

2007 MRL PUBLICATIONS

IRG 1

a. Primary MRSEC Support

A. Chworos, L. **Jaeger**, "Nucleic acid foldamers: design, engineering and selection of programmable bio-materials with recognition, catalytic and self-assembly properties," in Foldamers: Structure, Properties, and Applications, (Hecht, S. & Huc, I., eds), Wiley-VCH, 291-330 (2007)

C.J. **Hawker**, V.V. Fokin, M.G. Finn, K.B. Sharpless, "Bringing efficiency to materials synthesis: The philosophy of click chemistry," *Aust. J. Chem.* **60**, 381 (2007)

W.B. Lee, R. Elliott, K. Katsov, G.H. **Fredrickson**, "Phase morphologies in reversibly bonding supramolecular triblock copolymer blends," *Macromolecules* **40**, 8445 (2007)

B. Lohse, M.T. Ivanov, J.W. Andreasen, R. Vestberg, S. Hvilsted, R.H. Berg, P.S. Ramanujam, C.J. **Hawker**, K. Mortensen, "Self-assembly of uracil-PAMAM dendrimer systems into domains of micrometer length scale," *Macromolecules* **40**, 1779 (2007)

Q. Shi, Z. An, C.K. Tsung, H. Liang, N. Zheng, C.J. **Hawker**, G.D. **Stucky**, "Ice-templating of core/shell microgel fibers through "bricks-and-mortar" assembly," *Adv. Mater.* **19**, 4539 (2007)

R. Vestberg, M. Malkoch, M. Kade, P. Wu, V.V. Fokin, K.B. Sharpless, E. Drockenmuller, C.J. **Hawker**, "Role of architecture and molecular weight in the formation of tailor-made ultrathin multilayers using dendritic macromolecules and click chemistry," *J. Polym. Sci., Polym. Chem.* **45**, 2835 (2007)

b. Partial MRSEC Support

E.H. Feng, W.B. Lee, G.H. **Fredrickson**, “Supramolecular diblock copolymers: A field-theoretic model and mean-field solution,” *Macromolecules* **40**(3), 693 (2007)

Y.S. Jho, G. Park, C.S. Chang, P.A. **Pincus**, M.W. Kim, “Effects of dielectric discontinuities on two charged plates,” *Phys. Rev. E* **76**, 011920 (2007)

M. Kastantin, B. Ananthanarayanan, B. Lin, J. Ressler, M. Black, M. **Tirrell**, “Increase of fluorescence anisotropy upon self-assembly in headgroup-labeled surfactants,” *Macromol. Biosci.* **7**, 189 (2007)

A. Naji, A.J. Levine, P.A. **Pincus**, “Corrections to the Saffman-Delbrück mobility for membrane bound proteins,” *Biophys. J.* **93**, L49-51L (2007)

A. Naydenov, P.A. **Pincus**, S. Safran, “Equilibrium domains on heterogeneously charged surfaces,” *Langmuir* **23**, 12016 (2007)

Z. Zhuang, L. **Jaeger**, J.-E. **Shea**, “Probing the structural hierarchy and energy landscape of an RNA T-loop hairpin,” *Nucleic Acids Research* **35**(20), 6995 (2007)

IRG 2

a. Primary MRSEC Support

A. Janotti, C.G. **Van de Walle**, “Absolute deformation potentials and band alignment of wurtzite ZnO, MgO, and CdO,” *Phys. Rev. B* **75**, 121201 (2007)

A. Janotti, C.G. **Van de Walle**, “Hydrogen multicentre bonds,” *Nature Materials* **6**, 44 (2007)

A. Janotti, C.G. **Van de Walle**, “Native point defects in ZnO,” *Phys. Rev. B* **76**, 165202 (2007)

Y.-I. Kim, K. Page, A.M. Limarga, D.R. Clarke, R. **Seshadri**, “Evolution of local structures in polycrystalline $Zn_{1-x}Mg_xO$ ($0 \leq x \leq 0.15$) studied by Raman spectroscopy and synchrotron x-ray pair-distribution-function analysis,” *Phys. Rev. B* **76**, 115204 (2007)

Y.-I. Kim, K. Page, R. **Seshadri**, “Synchrotron x-ray study of polycrystalline wurtzite $Zn_{1-x}Mg_xO$ ($0 \leq x \leq 0.15$): Evolution of crystal structure and polarization,” *Appl. Phys. Lett.* **90**, 101904 (2007)

b. Partial MRSEC Support

K. Page, M.W. Stoltzfus, Y.-I. Kim, Th. Proffen, P.M. Woodward, A.K. **Cheetham**, R. **Seshadri**, “Local atomic ordering in $BaTaO_2N$ studied by neutron pair distribution function analysis and density functional theory,” *Chem. Mater.* **19**, 4037 (2007)

D. Segev, A. Janotti, C.G. **Van de Walle**, “Self-consistent band-gap corrections in density functional theory using modified pseudopotentials,” *Phys. Rev. B* **75**, 035201 (2007)

D. Segev, C.G. **Van de Walle**, “Electronic structure of nitride surfaces,” *J. Cryst. Growth* **300**, 199 (2007)

D. Segev, C.G. **Van de Walle**, “Surface reconstructions on InN and GaN polar and nonpolar surfaces,” *Surf. Sci.* **601**, L15 (2007)

C.G. **Van de Walle**, “Hydrogen in semiconductors and insulators,” *J. of Alloys and Compds.* **446-447**, 48 (2007)

C.G. **Van de Walle**, D. Segev, “Microscopic origins of surface states on nitride surfaces,” *J. Appl. Phys.* **101**, 081704 (2007)

J. Weber, A. Janotti, P. Rinke, C.G. **Van de Walle**, “Dangling-bond defects and hydrogen passivation in germanium,” *Appl. Phys. Lett.* **91**, 142101 (2007)

IRG 3

a. Primary MRSEC Support

J. Bang, J. Bae, P. Löwenhielm, C. Spiessberger, S.A. Given-Beck, T.P. Russell, C.J. **Hawker**, “Facile routes to patterned surface neutralization layers for block copolymer lithography,” *Adv. Mater.* **19**, 4552 (2007)

J. Bang, B.J. Kim, G.E. Stein, T.P. Russell, X. Li, J. Wang, E.J. **Kramer**, C.J. **Hawker**, “Effect of humidity on the ordering of PEO-based copolymer thin films,” *Macromolecules* **40**, 7019 (2007)

J.J. Chiu, B.J. Kim, J. Bang, E.J. **Kramer**, D.J. Pine, “Distribution of nanoparticles in lamellar domains of block copolymers,” *Macromolecules* **40**, DOI: [10.1021/ma061503d](https://doi.org/10.1021/ma061503d) (2007)

J. **Israelachvili**, H. Zeng, Y. Tian, B. Zhao, M. **Tirrell**, “Transient surface patterns and instabilities at adhesive junctions of viscoelastic films,” *Macromolecules* **40**(23), 8409 (2007)

B.J. Kim, J. Bang, C.J. **Hawker**, J.J. Chiu, D.J. Pine, S.G. Jang, S.-M. Yang, E.J. **Kramer**, “Creating surfactant nanoparticles for block copolymer composites through surface chemistry,” *Langmuir* **23**, 12693 (2007)

B.J. Kim, G.H. **Fredrickson**, C.J. **Hawker**, E.J. **Kramer**, “Nanoparticle surfactants as a route to bicontinuous block copolymer morphologies,” *Langmuir* **23**, 7804 (2007)

B.J. Kim, G.H. **Fredrickson**, E.J. **Kramer**, “Analysis of reaction kinetics of end-functionalized polymers at a PS/P2VP interface by DSIMS,” *Macromolecules* **40**, 3686 (2007)

B.J. Kim, S. Given-Beck, J. Bang, C.J. **Hawker**, E.J. **Kramer**, “The importance of end-group structure in the controlling the interfacial activity of polymer coated nanoparticles,” *Macromolecules* **40**, 1796 (2007)

B. Lohse, R. Vestberg, M.T. Ivanov, S. Hvilsted, R.H. Berg, P.S. Ramanujam, C.J. **Hawker**, “UV-Photodimerization in Uracil-substituted dendrimers for high density data storage,” *J. Polym. Sci., Polym. Chem.* **45**, 4401 (2007)

S.C. Park, B.J. Kim, C.J. **Hawker**, E.J. **Kramer**, J. Bang, J.S. Ha, "Controlled ordering of block copolymer thin films by the addition of hydrophilic nanoparticles," *Macromolecules* **40**, 8119 (2007)

D.Y. Ryu, J.-Y. Wang, K.A. Lavery, E. Drockenmuller, S.K. Satija, C.J. **Hawker**, T.P. Russell, "Surface modification with cross-linked random copolymers: Minimum effective thickness," *Macromolecules* **40**, 4296 (2007)

Y. Yoon, A. Hsu, L.G. **Leal**, "An experimental investigation of the effects of copolymer surfactants on flow-induced coalescence of drops," *Physics of Fluids* **19**, 023102 (2007)

b. Partial MRSEC Support

F. Baldessari, G.M. **Homsy**, L.G. **Leal**, "Linear stability of a draining film squeezed between two approaching droplets," *J. Colloid and Interface Science* **307**, 188 (2007)

L.A. Connal, R. Vestberg, C.J. **Hawker**, G.G. Qiao, "Synthesis of dendron functionalized core cross-linked star polymers," *Macromolecules* **40**, 7855 (2007)

D. Gourdon, Q. Lin, E. Oroudjev, H. **Hansma**, Y. Golan, S. Arad, J. **Israelachvili**, "Adhesion and stable low friction provided by a subnanometer-thick monolayer of a natural polysaccharide," *Langmuir* **24**, 1534 (2007)

E.C. Hagberg, M. Malkoch, Y.B. Ling, C.J. **Hawker**, K.R. Carter, "Effects of modulus and surface chemistry of thiol-ene photopolymers in nanoimprinting," *Nanoletters* **7**, 233 (2007)

R.S. Krishnan, M.E. Mackay, P.M. Duxbury, A. Pastor, C.J. **Hawker**, B. Van Horn, S. Asokan, M.S. Wong, "Self-assembled multilayers of nanocomponents," *Nanoletters* **7**, 484 (2007)

Z. Merican, T.L. Schiller, C.J. **Hawker**, P.M. Fredericks, I. Blakey, "Self-assembly and encoding of polymer-stabilized gold nanoparticles with surface-enhanced Raman reporter molecules," *Langmuir* **23**, 10539 (2007)

M.F. Montague, C.J. **Hawker**, “Secondary patterning of UV imprint features by photolithography,” *Chem. Mater.* **19**, 526 (2007)

G.E. Stein, W.B. Lee, G.H. **Fredrickson**, E.J. **Kramer**, X. Li, J. Wang, “Thickness dependent ordering in laterally confined monolayers of spherical-domain block copolymers,” *Macromolecules* **40**, 5791 (2007)

H. Zeng, B. Zhao, Y. Tian, M. Tirrell, L.G. **Leal**, J.N. **Israelachvili**, “Transient surface patterns during adhesion and coalescence of thin liquid films,” *Soft Matter* **1**, 88 (2007)

IRG 4

a. Primary MRSEC Support

D.O. Klenov, J.M.O. Zide, J.M. LeBeau, A.C. **Gossard**, S. **Stemmer**, “Ordering of ErAs nanoparticles embedded in epitaxial InGaAs layers,” *Appl. Phys. Lett.* **90**, 121917 (2007). [This article was also selected for the April 2, 2007 issue of the Virtual Journal of Nanoscale Science & Technology]

b. Partial MRSEC Support

K.E. Aidala, R.E. Parrott, T. Kramer, E.J. Heller, R.M. Westervelt, M.P. Hanson, A.C. **Gossard**, “Imaging magnetic focusing of coherent electron waves,” *Nature Phys.* **3**(7), 464 (2007)

P. Baettig, R. **Seshadri**, N.A. **Spaldin**, “Anti-polarity in ideal BiMnO₃,” *J. Am. Chem. Soc.* **129**(32), 9854 (2007)

A. Baumgartner, T. Ihn, K. Ensslin, K. Maranowski, A.C. **Gossard**, “Quantum Hall effect transition in scanning gate experiments,” *Phys. Rev. B.* **76**(8), 85316 (2007)

Z. Bian, M. Zebarjadi, R. Singh, Y. Ezzahri, A. Shakouri, G. Zeng, J.H. Bahk, J.E. Bowers, J.M.O. Zide, A.C. **Gossard**, “Cross-plane Seebeck coefficient and Lorenz number in superlattices,” *Phys. Rev. B.* **76**(20), 205311 (2007)

E.R. **Brown**, A.C. Young, J. Zimmerman, H. Kazemi, A.C. **Gossard**, “Advances in Schottky rectifier performance,” *IEEE Microwave Magazine* **8**(3), 54 (2007)

H.T. Chen, W.J. Padilla, J.M.O. Zide, S.R. Bank, A.C. **Gossard**, A.J. Taylor, R.D. Averitt, “Ultrafast optical switching of terahertz metamaterials fabricated on ErAs/GaAs nanoisland superlattices,” *Optics Lett.* **32**(12), 1620 (2007)

A.M. Crook, E. Lind, Z. Griffith, M.J.W. Rodwell, J.D. Zimmerman, A.C. **Gossard**, S.R. Bank, “Low resistance, nonalloyed ohmic contacts to InGaAs,” *Appl. Phys. Lett.* **91**(19), 192114 (2007)

A.E. Gildemeister, T. Ihn, R. Schleser, K. Ensslin, D.C. Driscoll, A.C. **Gossard**, “Imaging a coupled quantum dot-quantum point contact system,” *J. Appl. Phys.* **102**(8), 83703 (2007)

A.E. Gildemeister, T. Ihn, M. Sigrist, K. Ensslin, D.C. Driscoll, A.C. **Gossard**, “*In situ* treatment of a scanning gate microscopy tip,” *Appl. Phys. Lett.* **90**(21), 213113 (2007)

A.E. Gildemeister, T. Ihn, M. Sigrist, K. Ensslin, D.C. Driscoll, A.C. **Gossard**, “Measurement of the tip-induced potential in scanning gate experiments,” *Phys. Rev. B.* **75**(19), 195338 (2007)

S. Gustavsson, R. Leturcq, T. Ihn, K. Ensslin, D.C. Driscoll, A.C. **Gossard**, “Noise measurements in quantum dots using charge detection techniques,” *Physica E-Low-Dimensional Systems & Nanostructures* **40**(1), 103 (2007)

S. Gustavsson, M. Studer, R. Leturcq, T. Ihn, K. Ensslin, D.C. Driscoll, A.C. **Gossard**, “Frequency-selective single-photon detection using a double quantum dot,” *Phys. Rev. Lett.* **99**(20), 20684 (2007)

M.P. Hanson, S.R. Bank, J.M.O. Zide, J.D. Zimmerman, A.C. **Gossard**, “Controlling electronic properties of epitaxial nanocomposites of dissimilar materials,” *J. Cryst. Growth* **301**, 4 (2007)

M.P. Hanson, A.C. **Gossard**, E.R. **Brown**, “Infrared surface plasmon resonances due to Er-V semimetallic nanoparticles in III-V semiconductor matrices,” *J. Appl. Phys.* **102**(4), 43112 (2007)

A.A. High, A.T. Hammack, L.V. Butov, A. Hanson, A.C. **Gossard**, “Exciton optoelectronic transistor,” *Optics Lett.* **32**(17), 2466 (2007)

A.W. Holleitner, V. Sih, R.C. Myers, A.C. **Gossard**, D.D. Awschalom, “Dimensionally constrained D'yakonov-Perel' spin relaxation in n-InGaAs channels: transition from 2D to 1D,” *New J. of Phys.* **9**, 342 (2007)

A.W. Jackson, A.C. **Gossard**, “Thermal imaging of wafer temperature in MBE using a digital camera,” *J. Cryst. Growth* **301**, 105 (2007)

E.A. Laird, C. Barthel, E.I. Rashba, C.M. Marcus, M.P. Hanson, A.C. **Gossard**, “Hyperfine-mediated gate-driven electron spin resonance,” *Phys. Rev. Lett.* **99**, 246601 (2007)

K. MacLean, S. Amasha, I.P. Radu, D.M. Zumbuhl, M.A. Kastner, M.P. Hanson, A.C. **Gossard**, “Energy-dependent tunneling in a quantum dot,” *Phys. Rev. Lett.* **98**(3), 36802 (2007)

D.T. McClure, L. DiCarlo, Y. Zhang, H.A. Engel, C.M. Marcus, M.P. Hanson, A.C. **Gossard**, “Tunable noise cross correlations in a double quantum dot,” *Phys. Rev. Lett.* **98**(5), 56801 (2007)

R. Passmann, M. Kropp, T. Bruhn, B.O. Fimland, F.L. Bloom, A.C. **Gossard**, W. Richter, N. Esser, P. Vogt, “Optical anisotropy of cyclopentene terminated GaAs(001) surfaces,” *Appl. Phys. A – Mtls. Sci. & Processing* **87**(3), 469 (2007)

S. Preu, F.H. Renner, S. Malzer, G.H. Dohler, L.J. Wang, M. Hanson, A.C. **Gossard**, T.L.J. Wilkinson, E.R. **Brown**, “Efficient terahertz emission from ballistic transport enhanced n-i-p-n-i-p superlattice photomixers,” *Appl. Phys. Lett.* **90**(21), 212115 (2007)

D.J. Reilly, C.M. Marcus, M.P. Hanson, A.C. **Gossard**, “Fast single-charge sensing with a rf quantum point contact,” *Appl. Phys. Lett.* **91**(16), 162101 (2007)

R. Schleser, S. Kicin, C. Roth, C. Ebnetter, R. Leturcq, K. Ensslin, D.C. Driscoll, A.C. **Gossard**, "Influence of HCl etching on the electronic properties of LAO-defined nanostructures," *Semiconductor Sci. and Tech.* **22**(4), 337 (2007)

N.P. Stern, R.C. Myers, M. Poggio, A.C. **Gossard**, D.D. Awschalom, "Confinement engineering of s-d exchange interactions in Ga_{1-x}MnxAs/AlyGa_{1-y}As quantum wells," *Phys. Rev. B.* **75**(4), 45329 (2007)

N.P. Stern, D.W. Steuerman, S. Mack, A.C. **Gossard**, D.D. Awschalom, "Drift and diffusion of spins generated by the spin Hall effect," *Appl. Phys. Lett.* **91**(6), 62109 (2007)

A.G. Winbow, A.T. Hammack, L.V. Butov, A.C. **Gossard**, "Photon storage with nanosecond switching in coupled quantum well nanostructures," *Nano Lett.* **7**(5), 1349 (2007)

S. Yang, A.V. Mintsev, A.T. Hammack, L.V. Butov, A.C. **Gossard**, "Repulsive interaction in the macroscopically ordered exciton state in GaAs/Al_xGa_{1-x}As coupled quantum well structures," *Phys. Rev. B.* **75**(3), 33311 (2007)

W. Yi, V. Narayanamurti, J.M.O. Zide, S.R. Bank, A.C. **Gossard**, "Probing energy barriers and quantum confined states of buried semiconductor heterostructures with ballistic carrier injection: An experimental study," *Phys. Rev. B.* **75**(11), 115333 (2007)

A.C. Young, J.D. Zimmerman, E.R. **Brown**, A.C. **Gossard**, "Low-frequency noise in epitaxially grown Schottky junctions," *J. Appl. Phys.* **101**(8), 84509 (2007)

G.H. Zeng, J.M.O. Zide, W. Kim, J.E. Bowers, A.C. **Gossard**, Z.X. Bian, Y. Zhang, A. Shakouri, S.L. Singer, A. Majumdar, "Cross-plane Seebeck coefficient of ErAs: InGaAs/InGaAlAs superlattices," *J. Appl. Phys.* **101**(3), 34502 (2007)

Y. Zhang, L. DiCarlo, D.T. McClure, M. Yamamoto, S. Tarucha, C.M. Marcus, M.P. Hanson, A.C. **Gossard**, "Noise correlations in a coulomb-blockaded quantum dot," *Phys. Rev. Lett.* **99**(3), 36603 (2007)

SEED

b. Partial MRSEC Support

D.H. Adamson, D.M. Dabbs, C.R. Pacheco, M.V. Giotto, D.E. **Morse**, I.A. Aksay, "Non-peptide polymeric silicatein alpha mimic for neutral pH catalysis in the formation of silica," *Macromolecules* **40**(16), 5710 (2007)

B.D. Armstrong, S. **Han**, "A new model for Overhauser enhanced nuclear magnetic resonance using nitroxide radicals," *J. Chem. Phys.* **127**(10), 104508 (2007)

S. Gayathri, R. Lakshminarayanan, J.C. Weaver, D.E. **Morse**, R.M. Kini, S. Valiyaveetil, "In vitro study of magnesium- calcite biomineralization in the skeletal materials of the seastar *Piaster giganteus*," *Chemistry - A European Journal* **13**(11), 3262 (2007)

J.R. Gomm, B. Schwenzer, D.E. **Morse**, "Textured films of chromium phosphate synthesized by low-temperature vapor diffusion catalysis," *Solid State Sciences* **9**(5), 429 (2007)

N. Holten-Andersen, G.E. Fantner, S. Hohlbauch, J.H. **Waite**, F.W. Zok, "Protective coatings on extensible biofibres," *Nature Mat.* **6**, 669 (2007)

C. Hoven, R. Yang, A. Garcia, A.J. **Heeger**, G.C. **Bazan**, T.-Q. **Nguyen**, "Ion Motion in Conjugated Polyelectrolyte Electron Transporting Layers," *J. Am. Chem. Soc.* **129**, 10976 (2007)

J.Y. Kim, K. Lee, N.E. Coates, D. Moses, T.-Q. **Nguyen**, M. Dante, A.J. **Heeger**, "Efficient tandem polymer solar cells fabricated by all-solution processing," *Science* **317**, 222 (2007)

J.H. Kindt, P.J. Thurner, M.E. Lauer, B.L. Bosma, G. Schitter, G.E. Fantner, M. Izumi, J.C. Weaver, D.E. **Morse**, P.K. Hansma, "In situ observation of fluoride-ion-induced hydroxyapatite-collagen detachment on bone fracture surfaces by atomic force microscopy," *Nanotechnology* **18**(13), 1 (2007)

E.R. McCarney, B.L. Armstrong, M.D. Lingwood, S. **Han**, "Hyperpolarized water as an authentic magnetic resonance imaging contrast agent," *Proc.*

Nat. Acad. Sci. USA, **104**, 6, 1754 (2007)

J.C. Weaver, J. Aizenberg, G.E. Fantner, D. Kisailus, A. Woesz, P. Allen, K. Fields, M.J. Porter, F.W. Zok, P.K. Hansma, P. Fratzl, D.E. **Morse**, “Hierarchical assembly of the siliceous skeletal lattice of the hexactinellid sponge *Euplectella aspergillum*,” *J. of Structural Bio* **158**(1), 93 (2007)

SHARED FACILITIES

M. Akbulut, A.R.G. Alig, Y. Min, N. Belman, M. Reynolds, Y. Golan, J. **Israelachvili**, “Forces between surfaces across nanoparticle solutions: Role of size, shape, and concentration,” *Langmuir* **23**(7), 3961 (2007)

A. Alexander-Katz, G.H. **Fredrickson**, “Diblock copolymer thin films: A field-theoretic simulation study,” *Macromolecules* **40**, 4075 (2007)

Z. An, Q. Shi, W. Tang, C.-K. Tsung, C.J. **Hawker**, G.D. **Stucky**, “Facile RAFT precipitation polymerization for the microwave-assisted synthesis of well-defined, double hydrophilic block copolymers and nanostructured hydrogels,” *J. Am. Chem. Soc.* **129**(46), 14493 (2007)

L. Andruzzi, B. Nickel, G. Schwake, J.O. Rädler, K.E. Sohn, T.E. Mates, E.J. **Kramer**, “Bio-selective surfaces by chemically amplified constructive microlithography,” *Surface Science* **601**, 4984 (2007)

P. Antoni, D. Nystrom, C.J. **Hawker**, A. Hult, M. Malkoch, “A chemoselective approach for the accelerated synthesis of well-defined dendritic architectures,” *Chem. Commun.*, 2249 (2007)

S.W. Boettcher, J. Fan, C.-K. Tsung, Q. Shi, G.D. **Stucky**, “Harnessing the sol-gel process for the assembly of non-silicate mesostructured oxide solids,” *Acc. Chem. Res.* **40**(9), 784 (2007)

S.W. Boettcher, N.C. Strandwitz, M. Schierhorn, N. Lock, M.C. Lonergan, G.D. **Stucky**, “Tunable electronic interfaces between bulk semiconductors and ligand-stabilized nanoparticle assemblies,” *Nature Materials* **6**(8), 592 (2007)

A.W. Bosse, C.J. Garcia-Cervera, G.H. **Fredrickson**, "Microdomain ordering in laterally confined block copolymer thin films," *Macromolecules* **40**, 9570 (2007)

A. Chakraborty, B.A. Haskell, F. Wu, S. Keller, S.P. DenBaars, S. Nakamura, J.S. **Speck**, U.K. **Mishra**, "Structural and optical properties of nonpolar InGaN/GaN multiple quantum wells grown on planar and lateral epitaxially overgrown *m*-plane GaN films," *Jap. Journal of Appl. Phys.* **46**, 2, 542 (2007)

T.L. Chantawansri, A.W. Bosse, A. Hexemer, H.D. Ceniceros, C.J. Garcia Cervera, E.J. **Kramer**, G.H. **Fredrickson**, "Self-consistent field theory simulations of block copolymer assembly on a sphere," *Phys. Rev. E.* **75**, DOI: 10.1103/PhysRevE.75.031802 (2007)

X.H. Chen, M. Moskovits, "Observing catalysis through the agency of the participating electrons: Surface-chemistry-induced current changes in a tin oxide nanowire decorated with silver," *Nano Lett.* **7**(3), 807 (2007)

C. Daniel, K.E. Sohn, T.E. Mates, E.J. **Kramer**, J. O. Rädler, E. Sachmann, B. Nickel, L. Andruzzi, "Structural characterization of an elevated lipid bilayer obtained by stepwise functionalization of a self-assembled alkenyl silane film," *Biointerphases* **2**, 109 (2007)

S.J. Diamanti, R.C. Coffin, A. Hotta, V. Khanna, G.H. **Fredrickson**, E.J. **Kramer**, G.C. **Bazan**, "Pseudo-tetrablock copolymers with ethylene and a functionalized comonomer," *Chem. Commun.* **34**, 3550 (2007)

E.H.L. Falcao, F. Wudl, "Carbon allotropes: beyond graphite and diamond," *J. Chem. Technol. Biotechnol.* **82**, 524 (2007)

R.K. Feller, P.M. Forster, F. Wudl, A.K. **Cheetham**, "Two coordination polymers created via in situ ligand synthesis involving C-N and C-C bond formation," *Inorg. Chem.* **46**, 8717 (2007)

D.M. Hall, T. Lookman, G.H. **Fredrickson**, S. Banerjee, "Numerical method for hydrodynamic transport of inhomogeneous polymer melts," *J. Computational Phys.* **224**, 681 (2007)

A. Hexemer, V. Vitelli, E.J. **Kramer**, G.H. **Fredrickson**, "A Monte Carlo

study of crystalline order and defects on weakly curved surfaces,” *Phys. Rev. E* **76**, 051604 (2007)

T. Ikawa, F. Hoshino, O. Watanabe, Y. Li, P. Pincus, C.R. Safinya, “Molecular scale imaging of F-actin assemblies immobilized on a photopolymer surface,” *Phys. Rev. Lett.* **98**, 1, Art. No. 018101 (2007)

K.C. Kam, K.L.M. Young, A.K. **Cheetham**, “Chemical and structural diversity in chiral magnesium tartrates and their racemic and */meso/* analogues,” *Crystal Growth & Design* **7**, 1522 (2007)

V. Khanna, B.J. Kim, A. Hexemer, T.E. Mates, E.J. **Kramer**, X. Li, J. Wang, S.F. Hahn, “Chain architecture effects on the diffusion of cylinder forming block copolymers,” *Macromolecules* **40**, 2443 (2007)

W.B. Lee, R. Mezzenga, G.H. **Fredrickson**, “Anomalous phase sequences in lyotropic liquid crystals,” *Phys. Rev. Lett.* **99**, 187801 (2007)

J. Li, U.G. Singh, J.W. Bennett, K. Page, J. Weaver, J.-P. Zhang, Th. Proffen, A.M. Rappe, S. Scott, R. **Seshadri**, “BaCe_{1-x}Pd_xO_{3-δ} (0 ≤ x ≤ 0.1): Redox controlled ingress and egress of palladium in a perovskite,” *Chem. Mater.* **19**, 1418 (2007)

H. Liang, G. Whited, C. Nguyen, G.D. **Stucky**, “The directed cooperative assembly of proteorhodopsin into 2D and 3D polarized arrays,” *Proc. Natl Acad. Sci. USA* **104**(20), 8212 (2007)

C.A. Merrill, A.K. **Cheetham**, “Inorganic-organic framework structures; M(II) ethylenediphosphonates (M = Co, Ni, Mn) and a Mn(II) ethylenediphosphonato-phenanthroline,” *Inorg. Chem.* **46**, 278 (2007)

A. Miserez, Y. Li, J.H. **Waite**, F. Zok, “Jumbo squid beaks: Inspiration for design of robust organic composites,” *Acta Biomaterialia* **3**, 139 (2007)

A.W. Moses, C. Raab, R.C. Nelson, H.D. Leifeste, N.A. Ramsahye, S. Chattopadhyay, J. Eckert, B.F. Chmelka, S.L. Scott, “Spectroscopically distinct sites present in methyltrioxorhenium grafted onto silica-alumina, and their abilities to initiate olefin metathesis,” *J. Am. Chem. Soc.* **129**(28), 8912 (2007)

S. Nakamura, E. Pavlovic, E.J. **Kramer**, "The fracture energy of epoxy interfaces with layers of different silane coupling agents," *J. Adhesion* **83**, 351 (2007)

K.J. Oh, K.J. Cash, V. Hugenberg, K.W. Plaxco, "Peptide beacons: A new design for polypeptide-based optical biosensors," *Bioconjugate Chem.* **18**(3), 607 (2007)

T.A. Ostomel, Q. Shi, P.K. Stoimenov, G.D. **Stucky**, "Metal oxide surface charge mediated hemostasis," *Langmuir* **23**(22), 11233 (2007)

K. Page, C.S. Schade, J.-P. Zhang, P.J. Chupas, K.C. Chapman, Th. Proffen, A.K. **Cheetham**, R. **Seshadri**, "Preparation and characterization of Pd₂Sn nanoparticles," *Mater. Res. Bull.* **42**, 1969 (2007)

M.Y. Paik, S. Krishnan, F. You, X. Li, A. Hexemer, Y. Ando, S.H. Kang, D.A. Fischer, E.J. **Kramer**, C.K. Ober, "Surface organization, light driven surface changes and stability of semifluorinated azobenzene polymers," *Langmuir* **23**, 5110 (2007)

A. Peles, C.G. **Van de Walle**, "Hydrogen-related defects in sodium alanate," *J. Alloys Compd.* **446-447**, 459 (2007)

A. Peles, C.G. **Van de Walle**, "Role of charged defects and impurities in kinetics of hydrogen storage materials: A first-principles study," *Phys. Rev. B* **76**, 214101 (2007)

Y.O. Popov, J. Lee, G.H. **Fredrickson**, "Field-theoretic simulation of polyelectrolyte complexation," *J. Polym. Sci. B: Polym. Phys.* **45**, 3223 (2007) [Invited Viewpoint]

K. Prabhakaran, B. Schwenzer, S.P. DenBaars, U.K. **Mishra**, "Triangular pattern formation on silicon through self-organization of GaN nanoparticles," *Appl. Surf. Sci.* **253**, 4773 (2007)

E.D. Pressly, R. Rossin, A. Hagooley, K.-i. Fukukawa, B.W. Messmore, M.J. Welch, K.L. **Wooley**, M.S. Lamm, R.A. Hule, D.J. Pochan, C.J. **Hawker**, "Structural effects on the biodistribution and positron emission tomography (PET) imaging of well-defined ⁶⁴Cu-labeled nanoparticles comprised of amphiphilic block graft copolymers,"

Biomacromolecules **8**(10), 3126 (2007)

U. Raviv, T. Nguyen, R. Ghafouri, D.J. Needleman, Y.L Li, H.P. Miller, L. Wilson, R.F. Bruinsma, C.R. Safinya, "Microtubule protofilament number is modulated in a stepwise fashion by the charge density of an enveloping layer," *Biophys. J.* **92**, 1, 278 (2007)

U.G. Singh, J. Li, J.W. Bennett, A.M. Rappe, R. **Seshadri**, S.L. Scott, "A Pd-doped perovskite catalyst, $\text{BaCe}_{1-x}\text{Pd}_x\text{O}_3$, for CO oxidation," *J. Catal.* **249**, 349 (2007)

G.E. Stein, E.W. Cochran, K. Katsov, G.H. **Fredrickson**, E.J. **Kramer**, X. Li, J. Wang, "Symmetry breaking of in-plane order in confined copolymer mesophases," *Phys. Rev. Lett.* **98**, 158302 (2007)

G.E. Stein, E.J. **Kramer**, X. Li, J. Wang, "Layering transitions in thin films of spherical domain block copolymers," *Macromolecules* **40**, 2453 (2007)

G.E. Stein, E.J. **Kramer**, X. Li, J. Wang, "Single crystal diffraction from two-dimensional block copolymer arrays," *Phys. Rev. Lett.* **98**, 086101 (2007)

D. Stroumpoulis, H. Zhang, L. Rubalcava, J. Gliem, M. **Tirrell**, "Cell adhesion and growth to peptide-patterned supported lipid membranes," *Langmuir* **23**, 3849 (2007)

R. Tackett, G. Lawes, B.C. Melot, M. Grossman, E.S. Toberer, R. **Seshadri**, "Magnetodielectric coupling in Mn_3O_4 ," *Phys. Rev. B* **76**, 024409 (2007)

S. Thimmaiah, C. Felser, R. **Seshadri**, "Crystal structure, magnetism, and bonding of the hexagonal compounds $\text{Pd}_{1.63}\text{Mn}_{0.37}\text{Si}$ and $\text{Pd}_{1.82}\text{Mn}_{0.18}\text{Ge}$ related to the Fe_2P structure," *J. Phys. D.* **40**, 3915 (2007)

A. Thomas, M. Schierhorn, Y. Wu, G. **Stucky**, "Assembly of spherical micelles in 2D physical confinements and their replication into mesoporous silica nanorods," *J. Mater. Chem.* **17**(43), 4558 (2007)

E.S. Toberer, M. Grossman, T. Schladt, F.F. Lange, R. **Seshadri**, "Epitaxial manganese oxide thin films with connected porosity: Topotactic induction of crystallographic pore alignment," *Chem. Mater.* **19**, 4833 (2007)

M.S. Toprak, B.J. McKenna, M. Mikhaylova, J.H. **Waite**, G.D. **Stucky**, “Spontaneous assembly of magnetic microspheres,” *Adv. Mater.* **19**, 1362 (2007)

M.S. Toprak, B.J. McKenna, J.H. **Waite**, G.D. **Stucky**, ”Control of size and permeability of nanocomposite microspheres,” *Chem. Mater.* **19**(17), 4263 (2007)

F. Vines, C. Sousa, F. Illas, P. Liu, J.A. Rodriguez, “A systematic density functional study of molecular oxygen adsorption and dissociation on the (001) surface of group IV-VI transition metal carbides,” *J. Phys. Chem. C.* **111**(45), 16982 (2007)

J.L. Wu, G. Gundiah, A.K. **Cheetham**, “Structure–property correlations in Ce-doped garnet phosphors for use in solid state lighting,” *Chem. Phys. Lett.* **441**, 250 (2007)

H. Zeng, Y. Tian, Z. Boxin, M. **Tirrell**, J. **Israelachvili**, “Transient interfacial patterns and instabilities associated with liquid film adhesion and spreading,” *Langmuir* **23**, 6126 (2007)

H. Zeng, Y. Tian, Z. Boxin, M. **Tirrell**, J. **Israelachvili**, “Transient surface patterns and instabilities at adhesive junctions of viscoelastic films,” *Macromolecules* **40**(23), 8409 (2007)

H. Zeng, B. Zhao, M. **Tirrell**, L.G. **Leal**, J. **Israelachvili**, “Transient surface patterns during adhesion and coalescence of thin liquid films,” *Soft Matter* **3**, 88 (2007)

N. Zheng, G.D. **Stucky**, “Promoting gold nanocatalysts in solvent-free selective aerobic oxidation of alcohols,” *Chem. Commun.*, 3862 (2007)

PATENTS

J.H. Sherman, E.W. McFarland, M.J. Weiss, I. Lorkovic, L. Laverman, S. Sun, D.J. Schaefer, G.D. **Stucky**, P.C. Ford,
“Method and apparatus for synthesizing olefins, alcohols, ethers, and aldehydes”

U.S. Patent 7,161,050 (January 9, 2007)