

Selected Publications through 2008

William B. Russel

2008
"Generalized Hertzian Model for the Deformation and Cracking of Colloidal Packings Saturated with Liquid." <i>Langmuir</i> , 24 , 1721-1730, 2008 [with N Wu and W Man].
2007
"Self-Formation of Sub-60-nm Half-Pitch Gratings with Large Areas Through Fracturing." <i>Nature Nanotechnology</i> , 2 , 545-548, 2007 [with LF Pease III, P Deshpande, Y Wang, and SY Chou].
"Nematic and Almost-Tetratic Phases of Colloidal Rectangles." <i>Physical Review E</i> , 76 , 040401, 2007 [with K Zhao, C Harrison, D Huse, and PM Chaikin].
2006
"Telechelic Associative Polymers: Interaction Potential and High Frequency Modulus." <i>J. Rheol.</i> , 50 , 169-187, 2006 [with X.X. Meng].
"Rheology of Telechelic Associative Polymers in Aqueous Solutions." <i>J. Rheol.</i> , 50 , 189-205, 2006 [with X.X. Meng].
"An Electric Bottle for Colloids." <i>Phys. Rev. Lett.</i> , 96 , 015703, 2006 [with M.T. Sullivan, K. Zhao, A.D. Hollingsworth, R.H. Austin, and P.M. Chaikin].
"Electrohydrodynamic Instability of Dielectric Bilayers: Kinetics and Thermodynamics." <i>Ind. Eng. Chem. Res.</i> , 45 , 5455-5465, 2006 [with N. Wu].
"Charge Driven, Electrohydrodynamic Patterning of Thin Films." <i>J. Chem. Phys.</i> , 125 , 184716, 2006 [with L.F. Pease III].
"Toward Large-Scale Alignment of Electrohydrodynamic Patterning of Thin Polymer Films." <i>Adv. Funct. Mat.</i> , 16 , 1992-1999, 2006 [with N. Wu and L.F. Pease III].
2005
"Structure and Size of Spherical Micelles of Telechelic Polymers." <i>Macromolecules</i> , 38 , 593-600, 2005 [with X.X. Meng].
"Cracking in Drying Latex Films." <i>Langmuir</i> , 21 , 4938-4948, 2005 [with M.S. Tirumkudulu].
"Experiments on Random Packings of Ellipsoids." <i>Phys. Rev. Lett.</i> , 94 , 198001, 2005 [with W.N. Man, A. Donev, F.H. Stillinger, M.T. Sullivan, D. Heeger, S. Inati, S. Torquato, and P.M. Chaikin].

<p>"Reversible Self-Assembly and Directed Assembly of DNA-linked Micrometer-Sized Colloids." <i>Proc. Nat. Acad. Sci. US</i>, 102, 4225-4229, 2005 [with M.P. Valignat, O. Theodoly, J.C. Crocker, and P.M. Chaikin].</p>
<p>"Dynamics of the Formation of Polymeric Microstructures Induced by Electrohydrodynamic Instability." <i>Appl. Phys. Lett.</i>, 86, 241912, 2005 [with N. Wu].</p>
<p>"Electric-Field-Induced Patterns in Thin Polymer Films: Weakly Nonlinear and Fully Nonlinear Evolution." <i>Langmuir</i>, 21, 12290-12302, 2005 [with N. Wu and L.F. Pease III].</p>
<p>"Effect of Hydrophobically Modified Polymers on Shear-Induced Multilamellar Vesicles." <i>Langmuir</i>, 21, 10038-10045, 2005 [with B.-S. Yang and R.K. Prud'homme].</p>
<p>2004</p>
<p>"Limitations on Length Scales for Electrostatically Induced Submicrometer Pillars and Holes." <i>Langmuir</i>, 20, 795-804, 2004 [with L.F. Pease III].</p>
<p>"Cylindrically Symmetric Electrohydrodynamic Patterning." <i>Phys. Rev. E</i>, 70, 041601, 2004 [with P. Deshpande, L.F. Pease III, L. Chen, and S.Y. Chou].</p>
<p>"Role of Capillary Stresses in Film Formation." <i>Langmuir</i>, 20, 2947-2961, 2004 [with M.S. Tirumkudulu].</p>
<p>2003</p>
<p>"Electrostatically Induced Submicron Patterning of Thin Perfect and Leaky Dielectric Films: A Generalized Linear Stability Analysis." <i>J. Chem. Phys.</i>, 118, 3790-3803, 2003 [with L.F. Pease III].</p>
<p>"Electrophoresis of Spherical Polymer-Coated Colloidal Particles." <i>J. Colloid Inter. Sci.</i>, 258, 56-74, 2003 [with R.J. Hill and D.A. Saville].</p>
<p>"High-Frequency Dielectric Relaxation of Spherical Colloidal Particles." <i>Phys. Chem. Chem. Phys.</i>, 5, 911-915, 2003 [with R.J. Hill and D.A. Saville].</p>
<p>"Polarizability and Complex Conductivity of Dilute Suspensions of Spherical Colloidal Particles with uncharged (Neutral) Polymer Coatings." <i>J. Coll. Inter. Sci.</i>, 268, 230-245, 2003 [with R.J. Hill and D.A. Saville].</p>
<p>"Polarizability and Complex Conductivity of Dilute Suspensions of Spherical Colloidal Particles with Charged (polyelectrolyte) Coatings." <i>J. Coll. Inter. Sci.</i>, 263, 478-497, 2003 [with R.J. Hill and D.A. Saville].</p>
<p>"On the Measurement of "Tack" for Adhesives." <i>Phys. Fluids</i>, 15, 1588-1605, 2003 [with M. Tirumkudulu and T.J. Huang].</p>
<p>"Measuring the "Tack" of Waterborne Adhesives." <i>J. Rheol.</i>, 47, 1399-1415, 2003 [with M. Tirumkudulu and T.J. Huang].</p>
<p>"Telechelic Associative Polymers: Interactions between Strongly Stretched Planar Adsorbed Layers." <i>Macromolecules</i>, 36, 10112-10119, 2003 [with X.X. Meng].</p>
<p>"Control of Colloids with Gravity, Temperature Gradients, and Electric Fields." <i>J. Phys.: Condens. Matter</i>, 15, S11-S18, 2003 [with M. Sullivan, K. Zhao, C. Harrison, R.H. Austin, M. Megens, A. Hollingsworth, Z. Cheng, T. Mason, and P.M. Chaikin].</p>

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"Phonons in Colloidal Crystals." *Europhys. Lett.*, **58**, 699-704, 2002 [with R.S. Penciu, M. Kafesaki, G. Fytas, E.N. Economou, W. Steffen, and A. Hollingsworth].

"Linear Stability Analysis of Thin Leaky Dielectric Films Subjected to Electric Fields." *J. Non-Newtonian Fluid Mech.*, **102**, 233-250, 2002 [with L.F. Pease III].

"Crystallization Kinetics of Hard Spheres in Microgravity in the Coexistence Regime: Interactions between Growing Crystallites." *Phys. Rev. Lett.*, **88**, 015501, 2002 [with Z. Cheng, P.M. Chaikin, J. Zhu, and W.V. Meyer].

"Nature of the Divergence in Low Shear Viscosity of Colloidal Hard-Sphere Dispersions." *Phys. Rev. E*, **65**, 041405, 2002 [with Z. Cheng, J. Zhu, P.M. Chaikin, and S.-E. Phan].

"Viscoelastic Properties of Entangled Star Polymer Melts: Comparison of Theory and Experiment." *Macromolecules*, **35**, 169-177, 2002 [with D.A. Vega, J.M. Sebastian, and R.A. Register].

"Phase Behavior of Styrene-Isoprene Diblock Copolymers in Strongly Selective Solvents." *Macromolecules*, **35**, 841-849, 2002 [with C. Lai and R.A. Register].

"Neutron Spin-Echo Study of Dynamics of Hydrophobically Modified Polymer-Doped Surfactant Bilayers." *Langmuir*, **18**, 6-13, 2002 [with B.-S. Yang, J. Lal, M. Mihailescu, M. Monkenbusch, D. Richter, J.S. Huang, J. Kohn, and R.K. Prud'homme].

"Scaling of Domain Spacing in Concentrated Solutions of Block Copolymers in Selective Solvents." *Macromolecules*, **35**, 4044-4049, 2002 [with C. Lai and R.A. Register].

"Creating Periodic Three-Dimensional Structures by Multibeam Interference of Visible Laser", *Chem. of Mater.*, **14**, 2831-2833, (2002) [with S. Yang, M. Megens, J. Aizenberg, P. Wiltzius, and P.M. Chaikin].

"Dynamics of Hydrophobically Modified Polymer Doped Surfactant Bilayers: A Neutron Spin Echo Study." In *Neutron Spin Echo Spectroscopy, Basics. Trends and Applications*, F. Mezei, C. Pappas and T. Gutberlet, eds., Springer-Verlag (Berlin Heidelberg), p. 312, 2002 [with B.-S. Yang, J. Lal, M. Mihailescu, M. Monkenbusch, D. Richter, J.S. Huang, and R.K. Prud'homme].

"Bill Schowalter." *Ind. Eng. Chem. Res.*, **41**, 6215, 2002 [with P.G. Debenedetti and D.A. Saville].

2001

"Process Model for Latex Film Formation: Optical Clarity Fronts." *J. Coatings Tech.*, **73**, 41-48, 2001 [with A.F. Routh, J. Tang, and M.S. El-Aasser].

"Deformation Mechanisms During Latex Film Formation: Experimental Evidence." *Ind. Eng. Chem. Res.*, **40**, 4302-4308, 2001 [with A.F. Routh].

"Interaction of Hydrophobically Modified Polymers and Surfactant Lamellar Phase." *Langmuir*, **17**, 5834-5841, 2001 [with B.-S. Yang, J. Lal, P. Richetti, C.M. Marques, and R.K. Prud'homme].

<p>"Phase Diagram of Hard Spheres." <i>Mater. Design.</i>, 22, 529-534, 2001 [with Z. Cheng, P.M. Chaikin, W.V. Meyer, J. Zhu, R.B. Rogers, and R.H. Ottewill].</p>
<p>"Colloidal Hard-Sphere Crystallization Kinetics in Microgravity and Normal Gravity." <i>Appl. Optics</i>, 40, 4146-4151, 2001 [with Z. Cheng, J. Zhu, W.V. Meyer, and P.M. Chaikin].</p>
<p>"Interaction of Surfactant Lamellar Phase and a Strictly Alternating Comb-Graft Amphiphilic Polymer Based on PEG." <i>Langmuir</i>, 17, 6692-6698, 2001 [with B.-S. Yang, J. Lal, J. Kohn, J.S. Huang, and R.K. Prud'homme].</p>
<p>2000</p>
<p>"Microscopic Theories of the Rheology of Stable Colloidal Dispersions." <i>Advances in Chemical Physics</i>, I. Prigogine and S.A. Rice, (Eds.), 111, 399-474, 2000 [with R.A. Lionberger].</p>
<p>"Distinguishing between Dynamic Yielding and Wall Slip in a Weakly Flocculated Colloidal Dispersion." <i>Coll. Surf. A</i>, 161, 271-282, 2000 [with M.C. Grant].</p>
<p>"Dispersions Containing PEO with C₁₆ Hydrophobes: Adsorption and Rheology." <i>Associative Polymers in Aqueous Media. (ACS Symp. Ser. 765)</i>, J.E. Glass, (Ed.), New York: Oxford Univ. Press, p. 221-238, 2000 [with Q.T. Pham, J.C. Thibeault, and W. Lau].</p>
<p>"Phase Behavior of Styrene-Isoprene Diblock Derivatives with Varying Conformational Asymmetry." <i>Macromolecules</i>, 33, 3461-3466, 2000 [with C. Lai, R.A. Register, G.R. Marchand, and D.H. Adamson].</p>
<p>"Phonons in an Entropic Crystal." <i>Phys. Rev. Lett.</i>, 85, 1460-1463, 2000 [with Z. Cheng, J. Zhu, and P.M. Chaikin].</p>
<p>"End-Capped Associative Polymer Chains between Nanospheres: Attractions in Ideal Solutions." <i>Macromolecules</i>, 33, 5713-5120, 2000 [with S.R. Bhatia].</p>
<p>"Dynamics of Hydrophobically Modified Polymer Doped Surfactant Bilayers: A Neutron Spin-Echo Study." <i>Lecture Notes in Physics</i>, T. Gutberlet, (Ed.), Springer Pub., Berlin, 2000 [with B.-S. Yang, J. Lal, M. Mihailescu, M. Monkenbusch, D. Richter, J.J. Huang, and R.K. Prud'homme].</p>
<p>Earlier Books</p>
<p><i>The Dynamics of Colloidal Systems</i>, The University of Wisconsin Press, 119 pp., 1987</p>
<p><i>Colloidal Dispersions</i>, Cambridge University Press, 1989 (paperback version, 1992) [with D.A. Saville and W.R. Schowalter].</p>