G.H. **Fredrickson**, "Parallel algorithm for numerical self-consistent field theory simulations of block copolymer structure," *Polymer* **44**, 5859 (2003)

T.R. Taylor, P.J. Hansen, N. Pervez, B. Acikel, R.A. York, J.S. **Speck**, "Influence of stoichiometry on the dielectric properties of sputtered strontium titanate thin films," *J. Appl. Phys.* **94**, 3390 (2003)

S. Valkama, T. Ruotsalainen, H. Kosonen, J. Ruokolainen, M. Torkkeli, R. Serimaa, G. ten Brinke, O. Ikkala, "Amphiphiles coordinated to block copolymers as a template for mesoporous materials," *Macromolecules* **36**, 3986 (2003)

U.V. Waghmare, N.A. **Spaldin**, H.C. Kandpal, R. **Seshadri**, "First principles indicators of metallicity and cation off-centricity in the IV-VI rock-salt chalcogenides of divalent Ge, Sn and Pb," *Phys. Rev. B* **67**, 125111 (2003)

J. Wang, J.B. Neaton, H. Zheng, V. Nagarajan, S.B. Ogale, B. Liu, D. Viehland, V. Vaithyanathan, D.G. Schlom, U.V. Waghmare, N.A. **Spaldin**, K.M. Rabe, M. Wuttig, R. Ramesh, "Epitaxial BiFeO₃ multiferroic thin film heterostructures," *Science* **299**, 1719 (2003)

J. Wang, J. Zhang, B.Y. Asoo, G.D. **Stucky**, "Structure-selective synthesis of mesostructured/mesoporous silica nanofibers," *J. Am. Chem. Soc.* **125**, 13966 (2003)

S. Wang, G.C. **Bazan**, "Optically amplified RNA-protein detection methods using light-harvesting conjugated polymers," *Adv. Materials* **15**, 1425 (2003)

F. Wu, M.D. Craven, S.H. Lim, J.S. **Speck**, "Polarity determination of a-plane GaN on r-plane sapphire and its effects on lateral overgrowth and heteroepitaxy," *J. Appl. Phys.* **94**, 942 (2003)

Patents:

T.J. **Deming**, T.J., M. Yu, S.A. Curtin, J. Hwang, M.D. Wyrsta, "Nickel initiators for block copolyptide synthesis," US Patent No. 6,632,922 (October 14, 2003)

D.E. **Morse**, G.D. **Stucky**, T.J. **Deming**, J. Cha, K. Shimuzu, Y. Zhou, "Methods, compositions, and biomimetic catalysts for in vitro synthesis of silica, polysilsequioxane, polysiloxane, and polymetalloc-oxanes," US Patent No. 6,670,438 (December 30, 2003)

G.D. **Stucky**, B.F. **Chmelka**, D. Zhao, N. Melosh, Q. Huo, J. Feng, P. Yang, D.J. **Pine**, D.I. Margolese, W.W. Lukens, Jr., G.H. **Frederickson**, P. Schmidt-Winkel, "Block copolymer processing for mesostructured inorganic oxide materials," U. S. Patent No. 6,592,764 (July 15, 2003)

P. Yang, T. Deng, G.M. Whitesides, G.D. **Stucky**, D. Zhao, B.F. **Chmelka**, D. **Pine**, P. Feng, "Hierarchically ordered porous oxides," U. S. Patent No. 6,541,539 (April 1, 2003)

J. **Zasadzinski**, "Continuation in part patent issued for bilayer structure which encapsulates multiple containment units and uses thereof," US Patent 6,585,889 B2, Issued May 20, 2003

