

10. MRSEC-SUPPORTED PUBLICATIONS AND PATENTS
(May 1, 1999 – April 30, 2000)

Publications resulting from PRIMARY MRSEC Support

Discher, B.M., Y.-Y. Won, D.S. Ege, J.C.-M. Lee, **F.S. Bates**, D.E. Discher, D.A. Hammer, “Polymersomes: Tough Vesicles Made from Diblock Copolymers,” *Science*, **284**, 1143 (1999).

Ren, Y., **T.P. Lodge**, **M.A. Hillmyer**, “Synthesis, Characterization, and Interaction Strengths of Difluorocarbene-Modified Polystyrene-Polyisoprene Block Copolymers,” *Macromolecules*, **33**, 866 (2000).

Won, Y. -Y., H.T. Davis, **F.S. Bates**, “Giant Wormlike Rubber Micelles,” *Science*, **283**, 960 (1999).

Zeng, Y., Y.-W. Won, **F.S. Bates**, H.T. Davis, L.E. Scriven, Y. Talmon, “Directly Resolved Core-Corona Structure of Block Copolymer Micelles by Cryo-Transmission Electron Microscopy,” *J. Phys. Chem. B.*, **103**, 10331 (1999).

Morkved, T.L., B.R. Chapman, **F.S. Bates**, **T.P. Lodge**, P. Stepanek, K. Almdal, “Dynamics of Ternary Polymer Blends: Disordered, Ordered, and Bicontinuous Microemulsion Phases,” *Faraday Discuss.*, **112**, 335 (1999).

Dong, J.W., L.C. Chen, **C.J. Palmstrøm**, R.D. James, S. McKernan, “Molecular Beam Epitaxy Growth of Ferromagnetic Single Crystal (001) Ni₂MnGa on (001) GaAs,” *Appl. Phys. Lett.*, **75**, 1443 (1999).

Dong, J.W., L.C. Chen, S. McKernan, J.Q. Xie, M.T. Figus, R.D. James, **C.J. Palmstrøm**, “Formation and Characterization of Single Crystal Ni₂MnGa Thin Films,” *Proceedings Fall MRS meeting 1999* (in press).

Gredig, T., I.N. Krivorotov, C. Merton, **A.M. Goldman**, **E.D. Dahlberg**, “Rotation of Exchange Anisotropy in Biased Co/CoO Bilayers,” *Journal of Applied Physics* (in press).

Kilian, K.A., **R.H. Victora**, “Electronic Structure of Ni₂MnIn for Use in Spin Injection,” *Journal of Applied Physics* (in press).

Nikolaev, K.R., A. Bhattacharya, P.A. Kraus, V.A. Vas'ko, W.K. Cooley, **A.M. Goldman**, “Indications of Antiferromagnetic Interlayer Coupling in La_{2/3}Ba_{1/3}MnO₃/LaNiO₃ Multilayers,” *Appl. Phys. Lett.*, **75**, 118 (1999).

Nikolaev, K.R., I.N. Krivorotov, W.K. Cooley, A. Bhattacharya, **E. Dan Dahlberg**, **A.M. Goldman**, “Exchange-Biased La_{2/3}Ca_{1/3}(Sr_{1/3})MnO₃ Ultrathin Films,” *Appl. Phys. Lett.*, **76**, 478 (2000).

Holman, K.T., **M.D. Ward**, “Metric Engineering of Crystalline Inclusion Compounds by Structural Mimicry,” *Angew. Chem. Int. Ed. Engl.* (in press).

Holman, K.T., **M.D. Ward**, “Crystal Engineering with Soft and Topologically Adaptable Molecular Host Frameworks,” invited article for *Stimulating Concepts in Chemistry*, Vogtle, Stoddart, and Shibasaki, Eds., Wiley-VCH (in press).

Ward, M.D., A.M. Pivovar, “Self Assembly of Crystalline Lattices,” invited article for *Encyclopedia of Materials: Science and Technology* (in press).

Ward, M.D., A.M. Pivovar, “Organic Host-Guest Molecular Assemblies,” invited article for *Encyclopedia of Materials: Science and Technology* (in press).

Publications resulting from PARTIAL MRSEC Support

te Velthuis, S.G.E., A. Berger, G.P. Felcher, B.K. Hill, **E.Dan Dahlberg**, “Training Effects and the Microscopic Magnetic Structure of Exchange Biased Co/CoO Bilayers,” *Journal of Applied Physics* (accepted).

Holland, B.T., L. Abrams, **A. Stein**, “Dual Templating of Macroporous Silicates with Zeolitic Microporous Frameworks,” *J. Am. Chem. Soc.*, **121**, 4308 (1999).

Melde, B.J., B.T. Holland, C.F. Blanford, **A. Stein**, “Mesoporous Sieves With Unified Hybrid Inorganic/Organic Frameworks,” *Chem. Mater.*, **11**, 3302 (1999).

Yan, H., C.F. Blanford, B.T. Holland, M. Parent, W.H. Smyrl, **A. Stein**, “A General Chemical Synthesis of Periodic Macroporous NiO and Metallic Ni,” *Adv. Mater.*, **11**, 1003 (1999).

Publications resulting from the USE OF SHARED FACILITIES

Bianco-Peled, H., Y. Dori, J. Schneider, **M. Tirrell**, L-P. Sung, S. Satija, “Structural Study of Langmuir Monolayers Containing Lipidated Poly(ethylene glycol) and Peptides”, *Langmuir* (in press).

Chaffin, K.A., **F.S. Bates**, P. Brant, G.M. Brown, “Semicrystalline Blends of Polyethylene and Isotactic Polypropylene: Improving Mechanical Performance by Enhancing the Interfacial Structure,” *J. Polym. Sci., Polym. Phys.*, **38**, 108 (2000).

Evans, C.C., **F.S. Bates**, **M.D. Ward**, “Control of Hierarchical Order in Crystalline Composites of Diblock Copolymers and a Molecular Chromophore,” *Chemistry of Materials*, **12**, 236 (2000).

Dori, Y., H. Bianco-Peled, S.K. Satija, G.B. Fields, J.B. McCarthy, **M. Tirrell**, “Ligand Accessibility as Means to Control Cell Response to Bioactive Bilayer Membranes,” *J. Biomed. Mater. Res.* (in press).

Kilbey II, S.M., P. Schorr, **M. Tirrell**, “Frictional Behavior of Self-Assembled Polymer Brushes,” *Molecular Interactions and Time-Space Organization in Macromolecular Systems*, Y. Morishima, T. Norisuye and K. Tashiro, eds., Springer-Verlag, Berlin, P. 187 (1999).

Lyu, S.-P., **F.S. Bates**, **C.W. Macosko**, “Coalescence in Polymer Blends during Shearing,” *AIChE J.*, (in press).

Pakalns, T., K.L. Haverstick, G.B. Fields, J.B. McCarthy, D.L. Mooradian, **M. Tirrell**, “Cellular Recognition of Synthetic Peptide Amphiphiles in Self-Assembled Monolayer Films,” *Biomaterials*, **20**, 2265 (1999).

Ryu, C.Y., **T.P. Lodge**, “Thermodynamic Stability and Anisotropic Fluctuations in the Cylinder-to-Sphere Transition of a Block Copolymer,” *Macromolecules*, **32**, 7190 (1999).

Schulze, J.S., J.J. Cernohous, A. Hirao, **T.P. Lodge**, **C.W. Macosko**, “Reaction Kinetics of End-Functionalized Chains at a Polystyrene/Poly(methyl methacrylate) Interface,” *Macromolecules* (in press).

Yu, Y.-C., V. Roontga, V.A. Daragan, K.H. Mayo, **M. Tirrell**, G.B. Fields, “Structure and Dynamics of Peptide—Amphiphiles Incorporating Triple-Helical Proteinlike Molecular Architecture,” *Biochemistry*, **38**, 1659 (1999).

Shefelbine, T.A., M.E. Vigild, M.W. Matsen, D.A. Hajduk, **M.A. Hillmyer**, E.L. Cussler, **F.S. Bates**, “Core-Shell Gyroid Morphology in a Poly(isoprene-block-styrene-block-dimethylsiloxane) Triblock Copolymer,” *J. Am. Chem. Soc.*, **121**, 8457 (1999).

Hillmyer, **M.A.**, W.W. Maurer, **T.P. Lodge**, **F.S. Bates**, K. Almdal, “Model Bicontinuous Microemulsions in Ternary Homopolymer/Block Copolymer Blends,” *J. Phys. Chem. B.*, **103**, 4814 (1999).

Melosh, N.A., P. Lipic, **F.S. Bates**, F. Wudl, G.D. Stucky, G.H. Fredrickson, B.F. Chmelka, “Molecular and Mesoscopic Structures of Transparent Block Copolymer-Silica Monoliths,” *Macromolecules*, **32**, 4332, (1999).

MRSEC-Supported Patents

Discher, D., B. Discher, Y.Y. Won, D. Ege, **F. Bates**, D. Hammer, “Polymersomes and Related Encapsulating Membranes” (filed 12/14/99).