

Erik B. Watkins, PhD

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PROFILE

- Research program applying mesoscale neutron and x-ray techniques: surface scattering (NR/XRR/GIXD), small angle scattering (SANS/SAXS), and cold neutron imaging
- Expertise in structural investigations of matter in extremes, biomaterials and soft matter
- Technical skills in scattering instrumentation and data analysis software development

POSITIONS

Senior scientist: 2022-present

SNS, Oak Ridge National Laboratory: Oak Ridge, TN

- Instrument scientist for the Liquids Reflectometer

Scientist 3: 2018-2022, **Scientist 2:** 2014-2018

MPA-11, Los Alamos National Laboratory: Los Alamos, NM

- Application of x-ray and neutron scattering to mission relevant science
- Static and dynamic investigations of materials in extreme environments
- Instrument scientist for cold neutron imaging and reflectometry on Asterix

Instrument Scientist (Neutron Reflectometry): 2011-2014

Institut Laue-Langevin: Grenoble, France

- Establishment of soft matter research program investigating toxin-membrane interactions, membrane proteins, and lipopolymer membrane cushions
- Co-supervision of two PhD students with theses involving neutron reflectivity
- Developed grazing incidence small angle neutron scattering (GISANS) and liquid-liquid interface neutron reflectivity on FIGARO

Assistant Instrument Scientist (Neutron Reflectometry): 2002-2006

Los Alamos National Laboratory: Los Alamos, NM

- Operated the neutron time-of-flight reflectometer SPEAR
- Analyzed and modeled neutron and x-ray reflectivity data of thin films and interfaces
- Designed and implemented instrument upgrades and improved sample environments

EDUCATION

University of California Davis: PhD Biophysics 2011

- Thesis adviser: Tonya L. Kuhl GPA: 3.93
- Research on model membranes, polymeric bilayer cushions, and lipid-protein interactions using interfacial x-ray and neutron scattering techniques

Hampshire College: Amherst, MA B.A. Physics 2001

PROFESSIONAL ACTIVITIES

ORNL Neutron Reflectometry Instrument Suite Review Committee Member, 2021
CHESS User Executive Committee: Member 2018-2020, Chair 2020-2021
ORNL Neutron Scientific Review Reflectometry Sub-Committee Chair, 2017-2020
ORNL Neutron Scattering Scientific Review Committee Member, 2014-2016
Lecturer at 11th European Summer School on Scattering Methods, 2012
NIST User Group Executive Committee Member, 2009-2012
Spallation Neutron Source, ORNL Visiting Scientist, 2010
Lindau Nobel Laureate Meeting Attendee, 2009
LANSCE User Group Executive Committee Member, 2008

HONORS AND AWARDS

Defense Programs Award of Excellence, LANL 2016
Graduate Student Researcher Award, UC Davis 2010
Defense Programs Award of Excellence, LANL 2004
Lemelson Fellow, Hampshire College 1998

HIGHLIGHTED PUBLICATIONS (>80 articles, *h*-index=26, >2000 citations)

Shiga toxin induces lipid compression: a mechanism for generating membrane curvature. E.B. Watkins, J. Majewski, E.Y. Chi, H. Hao, J.C. Florent, L. Johannes. *Nano Letters*, 19, 7365-7369 (2019)
<https://doi.org/10.1002/ange.201603395> 17 citations

Coupling neutron reflectivity with cell-free protein synthesis to probe membrane protein structure in supported bilayers. T. Soranzo, D.K. Martin, J.L. Lenormand, E.B. Watkins. *Scientific Reports*, 7, 3339 (2017)
<https://doi.org/10.1038/s41598-017-03472-8> 17 citations

Solvent extraction: structure of the liquid-liquid interface containing a diamide ligand. E. Scoppola, E.B. Watkins, R.A. Campbell, O. Konovalov, L. Girard, J. Dufreche, G. Ferru, G. Fragneto, O. Diat. *Angewandte Chemie*. 55, 9326-9330 (2016)
<https://doi.org/10.1002/ange.201603395> 53 citations

Equilibrium or quenched: fundamental differences between lipid monolayers, supported bilayers, and membranes. E.B. Watkins, C.E. Miller, W. Liao, T.L. Kuhl. *ACS Nano*, 8, 4, 3181-3191, (2014).
<https://doi.org/10.1021/nn4052953> 26 citations

Membrane texture induced by specific protein binding and receptor clustering: active roles for lipids in cellular function. E.B. Watkins, C.E. Miller, J. Majewski, T.L. Kuhl. *PNAS*, 108, 17, 6975-6980, (2011)
<https://doi.org/10.1073/pnas.1014579108> 73 citations

Reduced water density at hydrophobic surfaces: effect of dissolved gases. D.A. Doshi, E.B. Watkins, J.N. Israelachvili, J. Majewski *PNAS*, 102, 9458-9462, (2005)
<https://doi.org/10.1073/pnas.0504034102> 297 citations

FULL PUBLICATION LIST

JOURNAL ARTICLES

82. Cinematic reflectometry using QIKR, the quite intense kinetics reflectometer. J.F. Ankner, R. Ashkar, J.F. Browning, M. Doucet, C.E. Halbert, F. Islam, A. Karim, E. Kharlempieva, S.M. Kilbey, J.Y.Y. Lin, M.D. Phan, G.S. Smith, S.A. Sukhishvili, R. Thermer, G.M. Veith, E.B. Watkins, D. Wilson. *Review of Scientific Instruments*, 94 (1), 013302, (2022)
81. A coupled small and wide-angle x-ray scattering study of phase transformation mechanisms in U-6wt pct Nb. N.E. Peterson, J. Zhang, D.W. Brown, B. Clausen, T. Carver, E. Watkins, J-S. Park, P. Kenesei, E. Garlea, S.R. Agnew. *Metallurgical and Materials Transactions A*, 54, 707-726, (2022)
80. Structure of Galectin-3 bound to a model membrane containing ganglioside GM1. C. M. Vander Zanden, J. Majewski, Y. Weissbarth, D.F. Browne, E.B. Watkins, H-J Gabius. *Biophysical Journal*, <https://doi.org/10.1016/j.bpj.2022.08.018> (2022)
79. Hydriding of titanium: Recent trends and perspectives in advanced characterization and multiscale modeling. Y. Zhu et al. *Current Opinion in Solid State Materials Science*, 26 (6), 101020, (2022)
- 78. Binding of cholera toxin B-subunit to a ganglioside GM1 functionalized PEG-tethered membrane. E.B. Watkins, A.J.C. Dennison, J. Majewski. *Langmuir*, 38 (22), 6959-6966, (2022)**
- 77. Time-resolved phase and compositional homogenization of segregated uranium-niobium alloys above the monotectoid temperature. J. Zhang, E.B. Watkins, D.W. Brown, B. Clausen, P. Kenesei, J-S. Park. *Journal of Nuclear Materials*, 564, 153673, (2022)**
76. Probing oil recovery in shale nanopores with small-angle and ultra-small-angle neutron scattering. C.W. Neil, R.P. Hjelm, M.E. Hawley, E.B. Watkins, C. Cockreham, D. Wu, Y. Mao, M. Cheshire, J. Burger, T.B. Fisher, M.R. Stokes, H. Xu. *International Journal of Coal Geology*, 253, 103950 (2022)
- 75. Diamond and methane formation from the chemical decomposition of polyethylene at high pressures and temperatures. E.B. Watkins, R.C. Huber, C.M. Childs, A. Salamat, J.S. Pigott, P. Chow, Y. Xiao, J.D. Coe. *Scientific Reports*, 12 (1), 1-8 (2022)**
74. In situ x-ray diffraction of high density polyethylene during dynamic drive: polymer chain compression and decomposition. R.C. Huber, E.B. Watkins, D.M. Dattelbaum, B.D. Bartram, L.L. Gibson, R.L. Gustavsen. *Journal of Applied Physics*, 130 (17), 175901, (2021)
73. Growth and characterization of uranium oxide thin films deposited by polymer assisted deposition. I. Kruk, B.L. Scott, E.B. Watkins, L.E. Wolfsberg. *Thin Solid Films*, 735, 138874, (2021)
72. Carbon clusters formed from shocked benzene. D.M. Dattelbaum, E.B. Watkins, M.A. Firestone, R.C. Huber, R.L. Gustavsen, B.S. Ringstrand, J.D. Coe, D. Podlesak, A.E. Gleason, H.J. Lee, E. Galtier, R.L. Sandberg. *Nature Communications*, 12 (1), 1-9, (2021)
71. Ultracold neutron properties of the Eljen-299-02D deuterated scintillator. Z. Tang, E.B. Watkins, S.M. Clayton, S.A. Currie, D.E. Fellers, Md. T. Hassan, D.E. Hooks, T.M. Ito, S.K. Lawrence, S.W.T. MacDonald, M. Makela, C.L. Morris, L.P. Neukirch, A. Saunders, C.M. O'Shaughnessy, C. Cude-Woods, J.H. Choi, A.R. Young, B.A. Zeck, F. Gonzalez, C.Y. Liu, N.C. Floyd, K.P. Hickeron, A.T. Holley, B.A. Johnson, J.C. Lambert, R.W. Pattie. *Review of Scientific Instruments*, 92, 023305, (2021)
70. The lattice parameter-composition relationship of the body centered cubic uranium-niobium alloys. J. Zhang, R.E. Hackenberg, E.B. Watkins, S.C. Vogel, D.W. Brown. *Journal of Nuclear Materials*, 542, 152493, (2020)

69. Reduced methane recovery at high pressure due to methane trapping in shale nanopores. C.W. Neil, M. Mehana, R.P. Hjelm, M.E. Hawley, E.B. Watkins, Y. Mao, H. Viswanathan, Q. Kang, H. Xu. *Communications Earth and Environment*, 1 (1), 1-10, (2020)
68. Structural properties, thicknesses, and qualities of plutonium oxide thin films prepared by polymer assisted deposition. M.P. Wilkerson, J.M. Dorhout, K.S. Graham, J.J. Joyce, I.I. Kruk, J. Majewski, D.T. Olive, A.L. Pugmire, B.L. Scott, J.T. Stritzinger, G.L. Wagner, E.B. Watkins, L.E. Wolfsberg. *Surface Science*, 701, 121696, (2020)
67. Neutron dark-field imaging applied to porosity and deformation-induced phase transitions in additively manufactured steels. M. Bacak, J. Capek, E. Polatidis, A. Kasestner, A. Arabi-Hashemi, I. Kruk, C. Leinenbach, A.M. Long, A. Tremsin, S.C. Vogel, E.B. Watkins, M. Strobl. *Materials and Design*, 195, 109009, (2020)
- 66. Oxide structure of air-passivated U-6Nb alloy thin films. E.B. Watkins, I. Kruk, J. Majewski, D.D. Allred. *Journal of Nuclear Materials*, 539, 152356, (2020)**
65. Small-angle neutron scattering (SANS) characterization of clay and carbonate rich shale at elevated pressures. C.W. Neil, R.P. Hjelm, M.E. Hawley, E.B. Watkins, C. Cockreham, D. Wu, Y. Mao, T.B. Fischer, M.R. Stokes, H. Xu. *Energy and Fuels*, 34 (7), 8178-8185, (2020)
64. Unusually high concentration of alkyl ammonium hydroxide in the cation-hydroxide-water coadsorbed layer on Pt. J.H. Dumont, A.J. Spears, R.P. Hjelm, M. Hawley, S. Maurya, D. Li, G. Yuan, E.B. Watkins, Y.S. Kim, *ACS Applied Materials and Interfaces*, 12 (1), 1825-1832, (2019)
- 63. Shiga toxin induces lipid compression: a mechanism for generating membrane curvature. E.B. Watkins, J. Majewski, E.Y. Chi, H. Gao, J-C Florent, L. Johannes. *Nanoletters*, 19 (10), 7365-7369, (2020)**
62. Fibrillar and non-fibrillar beta structures drive two modes of membrane-mediated toxicity. C.M. Vander Zanden, L. Wampler, I. Bowers, E.B. Watkins, J. Majewski, E.Y. Chi. *Langmuir*, 35 (48), 16024-16036, (2019)
61. Detonation synthesis of carbon nano-onions via liquid carbon condensation. M. Bagge-Hansen, S. Bastea, J.A. Hammons, M.H. Nielsen, L.M. Lauderbach, R.L. Hodgins, P. Pagoria, C. May, S. Aloni, A. Jones, W.L. Shaw, E.V. Bukovsky, N. Sinclari, R.L. Gustavsen, E.B. Watkins, B.J. Jensen, D.M. Dattelbaum, M.A. Firestone, R.C. Huber, B.S. Ringstrand, J.R. Lee, T. Van Buuren, L.E. Fried, T.M. Willey. *Nature Communications*, 10 (1), 1-8, (2019)
60. Effect of electrochemical control function on the internal structure and composition of electrodeposited polypyrrole films: a neutron reflectometry study. C. Beebee, E.B. Watkins, R.M. Sapstead, V.C. Ferreira, K.S. Ryder, E.L. Smith, A.R. Hillman. *Electrochimica Acta*, 295, 978-988, (2019)
59. Neutron reflectivity measurements at the oil-water interface for the study of stimuli-responsive emulsions. M. Protat, N. Bodin-Thomazo, F. Malloggi, J. Daillant, R.A. Campbell, G. Fragneto, E.B. Watkins, P. Perrin, N. Pantoustier, P. Guenon. *European Physical Journal E*, 41 (7), (2018)
58. Single-bunch imaging of detonation fronts using scattered synchrotron radiation. M.H. Nielsen, J.A. Hammons, M. Bagge-Hansen, L.M. Lauderbach, R.L. Hodgins, K.M. Champley, W.L. Shaw, N. Sinclair, J.A. Klug, Y. Li, A. Schuman, A.W. van Buuren, E.B. Watkins, R.L. Gustavsen, R.C. Huber, T.M. Willey. *Journal of Applied Physics*, 123 (22), (2018)
57. Neutron imaging at LANSCE – from cold to ultrafast. R.O. Nelson, S.C. Vogel, J.F. Hunter, E.B. Watkins, A.S. Losko et al. *Journal of Imaging*, 4 (45), (2018)

- 56. Enhanced ordering in monolayers containing glycosphingolipids: impact of carbohydrate structure.** E.B. Watkins, S.L. Frey, E.Y. Chi, K.D. Cao, T. Pacuszka, J. Makewski, K.Y.C. Lee. *Biophysical Journal*, 114 (3), 1103-1115, (2018)
55. The thermal and microstructural effect of plasticizing HMX-nitrocellulose composites. J.D. Yeager, E.B. Watkins, A.L. Higginbotham Duque, J. Majewski. *Journal of Energetic Materials*, (2018)
- 54. Evolution of carbon clusters in the detonation products of the triamino-trinitro-benzene (TATB) based explosive PBX 9502.** E.B. Watkins, K.A. Velizhanin, D.M. Dattelbaum, R.L. Gustavsen, T.D. Aslam, D.W. Podlesak, R.C. Huber, M.A. Firestone, B.S. Ringstrand, T.M. Willey, M. Bagge-Hansen, R. Hodgkin, L. Lauderbach, T. van Buuren, N. Sinclair, P.A. Rigg, S. Seifert, T. Gog. *Journal of Physical Chemistry C*, 121, 41, 23129-23140 (2017)
53. Functional characterization of cell-free expressed OprF porin from *Pseudomonas aeruginosa* stably incorporated in tethered lipid bilayers. M. Maccarini, L. Gayet, J.P. Alcaraz, L. Liguori, B. Stidder, E.B. Watkins, J.L. Lenormand, D.K. Martin. *Langmuir*, 33(38), 9988-9996, (2017)
52. Reaction of amorphous/crystalline SiOC/Fe interfaces by thermal annealing. Q. Su, M. Zhernenkov, H. Ding, L. Price, D. Haskel, E.B. Watkins, J. Makewski, L. Shao, M.J. Demkowicz, M. Nastasi. *Acta Materialia*, 135, 61-67 (2017)
51. Structural variations in hybrid all-nanoparticle Gibbsite nanoplatelet/cellulose nanocrystal multilayered films. C. Martin, R. Barker, E.B. Watkins, F. Dubreuil, E.D. Cranston, L. Heux, J. Bruno. *Langmuir*, 33(32), 7896-7907, (2017)
- 50. Coupling neutron reflectivity with cell-free protein synthesis to probe membrane protein structure in supported bilayers.** T. Soranzo, D.K. Martin, J.L. Lenormand, E.B. Watkins. *Scientific Reports*, 7, 3339 (2017)
49. Time resolved small angle x-ray scattering experiments performed on detonating explosives at the Advanced Photon Source: calculation of the time and distance between the detonation front and the x-ray beam. R.L. Gustavsen, D.M. Dattelbaum, E.B. Watkins, M.A. Firestone, D.W. Podlesak, B.J. Jensen, B.S. Ringstrand, R.C. Huber, J.T. Mang, C.E. Johnson, K.A. Velizhanin, T.M. Willey, D.W. Hansen, C.M. May, R.L. Hodgkin, M. Bagge-Hansen, A.W. van Buuren, L.M. Lauderbach, A.C. Jones, T.J. Graber, N. Sinclair, S. Seifert, T. Gog. *Journal of Applied Physics*, 121, 10, (2017)
48. Protein-containing lipid bilayers intercalated with size-matched mesoporous silica thin films. S. Isaksson, E.B. Watkins, K.L. Browning, T.K. Lind, M. Cardenas, K. Hedflak, F. Hook, M. Andersson. *Nano Letters*, 17, 476-485 (2017)
47. Evaluation of commercial nickel-phosphorous coating for ultracold neutron guides using a pinhole bottling method. RW Pattie Jr, E Adamek, T Brenner, A Brandt, LJ Broussard, NB Callahan, SM Clayton, C Cude-Woods, SA Currie, P Geltonbort, T Ito, T Lauer, CY Liu, J Majewski, M Makela, Y Masuda, CL Morris, JC Ramsey, D Salvat, A Saunders, J Schroffenegger, Z Tang, W Wei, Z Wang, E Watkins, AR Young, BA Zeck. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 872, 64-73, (2017)
46. Nanostructural determination of a lipid bilayer tethered to a gold substrate. M. Maccarini, E.B. Watkins, B. Stidder, J.P. Alcaraz, B.A. Cornell, D.K. Martin. *European Physical Journal E*, 39, 12, (2016)
- 45. Neutron reflectometry investigations of interfacial structures of Ti/TiN layers deposited by magnetron sputtering.** E.B. Watkins, J. Majewski, J.K. Baldwin, Y. Chen, N. Li, R.G. Hoagland, S.K. Yadav, X.Y. Liu, I.J. Beyerlein, N.A. Mara. *Thin Solid Films*. (2016)

44. Solvent extraction: structure of the liquid-liquid interface containing a diamide ligand. E. Scoppola, E.B. Watkins, R.A. Campbell, O. Konovalov, L. Girard, J. Dufreche, G. Ferru, G. Fragneto, O. Diat. *Angewandte Chemie*, 55, 9326-9330 (2016)
43. Influence of the human and rat islet amyloid polypeptides on structure of phospholipid bilayers: neutron reflectometry and fluorescence microscopy studies. A. Junghans, E.B. Watkins, J. Majewski, A. Miranker, I. Stroe. *Langmuir*, (2016)
42. Neutron Study of POPE Spray Coating on Titanium Implants. M. Golub, D. Lott, V.M. Garamus, D. Laipple, M. Stoermer, E.B. Watkins, A. Schreyer, R. Willumeit-Romer, *Biointerphases*, 11(1), 011002 (2016)
41. In situ rheo-GISANS of triblock copolymers: gelation and shear effects on quasi-crystalline structures at interfaces. G.E. Newby, E.B. Watkins, D.H. Merino, P.A. Staniec, O. Bikonda. *RSC Advances*, 5, 10414-104171 (2015)
40. Water signatures and their thermal stability in bedded salt for nuclear waste storage: an incoherent inelastic neutron spectroscopy study. M. Ding, E. Watkins, M. Hartl, L. Daemen. *Environmental Science and Technology Letters*, 2 (11), 308-313 (2015)
39. Structure of liquid/liquid interface during solvent extraction combining X-ray and neutron reflectivity. E Scoppola, E. Watkins, G. Li Destri, L. Porcar, R.A. Campbell, O. Konovalov, G. Fragneto, O. Diat. *Physical Chemistry Chemical Physics*, 17, 15093-15097 (2015)
38. The adsorption of fluorinated dopants at the surface of 5CB: a neutron reflection study. L.L.E. Mears, W.M. de Vos, S.W. Prescott, G. Magro, S. Rogers, M.W.A. Skoda, E.B. Watkins, H. Zimmerman, R.M. Richardson. *Liquid Crystals*, 42(5-6), 900-908 (2015)
37. Analysis of biosurfaces by neutron reflectometry: from simple to complex interfaces. A. Junghans, E.B. Watkins, R.D. Barker, S. Singh, M.J. Waltman, H.L. Smith, L. Pocivavsek, J. Majewski. *Biointerphases*, 10(1), 019014 (2015)
36. Effect of fluid shear stress on polyelectrolyte multilayers by neutron scattering studies. S. Singh, A. Junghans, E.B. Watkins, Y. Kapoor, R. Toomey, J. Majewski. *Langmuir*, 31(9), 2870-2878, (2015)
35. Structure and stability of phospholipid bilayers hydrated by a room temperature ionic liquid / water solution: a neutron reflectometry study. A. Benedetto, F. Heinrich, M.A. Gonzalez, G. Fragneto, E.B. Watkins, P. Ballone. *Journal of Physical Chemistry B*, 118(42), 12192-122206, (2014)
34. Interactions of small dendrimers with sodium dodecyl sulfate at the air-water interface. M. Yanez Areta, R.A. Campbell, E.B. Watkins, M. Obiols-Rabasa, K. Schillen, T. Nylander. *Journal of Physical Chemistry B*. 118(40), 11835-11848, (2014)
- 33. Carbohydrate conformation and lipid condensation in monolayers containing glycosphingolipid Gb3: influence of acyl chain structure. E.B. Watkins, H. Gao, A.J.C. Dennison, N. Chopin, B. Struth, T. Arnold, J. Florent, L. Johannes. *Biophysical Journal*. 107, 1146-1155, (2014).**
- 32. Characterization of a Fe/Y2O3 metal/oxide interface using neutron and x-ray scattering. E.B. Watkins, A. Kashinath, P. Wang, J.K. Baldwin, J. Majewski, M.J. Demkowicz. *Applied Physics Letters*, 105, 041601 (2014)**
- 31. Equilibrium or quenched: fundamental differences between lipid monolayers, supported bilayers, and membranes. E.B. Watkins, C.E. Miller, W. Liao, T.L. Kuhl. *ACS Nano*, 8, 4, 3181-3191, (2014).**

30. Thickness and refractive index of DPPC and DPPE monolayers by multiple-beam interferometry. D.F. Kienle, J.V. de Souza, E.B. Watkins, T.L. Kuhl, *Analytical and Bioanalytical Chemistry*. 406, 4725-4733, (2014)
29. Key factors regulating the mass delivery of macromolecules to model cell membranes: gravity and electrostatics. R.A. Campbell, E.B. Watkins, V. Jagalski, A. Akesson-Runnsjo, M. Cardenas. *ACS Macro Letters*. 3, 2, 121-125 (2014)
28. X-ray and neutron investigation of self-assembled lipid layers on a titanium surface. M. Golub, D. Lott, E.B. Watkins, B. Luthringer, M. Stoermer, A. Schreyer, R. Willumeit. *Biointerphases*. 8, 21, (2013)
27. Nanoscale control of interfacial processes for latent fingerprint enhancement. R.M. Sapstead, K.S. Ryder, C. Fullarton, M. Skoda, R.M. Dagliesh, E.B. Watkins, C. Beebee, R. Barker, A. Glidle, A.R. Hillman, *Faraday Discussions*. 164, 391-410, (2013)
26. Biomimetic membrane system composed of a composite interpenetrating hydrogel film and a lipid bilayer. B. Stidder, J.P. Alcaraz, L. Ligouri, N. Khalef, A. Bakri, E.B. Watkins, P. Cinquin, D.K. Martin. *Advanced Functional Materials*, 22, 4259-4267 (2012)
25. Physical properties of archaeal tetraether lipid membranes as revealed by differential scanning and pressure perturbation calorimetry, molecular acoustics, and neutron reflectometry: effects of pressure and cell growth temperature. Y. Zhai, P.L.G. Chong, L.J.A. Taylor, M. Erkamp, S. Grobelny, C. Czeslik, E. Watkins, R. Winter. *Langmuir*, 28, 5211-5217, (2012)
- 24. Structure and thermodynamics of lipid bilayers on polyethylene glycol cushions: fact and fiction of PEG cushioned membranes. E.B. Watkins, R.J. El-Khoury, C.E. Miller, B.G. Seaby, J. Majewski, T.L. Kuhl. *Langmuir*, 27, 122, 13618-13628, (2011)**
23. pH responsive polymer cushions for probing membrane environment interactions. R.J. El-Khoury, D.A. Bricarello, E.B. Watkins, C.Y. Kim, C.E. Miller, T.E. Patten, A.N. Parikh, T.L. Kuhl. *Nano Letters*, 11, 5, 2169-2172, (2011)
- 22. Membrane texture induced by specific protein binding and receptor clustering: active roles for lipids in cellular function. E.B. Watkins, C.E. Miller, J. Majewski, T.L. Kuhl. *Proceedings of the National Academy of Sciences*, 108, 17, 6975-6980, (2011)**
- 21. Structure and orientational texture of self-organizing lipid bilayers. E.B. Watkins, C.E. Miller, D.J. Mulder, T.L. Kuhl, J. Majewski. *Physical Review Letters*, 102, 23, 238101, (2009)**
20. Model lipid membranes on a tunable polymer cushion. H.L. Smith, M.S. Jablin, A. Vidyasagar, J. Saiz, E. Watkins, R. Toomey, A.J. Hurd, J. Majewski. *Physical Review Letters*. 102, 22, 228102, (2009)
19. Molecular order in Langmuir-Blodgett assembled films of an azobenzene amphiphile. P.A. Chiarelli, D.G. Liu, E.B. Watkins, F.R. Trouw, J. Majewski, J.L. Casson, Z. Tang, M.S. Johal, J.M. Robinson, H.L. Wang. *Thin Solid Films*. 517, 16, 4638-4643, (2009)
18. Time-resolved specular and off-specular neutron reflectivity measurements on deuterated polystyrene and poly(vinyl methyl ether) blend thin films during dewetting process, H. Ogawa, T. Kanaya, K. Nishida, G. Matsuba, J. Majewski, E. Watkins. *Journal of Chemical Physics*, 131, 10, 104907, (2009)
17. Adsorption at liquid interfaces: a comparison of multiple experimental techniques. B.M. Law, M.D. Brown, L. Marchand, L.B. Lurio, W.A. Hamilton, I. Kuzmenko, T. Gog, S. Satija, E. Watkins, J. Majewski. *European Physical Journal-Special Topics*. 167, 127-132, (2009)

16. Probing the local order of single phospholipid membranes using grazing incidence X-ray diffraction. C.E. Miller, J. Majewski, E.B. Watkins, D.J. Mulder, T. Gog, T.L. Kuhl. *Physical Review Letters*, 100, 5, 58103-58106, (2008)
15. Part I: An X-ray scattering study of Cholera toxin penetration and induced phase transformations in lipid membranes. C.E. Miller, J. Majewski, E.B. Watkins, and T.L. Kuhl. *Biophysical Journal*. 95, 2, 629-640, (2008)
14. Part II: Diffraction from 2D Cholera toxin crystals bound to their receptors in a lipid monolayer. C.E. Miller, J. Majewski, E.B. Watkins, M. Weygand, and T.L. Kuhl., *Biophysical Journal*, 95, 2, 641-647, (2008)
13. Corrosion inhibition using superhydrophobic films. P.M. Barkhudarov, P.B. Shah, E.B. Watkins, D.A. Doshi, C.J. Brinker, J. Majewski. *Corrosion Science*. 50, 3, 897-902, (2008)
12. Effect of thickness on the water-barrier properties of silane films. G. Pan, E. Watkins, J. Majewski, D.W. Schaefer, *Journal of Physical Chemistry C*, 111, 42, 15325-15330, (2007)
11. Kinetic process of phase transition of a lipid/salt mixture film on a Si substrate. N.L Yamada, N. Toikai, E. Watkins, J.P. Majewski. *Transactions of the Materials Research Society of Japan*, 32, 1, 271, (2007)
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