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**Department of Materials Science & Engineering**  
**Department of Chemical & Biological Engineering**  
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**Northwestern University**  
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**Education:**

- 1981-85 Ph.D. in **Physics**, Cambridge University, Cambridge, England. Thesis title: "Dynamics of Separation Processes in Polymers". Advisor: S. F. Edwards
- 1977-81 B. A. in **Physics**, Universidad Nacional Autonoma de Mexico (UNAM), Mexico City, Mexico. Thesis title: "Phase Transitions in Two-Dimensional Systems". Advisor: A. J. Mondragon

**Appointments:**

- 2009-Present **Lawyer Taylor Professor** of Materials Science & Engineering, Professor of Chemistry, Professor of Chemical and Biological Engineering, and of Physics and Astronomy, Northwestern University, Evanston, IL 60208
- 2006-13 **Director**- Materials Research Center, Northwestern University, Evanston IL, 60208
- 1998-09 **Professor**- Department of Materials Science & Engineering, Department of Chemistry and Department of Chemical and Biological Engineering, Northwestern University, Evanston, IL 60208
- 1995-97 **Senior Staff Scientist (Engineer C3)** – Service de Chimie Moleculaire, Commissariat a l’Energie Atomique, Centre de’Etude, Saclay, 91191 Gif-Sur-Yvette, France
- 1991-98 **Associate Professor**- Department of Materials Science & Engineering and Department of Chemical and Biological Engineering, Northwestern University, Evanston, IL 60208
- 1986-91 **Assistant Professor**- Department of Materials Science and Engineering, Northwestern University, Evanston, IL 60208
- 1985-86 **Guest Scientist, Polymers Division**- National Institute of Standards and Technology (formerly NBS), Gaithersburg, MD. **Post-doctoral Research Associate**- Polymer Science and Engineering Department, University of Massachusetts, Amherst, MA (Advisor: I. C. Sanchez)

**Awards and Significant Academic Honors:**

- 2015 McGavock Lecturer, Department of Chemistry, Trinity University
- 2013 Derieux Lecture, Department of Physics, North Carolina State University.
- 2013 Distinguished Lecturer, Mathematical Physical Sciences Directorate, National Science Foundation
- 2012 Member, National Academy of Sciences
- 2011 Fay Ajzenberg-Selove Colloquium, Physics Department, University of Wisconsin, Madison
- 2010 Special Civil Merit Award, State of Guerrero, Mexico
- 2010 Fellow, American Academy of Arts and Sciences
- 2010-15 National Security Science and Engineering Faculty Fellowship
- 2008 Dow Distinguished Lecturer, University of California Santa Barbara
- 2007 Engineering and Applied Sciences Cozzarelli Prize, Proceeding of the National Academy of Sciences
- 2005-06 North American Lectures in Chemical Engineering and Materials Science, Mexico
- 2005 Baetjer Lectures, Princeton University
- 2003 Visiting Professor, Service de Physique Theorique, Commissariat a l’Energie Atomique, CE-Saclay, France
- 2001 Fellow, American Physical Society
- 1995-97 Scientific Member, Commissariat a l’Energie Atomique, CE-Saclay, France

- 1993 Visiting Scientist, Service de Chimie Moleculaire, Commissariat a l'Energie Atomique  
Commissariat a l'Energie Atomique, CE-Saclay, France
- 1990-95 Presidential Young Investigator Award, National Science Foundation
- 1990-92 Alfred P. Sloan Fellowship
- 1989-94 David and Lucile Packard Fellowship in Science and Engineering
- 1988-93 FIRST Award, National Institutes of Health
- 1981-84 UNAM scholarship from the Direccion General de Asuntos del Personal Academico, Mexico,  
held at Cambridge University, England
- 1982-84 Overseas Research Scholarship award (ORS-award) England, Cambridge University, England
- 1981-82 Graduate Studies Fellowship, Trinity College, Cambridge University, England (declined)
- 1979-81 Conacyt-UNAM scholarship, Mexico, held at Universidad Nacional Autonoma de Mexico,  
Mexico

### **Selected Significant Services and Extracurricular Educational Activities:**

- 2014- National Science Foundation Advisory Committee for International Science and Engineering
- 2013-15 Basic Energy Sciences Advisory Committee, Department of Energy
- 2013- Advisory Committee, Center for Scientific Studies in the Arts (NU-ACCESS), Northwestern
- 2013 Co-**Chair**, NSF Workshop on Opportunities in Theoretical and Computational Polymeric  
Materials and Soft Matter, Santa Barbara, CA, October 20-22
- 2013 Co-**Chair**, Fifth Biennial Principal Investigators' Meeting in "Biomolecular Materials",  
Materials Sciences and Engineering Division (MSED) in the DOE Office of Basic Energy  
Sciences (DOE-BES), Gaithersburg, MD, August 19-21.
- 2013 Co-Organizer, Evolution of Colloidal Matter, New York City, NY, June 27-29
- 2013-14 Committee on Key Challenge Areas for Convergence and Health, National Research Council
- 2012 Committee on Societal Benefits from Condensed Matter and Materials Research, National  
Research Council
- 2012-13 Science and Technology for Defense Warning, National Research Council
- 2009 Launched NSF funded Univ. Texas San Antonio PREM in association with NU-MRSEC
- 2009-15 Board of Physics and Astronomy, National Research Council, the National Academy of  
Sciences
- 2010-12 **Chair**, Condensed Matter and Materials Research Committee, National Research Council
- 2009-10 **Vice-Chair**, Condensed Matter and Materials Research Committee, National Research  
Council
- 2008-09 **Vice-Chair**, Solid State Science Committee, National Research Council
- 2008-09 **Chair**, NSF-MRSEC Directors Executive Committee
- 2007-09 Research at the Intersection of Physical and Life Sciences, Committee on Frontiers of  
Science at the Interface of Physical and Life Sciences National Research Council
- 2007-09 **Chair**, Division of Materials Research Advisory Committee, National Science Foundation
- 2007-08 Advisory Panel on Light Source Facilities, National Science Foundation
- 2006-08 **Leadership Council**, National Center for Learning and Teaching in Nano-Science and  
Engineering (NCLT), National Science Foundation
- 2005-08 Solid State Science Committee, National Research Council
- 2005-09 Mathematical and Physical Sciences Directorate Advisory Committee, National Science  
Foundation
- 2004 NSF Role of Theory in Biological Physics and Materials (co-organizer; plenary speaker)
- 1999-06 **Director**- Summer Research Experience for Undergraduates (REU) and Minority Research  
Initiative (MRI), Northwestern University (30 to 40 students per year recruited and tutored)
- 1997-04 **Director & Co-Founder** - Integrated Graduate Program to Prepare Educators of  
Materials Technologists, Northwestern University (created the degree, recruited  
and mentored the students and raised funds for tuition and stipend for gifted  
students 1997-04: Mireya Garcia (1999), Howard Gholston (2000), Manuel Bahamon  
(2000), Roberto Mendoza (2000), Patricia Valenzuela (2001) and Nikkia McDonald  
(June 2002)

**Editorial Boards:** *Macromolecules*, *Journal of Polymer Science B: Polymer Physics*, *Annual Review of Materials Research*, *Journal of Chemical Theory and Computation*, and *Journal of Chemical Physics*

## LIST OF PUBLICATIONS

1. Gabriel S. Longo , Monica Olvera de la Cruz , and Igal Szleifer "**Equilibrium Adsorption of Hexahistidine on pH-Responsive Hydrogel Nanofilms**" *Langmuir*, in press DOI: 10.1021/la504038
2. Liam C. Palmer, Cheuk-Yui Leung, Sumit Kewalramani, Rohan Kumthekar, Christina J. Newcomb, Monica Olvera de la Cruz, Michael J. Bedzyk, Samuel I. Stupp "**Long-Range Ordering of Highly Charged Self-Assembled Nanofilaments**" *J. Am. Chem. Soc.* **136**, 14377-14380 (2014); DOI: 10.1021/ja50825191
3. Gabriel Longo, Monica Olvera de la Cruz, Igal Szleifer "**Non-monotonic Swelling of Surface Grafted Hydrogels Induced by pH and/or Salt Concentration**" *J. Chem. Phys.* **141**, 124909 (2014); DOI: 10.1063/1.4896562
4. Mario Tagliacruzchi, Xing Li, Monica Olvera de la Cruz and Igal Szleifer "**Self-Organized Polyelectrolyte End-Grafted Layers Under Nanoconfinement**" *ACS Nano*, **8**, 9998-10008 (2014); DOI: 10.1021/nn502008x
5. Brett M. Savoie, Kevin L. Kohlstedt, Nicholas E. Jackson, Lin X. Chen, Monica Olvera de la Cruz, George C. Schatz, Tobin J. Marks, and Mark A. Ratner "**Mesoscale molecular network formation in amorphous organic materials**" *PNAS* **111**, 10055–10060 (2014); DOI: 10.1073/pnas.1409514111
6. Charles E. Sing and Monica Olvera de la Cruz "**Polyelectrolyte Blends and Nontrivial Behavior in Effective Flory-Huggins Parameters**" *ACS Macro Letters* **3**, 698-702 (2014); DOI: 10.1021/mz500202n
7. Guillermo Ivan Guerrero-Garcia, Monica Olvera de la Cruz "**Polarization Effects of Dielectric Nanoparticles in Aqueous Charge-Asymmetric Electrolytes**" *J. Phys. Chem. B* **118**, 8854-8862 (2014); DOI: 10.1021/jp5045173
8. Charles E. Sing, Jos W. Zwanikken, and Monica Olvera de la Cruz "**Electrostatic Control of Block Copolymer Morphology**" *Nature Materials* **13**, 694 (2014); DOI:10.1038/nmat4001
9. Vikram Jadhao, Creighton K. Thomas and Monica Olvera de la Cruz "**Electrostatics-driven shape transitions in soft shells**" *Proc. Natl. Acad. Sci.* **111**, 12673-8 (2014); DOI: 10.1073/pnas.1413986111
10. Baofu Qiao, Thomas Demars, Monica Olvera de la Cruz, and Ross J. Ellis "**How Hydrogen Bonds Affect the Growth of Reverse Micelles in Metal Ion Extraction**" *J. Chem. Phys. Lett.* **5**, 1440–1444 (2014); DOI: 10.1021/jz500495p
11. Zhenwei Yao, Monica Olvera de la Cruz "**Polydispersity-driven topological defects as order-restoring excitations**" *Proc. Natl. Acad. Sci.* (2014); DOI: 10.1073/pnas.1403679111
12. Francisco Hidalgo, Cecilia Noguez and Monica Olvera de la Cruz "**Metallic influence on the atomic structure and optical activity of ligand-protected nanoparticles: a comparison between Ag and Au**" *Nanoscale* **6**, 3325-3334 (2014); DOI: 10.1039/C3NR06202C
13. Charles E. Sing, Monica Olvera de la Cruz, and John F. Marko "**Multiple-binding-site mechanism explains concentration-dependent unbinding rates of DNA-binding proteins**" *Nucleic Acids Research* **42**, 3783–3791 (2014); DOI:10.1093/nar/gkt1327
14. Evelyn Auyeung, Ting I. N. G. Li, Andrew J. Senesi, Abrin L. Schmucker, Bridget C. Pals, Monica Olvera de la Cruz, and Chad A. Mirkin "**DNA-mediated nanoparticle crystallization into Wulff polyhedra**" *Nature* **505**, 73–77 (2014); DOI: 10.1038/nature12739.
15. Zhenwei Yao and Monica Olvera de la Cruz "**Ruled surface underlying KcsA potassium channels**" *Soft Matter* **10**, 540 – 543 (2014); DOI:10.1039/C3SM52612G.
16. Charles E. Sing, Jos W. Zwanikken, and Monica Olvera de la Cruz "**Ion Correlation-Induced Phase Separation in Polyelectrolyte Blends**" *ACS Macro Letters* **2**, 1042-1046 (2013); DOI: 10.1021/mz400511r.
17. Zhenwei Yao, Baofu Qiao and Monica Olvera de la Cruz "**Potassium ions in the cavity of a KcsA channel model**" *Phys. Rev. E* **88**, 062712 (2013).
18. Subas Dhakal, Kevin L. Kohlstedt, George C. Schatz, Chad A. Mirkin, and Monica Olvera de la "**Growth Dynamics for DNA-Guided Nanoparticle Crystallization**" *ACS Nano* **7**, 10948–10959 (2013); DOI: 10.1021/nn404476f

19. Sumit Kewalramani, Jos W. Zwanikken, Robert J. Macfarlane, Cheuk-Yui Leung, Monica Olvera de la Cruz, Chad A. Mirkin, and Michael J. Bedzyk **"Counterion Distribution Surrounding Spherical Nucleic Acid–Au Nanoparticle Conjugates Probed by Small-Angle X-ray Scattering"** *ACS Nano* **7**, 11301–11309 (2013); DOI: 10.1021/nn405109z
20. Guillermo Guerrero-Garcia, Pedro González Mozuelos, and Monica Olvera de la Cruz **"Large counterions boost the solubility and renormalized charge of suspended nanoparticles"** *ACS Nano* **7**, 9714–9723 (2013); DOI: 10.1021/nn404477b
21. Francisco Solis, Vikram Jadhao and Monica Olvera de la Cruz **"Generating true minima in constrained variational formulations via modified Lagrange multipliers"** *Phys. Rev. E* **88**, 053306 (2013); DOI: 10.1103/PhysRevE.88.053306
22. Rui Zhang, Joshua M. Dempster, and Monica Olvera de la Cruz **"Self- replication in colloids with asymmetric interactions"** *Soft Matter* **10**, 1315–1319 (2014). DOI:10.1039/C3SM52501E.
23. Rui Zhang, David A. Walker, Bartosz A. Grzybowski, and Monica Olvera de la Cruz **"Accelerated self-replication under non-equilibrium, periodic energy delivery"** *Angewandte Chemie Int. Ed.* **53**, 173–177 (2014); DOI: 10.1002/anie.201307339.
24. Azita Parsaeian, Monica Olvera de la Cruz, and John F. Marko **"Binding-rebinding dynamics of proteins interacting nonspecifically with a long DNA molecule"** *Phys. Rev. E* **88**, 040703(R) (2013); DOI:10.1103/PhysRevE.88.040703.
25. Charles E. Sing, Jos W. Zwanikken, and Monica Olvera de la Cruz **"Interfacial behavior in polyelectrolyte blends: Hybrid liquid-state integral equation and self-consistent field theory study"** *Phys. Rev. Lett.* **111**, 168303 (2013); DOI: 10.1103/PhysRevLett.111.168303.
26. Cheuk-Yui Leung, Liam C. Palmer, Sumit Kewalramani, Baofu Qiao, Samuel I. Stupp, Monica Olvera de la Cruz, and Michael J. Bedzyk **"Crystalline polymorphism induced by charge regulation in ionic membranes"** *Proc. Natl. Acad. Sci.* **110**(41), 16309–16314 (2013); DOI: 10.1073/pnas.1316150110.2013).
27. Baofu Qiao and Monica Olvera de la Cruz **"Driving Force for Water Permeation Across Lipid Membranes"** *J. Phys. Chem. Lett.* **4**, 3233–3237 (2013); DOI: 10.1021/jz401730s.
28. Srikanth Patala, Laurence Marks and Monica Olvera de la Cruz **"Thermodynamic Analysis of Multiply-Twinned Particles: Surface Stress Effects"** *J. Phys. Chem. Lett.* **4**, 3089–3094 (2013); DOI: 10.1021/jz401496d.
29. Zhenwei Yao and Monica Olvera de la Cruz **"Topological defects in flat geometry: The role of density inhomogeneity"** *Phys. Rev. Lett.* **111**, 115503 (2013); DOI: 10.1103/PhysRevLett.111.115503.
30. Pedro Gonzalez-Mozuelos, Guillermo Ivan Guerrero-Garcia and Monica Olvera de la Cruz **"An exact method to obtain effective electrostatic interactions from computer simulations: The case of effective charge amplification"** *J. Chem. Phys.* **139**, 064709 (2013); DOI:10.1063/1.4817776.
31. Vikram Jadhao, Francisco Solis and Monica Olvera de la Cruz **"Free-energy functionals of the electrostatic potential for Poisson-Boltzmann theory"** *Phys. Rev. E* **88**, 022305 (2013); DOI:10.1103/PhysRevE.88.022305
32. Nicholas E. Jackson, Brett M. Savoie, Kevin L. Kohlstedt, Monica Olvera de la Cruz, George Schatz, Lin X. Chen and Mark Ratner **"Controlling conformations of conjugated polymers and small molecules: the role of nonbonding interactions"** *J. Am. Chem. Soc.* **135**(28), 10475–10483 (2013), DOI: 10.1021/ja403667s.
33. Charles E. Sing, Jos W. Zwanikken and Monica Olvera de la Cruz **"Effect of ion-ion correlations on polyelectrolyte gel collapse and reentrant swelling"** *Macromolecules* **46**(12), 5053–5065 (2013), DOI: 10.1021/ma400372p.
34. Ting I.N.G. Li, Rastko Sknepnek and Monica Olvera de la Cruz **"Thermally Active Hybridization Drives the Crystallization of DNA-functionalized Nanoparticles"** *J. Am. Chem. Soc.* **135**, 8535–8541 (2013).
35. Guillermo Ivan Guerrero-Garcia, Yufei Jing and Monica Olvera de la Cruz **"Enhancing and reversing the electric field at the oil/water interface with size-asymmetric monovalent ions"** *Soft Matter* **9**, 6046–6052 (2013), DOI: 10.1039/C3SM50753J.
36. Baofu Qiao and Monica Olvera de la Cruz, **"The Driving Force for Crystallization of Anionic Lipid Membranes Revealed by Atomistic Simulations"** *The Journal of Physical Chemistry B* **117** (17), 5073–5080 (2013), DOI: 10.1021/jp401767c.

37. Zhenwei Yao and Monica Olvera de la Cruz "**Electrostatic repulsion-driven crystallization model arising from filament networks**" *Phys. Rev. E* **87**, 042605 (2013); DOI: 10.1103/PhysRevE.87.042605.
38. Rui Zhang, Prateek K. Jha, and Monica Olvera de la Cruz "**Non-equilibrium ionic assemblies of oppositely charged nanoparticles**" *Soft Matter* **9**, 5042-5051 (2013) DOI:10.1039/C3SM27529A.
39. Gabriel S. Longo, Monica Olvera de la Cruz, and I. Szleifer "**pH-Controlled Nano-Aggregation in Amphiphilic Polymer Conetworks**" *ACS Nano* **7**(3), 2693-2704 (2013), DOI: 10.1021/nn400130c.
40. Jos W. Zwanikken and Monica Olvera de la Cruz "**Tunable soft structure in charged fluids confined by dielectric interfaces**" *Proc. Natl. Acad. Sci.* **110**, 5301-5308 (2013), doi: 10.1073/pnas.1302406110.
41. Vikram Jadhao, Francisco J. Solis, and Monica Olvera de la Cruz "**A variational formulation of electrostatics in a medium with spatially varying dielectric permittivity**" *J. Chem. Phys.* **138**, 054119 (2013) DOI:10.1063/1.4789955
42. Chloe M. Funkhouser, Rastko Sknepnek, Takeshi Shimi, Anne E. Goldman, Robert D. Goldman, and Monica Olvera de la Cruz "**Mechanical Model of Blebbing in Nuclear Lamin Meshworks**" *Proc. Natl. Acad. Sci.* **110** (9), 3248-3253 (2013). DOI: 10.1073/pnas.1300215110.
43. Kevin Kohlstedt, Monica Olvera de la Cruz, and George Schatz "**Controlling Orientational Order in 1-D Assemblies of Multivalent Triangular Prisms**" *J. Phys. Chem. Lett.* **4**, pp. 203–208 (2013). DOI: 10.1021/jz301953k.
44. Srikanth Patala, Laurence D. Marks, and Monica Olvera de la Cruz "**Elastic Strain Energy Effects in Faceted Decahedral Nanoparticles**" *J. Phys. Chem. C* **117**, pp. 1485-1494 (2013). DOI: 10.1021/jp310045g.
45. Zhenwei Yao and Monica Olvera de la Cruz "**Packing of Charged Chains on Toroidal Geometries**" *Phys. Rev. E* **87**, 012603 (2013).
46. Cheuk-Yui Leung, Liam Palmer, Bao Fu Qiao, Sumit Kewalramani, Rastko Sknepnek, Christina Newcomb, Megan Greenfield, Graziano Vernizzi, Samuel Stupp, Michael Bedzyk, and Monica Olvera de la Cruz "**Molecular Crystallization Controlled by pH Regulates Mesoscopic Membrane Morphology**" *ACS Nano* **6**, 10901-10909 (2012) DOI: 10.1021/nn304321w.
47. Guillermo Ivan Guerrero-Garcia and Monica Olvera de la Cruz "**Inversion of the Electric Field at the Electrified Liquid-Liquid Interface**" *J. Chem. Theory Comput.* **9**, 1-7 (2013) DOI:10.1021/ct300673m.
48. Creighton K. Thomas and Monica Olvera de la Cruz "**Theory and simulations of crystalline control via salinity and pH in ionizable membranes**" *Soft Matter* **9**, 429-434 (2013), DOI:10.1039/C2SM26960K.
49. Prateek K. Jha, Vladimir Kuzovkov, and Monica Olvera de la Cruz "**Kinetic Monte Carlo Simulations of Flow-Assisted Polymerization**" *ACS Macro Letters* **1**, 1393-1397 (2012) DOI:10.1021/mz300601b.
50. Vikram Jadhao, Francisco J. Solis, and Monica Olvera de la Cruz "**Simulation of charged systems in heterogeneous dielectric media via a true energy functional**" *Phys. Rev. Lett.* **109**, 223905 (2012) DOI:10.1103/PhysRevLett.109.223905.
51. Chloe M. Funkhouser, Rastko Sknepnek, and Monica Olvera de la Cruz "**Topological defects in the buckling of elastic membranes**" *Soft Matter* **9**, 60-68(2013), DOI:10.1039/C2SM26607E.
52. Zhenwei Yao, Rastko Sknepnek, Creighton Thomas, and Monica Olvera de la Cruz "**Shapes of pored membranes**" *Soft Matter* **8**, 11613-11619 (2012), DOI:10.1039/C2SM26608C.
53. Rastko Sknepnek, Graziano Vernizzi, and Monica Olvera de la Cruz "**Charge renormalization of bilayer elastic properties**" *J. Chem. Phys.* **137**, 104905 (2012), DOI: <http://dx.doi.org/10.1063/1.4751481>.
54. M.F. Demers, R. Sknepnek and M. Olvera de la Cruz "**A curvature-driven effective attraction in multicomponent vesicles**" *Phys. Rev. E* **86**, 021504 (2012), DOI 10.1103/PhysRevE.86.021504.
55. K-A. Wu, P. K. Jha, and M. Olvera de la Cruz "**Pattern Selection in Polyelectrolyte Gels by Nonlinear Elasticity**" *Macromolecules* **45**, 6652-6657 (2012), DOI: 10.1021/ma301549q.
56. P.K. Jha, J. Zwanikken, and M. Olvera de la Cruz "**Understanding Swollen-Collapsed and Re-entrant Transitions in Polyelectrolyte Nanogels by a Modified Donnan Theory**" *Soft Matter* **8** (37), 9519-9522 (2012), DOI: 10.1039/c2sm26341f.

57. S. Dhakal, F.J. Solis and M. Olvera de la Cruz **"Nematic liquid crystals on spherical surfaces: Control of defect configurations by temperature, density, and rod shape"** *Phys. Rev. E* **86**, 011709 (2012); DOI: 10.1103/PhysRevE.86.011709.
58. Rastko Sknepnek and Monica Olvera de la Cruz **"Nonlinear elastic model for faceting of vesicles with soft grain boundaries"** *Phys. Rev. E* **85**, 050501(R) (2012); DOI: 10.1103/PhysRevE.85.050501.
59. Ting I.N.G. Li, Rastko Sknepnek, Robert J. Macfarlane, Chad A. Mirkin and Monica Olvera de la Cruz **"Modeling the Crystallization of Spherical Nucleic Acid Nanoparticle Conjugates with Molecular Dynamics Simulations"** *Nano Letters* **12**(5), 2509-2514 (2012); DOI: 10.1021/nl300679e.
60. K.I. Popov, R.J. Nap, I. Szleifer and M. Olvera de la Cruz **"Interacting Nano-Particles with Functional Surface Groups"** *J. Pol. Science B: Polymer Physics* **50**, 852-862 (2012); DOI: 10.1002/polb.23077.
61. J. Su, M. Olvera de la Cruz and H. Guo **"Solubility and Transport of Cationic and Anionic Patterned Nanoparticles"** *Phys. Rev. E* **85**, 011504 (2012); DOI: 10.1103/PhysRevE.85.011504.
62. G.S. Longo, M. Olvera de la Cruz, I. Szleifer **"Molecular Theory of Weak Polyelectrolyte Thin Films"** *Soft Matter* **8**(5), 1344-1354 (2012); DOI: 10.1039/c1sm06708g.
63. Prateek K. Jha, Vladimir Kuzovkov, Bartosz A. Grzybowski and Monica Olvera de la Cruz **"Dynamic Self-Assembly of Photo-Switchable Nanoparticles"** *Soft Matter* **8**, 227-234 (2012); DOI: 10.1039/c1sm06662e.
64. Guillermo Ivan Guerrero-Garcia, Pedro Gonzalez-Mozuelos, and Monica Olvera de la Cruz **"Potential of mean force between identical charged nanoparticles immersed in a size-asymmetric monovalent electrolyte"** *J. Chem. Phys.* **135**(16), 164705 (2011); DOI:10.1063/1.3656763.
65. R. Sknepnek, G. Vernizzi, and M. Olvera de la Cruz **"Buckling of multicomponent elastic shells with line tension"** *Soft Matter* **8**, 636 (2012); DOI:10.1039/C1SM06325A.
66. Jos W. Zwanikken, Peijun Guo, Chad A. Mirkin, and Monica Olvera de la Cruz **"The local ionic environment around polyvalent nucleic acid-functionalized nanoparticles"** *J. Phys. Chem. C* **115** (33), 16368–16373 (2011) (doi:10.1021/jp205583j).
67. Guillermo Ivan Guerrero-Garcia, Enrique Gonzalez-Tovar, and Monica Olvera de la Cruz **"Entropic effects in the electric double layer of model colloids with size-asymmetric monovalent ions"** *J. Chem. Phys.* **135**, 054701 (2011) (doi:10.1063/1.3622046).
68. Jos W. Zwanikken, Prateek K. Jha, and Monica Olvera de la Cruz **"A practical integral equation for the structure and thermodynamics of hard sphere Coulomb fluids"** *J. Chem. Phys.* **135**, 064106 (2011) (doi:10.1063/1.3624809).
69. V.N. Kuzovkov, E.A. Kotomin, and M. Olvera de la Cruz **"The non-equilibrium charge screening effects in diffusion-driven systems with pattern formation"** *J. Chem. Phys.* **135**, 034702 (2011) (doi:10.1063/1.3613622).
70. Prateek K. Jha; Jos W. Zwanikken; Juan J. de Pablo; Monica Olvera de la Cruz **"Electrostatic Control of Nanoscale Phase Behavior of Polyelectrolyte Networks"** *Current Opinion in Solid State & Materials Science* **15**(6), 271-276 (2011).
71. G. Vernizzi, G. I. Guerrero-García, and M. Olvera de la Cruz **"Coulomb interactions in charged fluids"** *Phys. Rev. E* **84**, 016707 (2011).
72. R. Sknepnek, G. Vernizzi, and M. Olvera de la Cruz **"Shape change of nano-containers via a reversible ionic buckling"** *Phys. Rev. Lett.* **106**, 215504 (2011).
73. G. Vernizzi, D. Zhang, and M. Olvera de la Cruz **"Structural phase transitions and mechanical properties of binary ionic colloidal crystals at interfaces"** *Soft Matter* **7**, 6285-6293 (2011) (DOI:10.1039/C0SM01554G).
74. Prateek K. Jha, Jos W. Zwanikken, Francois A. Detcheverry, Juan J. de Pablo, and Monica Olvera de la Cruz **"Study of Volume Phase Transitions in Polymeric Nanogels by Theoretically Informed Coarse-Grained Simulations"** *Soft Matter* **7**, 5965-5975 (2011) (DOI:10.1039/C1SM05264K).
75. S. Swaminathan, F. J. Solis and M. Olvera de la Cruz **"Conformation and mechanical properties of closed diblock fibers"** *Phys. Rev. E* **83**, 061912 (2011).
76. Doris Grillo, Monica Olvera de la Cruz and Igal Szleifer **"Theoretical Studies of the Phase Behavior of DPPC Bilayers in the Presence of Macroions"** *Soft Matter* **7**, 4672-4679 (2011) (DOI:10.1039/C1SM05061C).
77. G. Vernizzi, R. Sknepnek, and M. Olvera de la Cruz **"Platonic and Archimedean geometries in multi-component elastic membranes"** *Proc. Natl. Acad. Sci. USA*, **118**, 4292–4296 (2011) (DOI: 10.1073/pnas.1012872108).

78. P. Guo, R. Sknepnek, and M. Olvera de la Cruz **"Electrostatic driven ridge formation on nanoparticles coated with charged end group ligands"** *J. Phys. Chem. C* **115**, 6484–6490 (2011) (DOI: 10.1021/jp201598k).
79. David A. Walker, Bartłomiej Kowalczyk, Monica Olvera de la Cruz and Bartosz A. Grzybowski **"Electrostatics at the Nanoscale"** *Nanoscale* **3**, 1316–1344 (2011) (DOI: 10.1039/C0NR00698J).
80. J. M. Deutsch and M. Olvera de la Cruz **"Density fluctuations of polymers in disordered media"** *Phys. Rev. E* **83**, 031801 (2011).
81. F. J. Solis, G. Vernizzi and M. Olvera de la Cruz **"Electrostatic driven pattern formation in fibers, nanotubes and pores"** *Soft Matter* **7**, 1456 - 1466 (2011) (DOI:10.1039/C0SM00706D).
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209. Y. S. Velichko, F.J. Solis, S. M. Loverde and M. Olvera de la Cruz "**Ion Condensation Structure on Patterned Surfaces**" (<http://arxiv.org/abs/0704.3717>).
210. M. Olvera de la Cruz, K. Zhang, H. Cheng, J. A. Libera and M. J. Bedzyk "**Direct X-Ray Observation of Polynucleotide Adsorption and Desorption to Charged Surfaces**" (preprint).
211. W. Kung, M. Olvera de la Cruz and F. J. Solis "**Thermodynamics of Ion Solvation and Differential Absorption at Liquid-Liquid Interfaces and Membranes**" (<http://arxiv.org/abs/0710.0369>).
212. M. Olvera de la Cruz "**Patterns in Polyelectrolyte Gels linked by Oppositely Charged Multivalent Molecules**" (preprint).
213. H. Guo and M. Olvera de la Cruz "**Emulsifying Polymersome Vesicles from Monolayers at liquid Interfaces**" (preprint).
214. M. Olvera de la Cruz and J. J. de Pablo "**Nano-patterns in gels of charged chains with self-attracting interactions**" (preprint).
215. Vikram Jadhao, Zhenwei Yao, Creighton K. Thomas, Monica Olvera de la Cruz "**Coulomb Energy of Uniformly Charged Spheroidal Shell Systems**" *Phys. Rev. E*, Submitted.
216. Gabriel Longo, Monica Olvera de la Cruz, Igal Szleifer "**Equilibrium Absorption of Hexahistidine on pH-Responsive Hydrogel Nanofilm**" *Langmuir* (Submitted).
217. Charles E. Sing, Jos Zwanikken, and Monica Olvera de la Cruz "**Theory of Melt Polyelectrolyte Blends and Block Copolymers: Phase Behavior, Surface Tension, and Microphase Periodicity**" *J. Chem. Phys.* (Submitted).
218. Zhenwei Yao and Monica Olvera de la Cruz "**Dynamics of vacancies in two-dimensional Lennard-Jones crystals**" *Phys. Rev. E* (Submitted).
219. G. I. Guerrero-Garcia, K. Raidongia, J. Huang and M. Olvera de la Cruz "**Liquid State Diode based on Electrolyte Solvation Energies**" (preprint).
220. Alexander Z. Patashinski, Rafal Orlik, Creighton K. Thomas, and Monica Olvera de la Cruz "**The 2D liquid-solid contact at nanoscopic scale**" *J. Chem. Phys.* (Submitted).

**DEGREES AWARDED**

- Anne M. Mayes*      **"A Study of Transition to Periodic Structures in Block Copolymer Melts"** Ph.D., February 1991. (Professor, Dept. Materials Science, M.I.T., MA; deceased)
- Dilip Gersappe*      **"Statistics and Dynamics of Polymers in Topologically Restricted Environments"** Ph.D., April 1992. (Associate Professor, Dept. Materials Science, SUNY at Stony Brook, NY.)
- Edward O. Shaffer*      **"The Dynamics of Gel Electrophoresis"** M.S. June 1988. (Dow Chemical, Midland MI.)
- Cheng-heng Kao*      **"Micelle Formation in Copolymer-Homopolymer Blends"** M.S. June 1990. (Professor, Dept. of Chemical Engineering, National Central Taiwan University.)
- Alice S. Mendelsohn*      **"Investigation of Correlations in Polymer Melts, Blends, and Semi-dilute Solutions by Fluorescence Nonradiative Energy Transfer Techniques"** (currently known as **FRET**) Ph.D., July 1994. Co-Advised with J. M. Torkelson (Robins, Kaplan, Miller & Ciresi L.L.P., Minneapolis).
- Avi Nesarikar*      **"Thermodynamics and Kinetics of Liquid-liquid Phase Separation in Random Copolymers"** Ph.D., (Chemical Eng.) September 1994. Co-Advised with B. Crist. (Mobil E&P Technical Center, Dallas TX.)
- Brian W. Swift*      **"Statistics and Dynamics of Random Copolymers in Solutions by Monte Carlo Simulation"** Ph.D. December 1995. (Developer, Matlock Capital, Chicago IL.)
- Ching-I Huang*      **"Studies of Phase Separation Dynamics and Interfaces in Ternary Systems"** Ph.D. June 1996. (Associate Professor, National Taiwan University of Science and Technology, Taiwan.)
- Khaled Mahdi*      **"Phase Diagrams of Polyelectrolyte Solutions"** Ph. D. December 2000. (Associate Professor, Kuwait University.)
- Kurt A. Smith*      **"Dynamics of Drops and Fluid Interfaces-A Level set Study"** Ph.D. February 2003. Co-Advised with J. M. Ottino (Data Scientist, Twitter, San Francisco, CA)
- Hao Cheng*      **"Polyelectrolyte Adsorption and Self-Assembly on Charged Surfaces"** Ph.D. December 2005 (Assistant Professor, Drexel University).
- Michelle D. Lefebvre*      **"Effects of Sequence Distribution and Specific Interactions on the Ordering and Interfacial Behavior of Copolymers"** Ph. D. June 2006 Co-Advised with K. R. Shull.
- Sharon M. Loverde*      **"Theory and Simulation of Polymer and Polyelectrolyte Self-Assembly"** Ph. D. June 2007 (Assistant Professor, City College New York).
- Kevin L. Kohlstedt*      **"The Formation of Chiral Nanopatterns on Low-Dimensional Ionic Assemblies Via Electrostatic Interactions"** Ph. D. June 2009 (Postdoctoral Research Associate, Northwestern University, Advisors: George Schatz and Monica Olvera de la Cruz).
- Megan A. Greenfield*      **"Modulating the forces between self-assembling molecules to control the shape of vesicles and the mechanics and alignment of nanofiber networks"** Ph. D. June 2009. Co-advised with S. I. Stupp (January 2010, McKenzie Consulting).
- Mark Anderson*      **"Gel formation in charged telechelics in poor solvent studied by replica exchange Monte Carlo simulations"** M.A. June 2010. Co-supervised with M. Ratner and I. Szleifer.
- Peijun Guo*      **"Self-Assembly of pH responsive nano-particles"** M.S. April, 2011.
- Prateek Kumar Jha*      **"Mesoscopic simulations of gels, nanogels, and nanoparticle Assemblies: Competing interactions and dynamics"** Ph.D. May 2012 (Assistant Professor, IIT Roorkee, India).
- Matthew Demers*      **"Curvature-driven Pattern Formation in Multicomponent Membranes"** Ph.D. August 2012 (Postdoctoral Associate, Massachusetts Institute of Technology).
- Doris M. Grillo*      **"Protein Adsorption Studies"** (co-supervised with I. Szleifer)

**CURRENT GRADUATE STUDENTS**

- Ting Li*      **"Simulations of polyvalent nucleic acid-functionalized nanoparticles"**

PhD, expected 2014	
<i>Yufei Jing</i>	<b>“Dynamics of charged nanoparticles at interfaces”</b>
PhD, expected 2016	
<i>Saijie Pan</i>	<b>“Charged membranes and electrostatics”</b>
PhD, expected 2017	
<i>Shuangping Liu</i>	<b>“Elasticity of heterogeneous gels”</b>
PhD, expected 2016	
<i>Joshua Dempster</i>	<b>“Self Replication”</b>
PhD, expected 2016	
<i>Ha-Kyung Kwon</i>	<b>“Charged-neutral copolymers”</b>
PhD, expected 2018	
<i>Dongxu Huang</i>	<b>“Supercapacitors”</b> (co-advised with Prof. Samuel Stupp)
PhD, expected 2018	
<i>Honghao Li</i>	<b>“Ion transfer in heterogeneous media”</b>
PhD, expected 2017	
<i>Jack Edelbrock</i>	<b>“Biomimetic Membranes”</b> (co-advised with Prof. Samuel Stupp)
PhD, expected 2019	
Kevin Chiou	<b>“Bio-inspired Functional Networks”</b> (co-advised with Prof. Samuel Stupp)
PhD, expected 2019	
<i>Boran Ma</i>	<b>“Polymer blends”</b>
PhD, expected 2019	

## ASSOCIATES AND POST-DOCTORAL FELLOWS

### RESEARCH PROFESSORS:

Dr. Johannes Willem Zwanikken Aug 2009-Present	<b>Charged Macro-ions at Liquid Interfaces</b>
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### RESEARCH ASSOCIATES:

Dr. Guillermo Ivan Guerrero Nov 2009-2014	<b>Molecular Electrolytes</b>
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### VISITING SCIENTISTS:

Baofu Qiao Sept 2014-Present	<b>Atomistic Simulations</b> (Argonne National Laboratory)
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### CURRENT POSTDOCS:

Dr. Kevin Kohlstedt Nov 2011-2014	<b>Properties of polyvalent nucleic acid nanostructures</b> (co- advised, George Schatz)
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Dr. Zhenwei Yao June 2012-2015	<b>Membrane Pores</b>
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Dr. Nicholaas Boon Aug 2013-2015	<b>Ultracapacitors and Heterogeneous Charged Systems</b>
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Dr. Aykut Erbas Feb 2014-2016	<b>Polymeric Charged Liquids</b>
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Dr. Jiaye Su Jan 2014-2015	<b>“Ionic Transport”</b>
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**PREVIOUS POSTDOCS AND RESEARCH ASSOCIATES**

Dr. Baofu Qiao Sept 2011-2014	<b>Atomistic Simulations</b> (Research Scientist, Argonne National Laboratory)
Dr. Vikram Jadhao Aug 2010- 2014	<b>Self-assembly of charge systems in media with dielectric heterogeneities</b> (Post doc, John Hopkins)
Dr. Charles Sing Sept 2012-Aug 2014	<b>Charged Polymer Systems</b> (Associate Professor, University of Illinois, Urbana Champaign)
Dr. Janette Jones Nov 1990-Dec 1991	<b>Weak Crystallization</b> (Manager, Unilever, UK)
Prof. Kevin Bassler Dec 1990-Aug 1992	<b>Copolymers</b> (Professor, Physics Department, University of Houston)
Prof. Pedro Gonzalez-Mozuelos September 1, 1992-November 1994	<b>Polyelectrolytes</b> (Professor, Physics Department, CINVESTAV, Mexico)
Prof. Francisco Solis Oct 1996-Aug 2000	<b>Colloids and Polymer Mixtures</b> (Associate Professor, State University of Arizona West)
Prof. Katsuyo Thorton Dec 1997-March 1998	<b>Phase Separation in Multicomponent Fluids</b> (Associate Professor, Mats. Scie., University of Michigan)
Dr. Alexander Ermoshkin Nov 2001-Dec 2003	<b>Charged Gels</b> (Manufacturing Development Lead, Liquidia Technologies)
Dr. Min Sum Yeom Aug 2001-July 2003	<b>Simulations of Complex Macromolecules</b> (National Center for Supercomputers, Korea)
Dr. Alexander Kudlay Oct 2002-April 2005	<b>Gelation of Charged Systems</b> (Research Associate, Chemistry Department, Maryland University)
Dr. Yuri Velichko Oct 2003-July 2007	<b>Peptide Amphiphiles</b> (Senior Research Associate, Chemistry Department, Northwestern)
Prof. Hongxia Guo March 2004-Dec 2005	<b>Micelles and Interfaces</b> (Professor, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China)
Dr. William Kung Sept 2006-Nov 2010	<b>Ionic Liquid Interfaces</b> (Director of Operations, Material Research Center, Northwestern)
Dr. Dongsheng Zhang April 2007-May 2010	<b>Simulations of Charged Networks</b> (Postdoctoral Fellow, University of Colorado, Boulder)
Prof. Graziano Vernizzi Sept 2005-Aug 2010	<b>Cationic-Anionic Vesicles and RNA Folding</b> (Associate Professor, Physics Dept., Siena College)
Prof. Kuo-An Wu March 2010- Dec 2010	<b>Functional Materials</b> (Assist. Prof., Physics Dept., National Tsing Hua University, Taiwan)
Dr. Kostantin Popov Dec 2009-Nov 2010	<b>Non-Equilibrium Self-Assembly</b> (Postdoctoral Fellow, University of Maryland)
Dr. Sumanth Swaminthan Oct 2009-Feb 2012	<b>Non-Equilibrium Self-Assembly</b> (Technology Consultant, WL Gore & Associates)
Dr. Azita Parsaeian May 2010-Aug 2012	<b>Bacterial Chromosomes</b> (Senior Analyst)
Prof. Rastko Sknepnek June 2009-Aug 2012	<b>Nanoparticles and Membranes</b> (Lecturer, University of Dundee, Scotland.)

Dr. Chloe Funkhouser  
July 2011-Jan 2013

**Lamin Meshworks** (Principal Engineer, Baxter, Round Lake IL)

Dr. Subas Dhakal  
July 2010-March 2013

**Liquid Crystalline Shells** (Postdoctoral Fellow, Syracuse University)

Dr. Creighton Thomas  
Oct 2011-Aug 2013

**Ionic Membranes** (Google)

Prof. Srikanth Patala  
2011-Aug 2013

**Metallic Nanoparticles** (Assist. Prof. Mat. Sci. North Sept Carolina State University)

Dr. Gabriel Longo  
Nov 2009-Sept 2013

**Self-regulated ionic gels** (Assist. professor, Institute of Theoretical and Applied Physical Chemistry Research, La Plata, Argentina)

Dr. Rui Zhang  
Oct2011-Oct 2013

**Dynamics of Charged Colloids**  
(Mat. Sci. Dept., University of Illinois, Urbana)

### COURSES TAUGHT

Phase Transformations in Materials

Statistical Mechanics

Polymers (lecture and lab course)

Solis State Physics/Physics of Solids

Principles of the Properties of Materials (lecture and lab course)

Senior Project

High Polymers in Solid State (Polymer Physics; Polymer Blends and Copolymers)

Special Topics in High Polymer Sciences (Polymer Solutions, Melts and Blends; Polymer Statistics and Dynamics; Polyelectrolyte Solutions, Brushes and Gels; Networks and Membranes)

### RECENT SELECTED INTERNATIONAL SCHOOLS/WORKSHOPS (2000-13):

**2000** **Lecturer-** NSF workshop on opportunities in materials theory, Oct. 4-6.

**2001** **Lecturer-** Electrostatic Interactions in Polymers, Colloids, and Biophysics, Theoretical Physics Institute, Minneapolis, MN, May 11-13.

**2001** **Lecturer-** Gordon Research Conference on Condensed Matter Physics” Connecticut College, June.

**2002** **Lecturer-** Coulomb Effects in Soft Condensed Matter and Biomolecular Science workshop, Aspen Center for Physics (Aspen, CO), May 23-June 21.

**2002** NSF workshop “Theoretical Science in the Mathematical and Physical Sciences Directorate.” Oct 28-29.

**2003** **Lecturer-** The 43<sup>rd</sup> High Polymer Research Group Conference, Moretonhampstead, Devon, England, April.

**2003** **Lecturer-** Second International Conference on Applied Statistical Physics: Molecular Engineering (ASTATPHYS-MEX-2003)”, Puerto Vallarta, Mexico, August 24-29.

**2003** **Lecturer-**Telluride Workshop on “Polymer Theory vs. Polymer Experiment, Colorado, July.

**2003** **Lecturer-** Nano Training Bootcamp, ASME Nanotechnology Institute, Evanston IL, **July** 8-11.

**2004** **Co-organizer & plenary speaker-** Role of Theory in Biological Physics and Materials workshop, National Science Foundation, May 17-18, 2004, Tempe, Arizona

**2004** **Lecturer-** Biophysics Workshop, Theoretical Physics Institute, University of Minnesota, April 30-May 2.

**2004** **Lecturer-** US-South America Workshop “Mechanics and Advanced Materials: Research and Education”, Rio de Janeiro, Brazil, August 2-6.

**2005** **Lecturer-** Baetjer Lecture Series, Princeton University, March 3-4.

**2005** **Lecturer-** North American Lectures in Chemical Engineering and Materials Science, NSF and Universidades de San Luis Potosi and Guanajuato, Mexico, November 23-25.

- 2005** **Lecturer-** Ion-Containing Polymers, Gordon Research Conference, Il Ciocco, Italy, April 2-6 (elected co-vice chair with Paula Hammond).
- 2005** **Lecturer-** Polymer Physics Workshop, Telluride Science Research Center, Telluride, CO, August 27-29.
- 2005** **Lecturer-** Polymer Physics Lecture Series, Advanced Summer School 2005, Physics Department, Centro de Investigaciones y Estudios Avanzados (Cinvestav), Mexico D. F., July 18- August 2.
- 2006** **Lecturer-** Pan-American Advanced Studies Institute Program (PASI) on Nano and Biotechnology, Bariloche, Argentina, November 13-22.
- 2006** **Lecturer-** School in Physics and Mathematics, The International Center for Theoretical Physics, ICTP, Trieste, and Brazilian National Research Council, CNPq, Sao Pablo, Brazil, Feb. 20-24
- 2006** **Lecturer-** Micro and Nano Devices with Applications to Biology and Nanoelectronics, NSF Summer Institute on Nano Mechanics and Materials, Evanston IL, USA, Aug. 7-11.
- 2007** **Lecturer-** Polymer Physics Workshop, Telluride Science Research Center, Telluride, CO, Aug. 6-10.
- 2007** **Lecturer-** Polymer Physics, Gordon Research Conference, Salve Regina University Newport, RI, June 29-July 4.
- 2007** Interdisciplinary, Globally Leading Polymer Science and Engineering NSF Workshop, Aug 15-16.
- 2008** **Dow Distinguished Lecturer**, University of California Santa Barbara, October 3.
- 2008** **Plenary Lecture-** International Conference on Molecular Electronic Devices, Korea, May 29-30.
- 2008** **Speaker-** McCormick's PhD Hooding Ceremony, Northwestern University, June 20.
- 2009** **Lecturer-** 10th Berkeley Mini Stat. Mech. Meeting, Berkeley Uni., CA, January 9-11.
- 2009** **Lecturer-** Macromolecular Materials Gordon Research Conference, Ventura, CA, January 11-15.
- 2009** **Lecturer-** Chemistry of Supramolecules and Assemblies, Gordon Research Conference, Waterville, Maine, June 28-July 3.
- 2009** **Lecturer-** 6<sup>th</sup> International Discussion Meeting on Relaxations in Complex Systems, Rome, Italy, August 30-September 6.
- 2009** **Lecturer-** Polymer Phys. Workshop, Telluride Science Research Center, Telluride, CO, July 6-10.
- 2009** **Lecturer-** Lecture Series, in Science and Technology of Complex Fluids, San Luis Potosi, Mexico, August 21-30.
- 2010** **Lecturer-** Colloidal, Macromolecular & Polyelectrolyte Solutions, Gordon Research Conference, Ventura, CA, February 21-25.
- 2010** Discussion Leader- Polymer Physics, Gordon Research Conference, Mount Holyoke College, South Hadley, MA, June 27-July 2.
- 2010** **Plenary Talk**, The 4th PENN-UPRH PREM Symposium on Soft Matters in Materials Science, Humacao, Puerto Rico, May 7, 2010.
- 2010** **Plenary Lecture-** Society of Industrial and Applied Mathematics (SIAM) meeting on Mathematical Aspects of Materials Science, Philadelphia, PA, May 23-26.
- 2010** **Plenary Lecture-** 2nd International Soft Matter Conference (ISMC 2010), Granada, Spain, July 5.
- 2011** Fay Ajzenberg-Selove Colloquium, Physics Department, University of Wisconsin, Madison.
- 2011** **Plenary Lecture-** First Workshop on Advances in Colloidal Materials, Granada, Spain.
- 2012** Procter and Gamble Lecture Series, University of California, Los Angeles.
- 2012** **Plenary Lecture-** XXI International Materials Research Congress (IMRC), August 13-17, Cancun, Mexico.
- 2013** **Lecturer, Discussion leader**, Self assembly and supramolecular chemistry, Gordon Research Conference, May 5-10, Les Diablerets, Switzerland
- 2013** **Plenary Lecture-** The 13<sup>th</sup> International conference on Properties and Phase Equilibria for Product and Process Design (PPEPPD), May 26-30, Iguaza Falls, Argentina.

**2014**            **Lecturer**, “Ion adsorption at solid-electrolyte interfaces” Lorentz Center, Leiden (NL) March 10-14, 2014.

**RECENT SELECTED SERVICES & SYNERGETIC ACTIVITIES (2000-13):**

**2000-06**            Member of the Editorial Board of the *Journal of Polymer Science B: Polymer Physics*  
**2000**                Nomination Committee of the Division of High Polymer Physics, American Physical Society  
 NSF Nanoscale Modeling and Simulation panel, June 1-2. Materials Research Science and Engineering Center at University of Minnesota, NSF Site visit, Oct. 17-18

**2001**                Pre-proposals Panel for the FY02 Materials Research Science and Engineering Centers (MRSEC) National Science Foundation, Nov. 14-15, 2001

**2001-04**            Fellowship Committee, Polymer Physics Division, American Physical Society  
**2002**                Information Technology Research (ITR) Large Proposals panel, NSF, January 23  
 MRSEC competition of the NSF Materials Research Science and Engineering Centers, March.

**2004**                Focus Sessions: “Charge Effects on Biomolecules” (**organizer**), “Charged Biomolecules in Complexes and on Surfaces” (**organizer**) and “Polyelectrolytes and Other Charged Systems” (**organizer**), March Meeting of the American Physical Society, March 22-26, 2004, Montreal.

**2005**                NSF site visit UPR-Humacao University, Humacao, Oct 18-19

**2005-09**            **Advisory Committee**, NSF Mathematical and Physical Sciences Directorate  
**2005-2011.**        **External Advisory Board**, Nanoscale Science and Engineering Center (NSEC) Materials on Templated Synthesis and Assembly at the Nanoscale, University of Wisconsin-Madison

**2006**                **Chair**, Internal Review of Dept. of Surgery, Northwestern University  
**2006**                **Search Committee** for the Director of the Division of Materials Research Mathematical Physical Science Directorate, National Science Foundation Search Committee

**2006-09**            Solid State Science Committee, National Research Council, National Research Council, the National Academy of Sciences

**2007-09**            **Chair, Advisory Committee**, NSF Division of Materials Research  
**2006-07**            **Program Review Council**, Northwestern University  
**2007**                Anne M. Mayes Carl S. Marvel Creative Polymer Chemistry Award Symposium” (**organizer**) American Chemical Society March Meeting, Chicago, March 25

**2007-08**            NSF Advisory Panel on Light Source Facilities  
**2007-09**            Research at the Interface of Physical and Life Sciences Committee, National Research Council, the National Academy of Sciences

**2007- Pre**            **Editorial Board**, Macromolecules  
**2008-09**            **Chair**, Executive NSF-MRSEC Directors Committee  
**2008**                **Panelist**, Productive Affinities: Successful Collaborations between Museums and Academia Symposium, Art Institute of Chicago, Chicago, IL, Oct. 29-31  
**Panelist Coordinator**, play Copenhagen by Michael Frayn, "Engineering Transdisciplinary Outreach Project in the Arts", Northwestern University, Evanston IL, Sep. 27

**2008-10**            **Vice-Chair**, Solid State Science Committee, National Research Council, National Research Council, the National Academy of Sciences

**2008-11**            **Advisory Committee**, NSF University New Mexico / Harvard Partnership for Research and Education in Materials (PI: Gabriel P. Lopez).

**2009-Pre**            **External Advisory Committee** (EAB), NSF Wisconsin - Puerto Rico Partnership for Research and Education in Materials” (PI: Carlos Rinaldi)

**2008-11**            **Advisory Committee**, NSF University PENN-University of Puerto Rico Partnership for Research and Education in Materials (PI: Idalia Ramos)

**2009- Pre**            Northwestern University Shared Facilities Advisory Board  
**2009**                **Search Committee** for the Assistant Director of the Mathematical Physical Science Directorate, National Science Foundation Search Committee

**2009**                **Search Committee** for the Director of the Division of Materials Research Mathematical Physical Science Directorate, National Science Foundation Search Committee

**2009**                **External Review**, Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, IL, March 29-31

- 2009** **External Review**, U.S. Department of Energy Center for Nanophase Materials Science (CNMS) Operations Review, Oak Ridge National Laboratory, Oak Ridge, TN, December 9-11
- 2009-13** **Advisory Committee**, Center for Interdisciplinary Exploration and Research in Astrophysics CIERA, Northwestern University (Directors Vicky Kalogera, Fred Rasio and Dave Meyer)
- 2009-Pre** **Advisory Board**, Materials Research Laboratory (MRL), University of Illinois at Urbana-Champaign, IL
- 2010** **Search Committee** for the Director of the Advance Photon Source at Argonne
- 2010-13** **Editorial Board**, *Current Opinion in Solid State and Materials Science*
- 2010-Pre** **Scientific Advisory Committee**, Materials Science Division, Argonne National Laboratory
- 2011-Pre** **Advisory Committee**, NSF Harvard MRSEC (PI: David Weiz)
- 2011-2015** **Editorial Committee**, *Annual Review of Materials Research*
- 2013** **Organizer**, Evolution of Colloidal Matter, New York City, NY, June 27-29
- 2013** **Co-Chair**, Fifth Biennial Principal Investigators' Meeting in "Biomolecular Materials", Materials Sciences and Engineering Division (MSED) in the DOE Office of Basic Energy Sciences (DOE-BES), Gaithersburg, MD, August 19-21
- 2013** **Co-Chair**, NSF Workshop on Opportunities in Theoretical and Computational Polymeric Materials and Soft Matter, Santa Barbara, CA, October 20-22
- 2013-15** Basic Energy Sciences Advisory Committee, Department of Energy
- 2014** US-EU Workshop on Computational Materials Science, San Francisco, CA, April 2-25, 2014
- 2014** Scientific Grand Challenges in Soft Condensed Matter workshop, Santa Barbara, CA, May 17-18, 2014
- 2014** **External Review**, Materials Science, University of Drexel, Philadelphia, PA, May 19, 2014
- 2014** **Scientific Advisory Committee**, National Science Foundation Advisory Committee for International Science and Engineering
- 2015** **Review Committee**, Deutsche Forschungsgemeinschaft (DFG), Transregional Collaborative Research Centre, Leipzig, Germany, January 21-22, 2015
- 2015-18** **Editorial Board**, *Journal of Chemical Theory and Computation*
- 2015-18** **Editorial Board**, *Journal of Chemical Physics*

#### RECENT BRIEFINGS:

- 2011** **"High Magnetic Field Sciences"**, Board of Physics and Astronomy, National Research Council, Beckman Center, UC Irvine, November 7
- 2011** **"Condensed Matter and Materials Research Committee - New Activities"**, Board of Physics and Astronomy, National Research Council, Beckman Center, UC Irvine, November 6
- 2010** **"Current Activities of the Condensed Matter and Materials Research Committee"**, Board of Physics and Astronomy, National Research Council, Beckman Center, UC Irvine, November 6
- 2009** **"Research at the Intersection of the Physical and Life Science"**, National Research Council Committee on Frontiers of Science at the Interface of Physical and Life Sciences, National Academies, briefing to the Office of Science and Technology Policy (OSTP), Washington DC, November 12
- 2009** **"Research at the Intersection of the Physical and Life Science"**, National Research Council Committee on Frontiers of Science at the Interface of Physical and Life Sciences, National Academies, briefing to the funding agencies, Keck Center, Washington DC, November 12
- 2009** **"Research at the Intersection of the Physical and Life Science"**, National Research Council Committee on Frontiers of Science at the Interface of Physical and Life Sciences, briefing to the Board of Physics and Astronomy, Beckman Center, Irvine, CA, November 7

#### TALKS, SHORT COURSES AND PARTICIPATION IN INTERNATIONAL CONFERENCES

(\* invited presentations)

- \* M. Olvera de la Cruz “DNA-functionalized nanoparticle assembly” ACS National Meeting, Denver, CO, March 22-27, 2015.
- \* M. Olvera de la Cruz “DNA-functionalized Nanoparticle Assembly and Crystallization” SIAM Conference on Computational Science and Engineering, Salt Lake City, UT, March 14-18, 2015.
- \* M. Olvera de la Cruz “Electrostatic Self-Assembly of Biomolecules,” APS Spring Meeting, San Antonio, TX, March 2-6, 2015.
- \* M. Olvera de la Cruz “Electrostatic Self-Assembly of Biomolecules”, Advanced Workshop on Out-of-Equilibrium Matter, San Luis Potosi, Mexico, December 8-12, 2014.
- \* M. Olvera de la Cruz, “DNA-Functionalized Nanoparticle Assembly and Crystallization,” Dept. of Materials Science and Eng. Colloquium, University of Illinois Urbana, November 17, 2014.
- \*M. Olvera de la Cruz, “Polyhedral Crystalline Membrane”, Department of Chem. Eng. Colloquium, Stanford University, October 27, 2014.
- \*M. Olvera de la Cruz, “Electrostatic Self-assembly of Biomolecules”, First “self-assembly of biomolecules” International Symposium, Montpellier, October 12-14, 2014.
- \*M. Olvera de la Cruz, “Ionic Membranes”, Department of Mechanical Eng. Colloquium, University of Illinois Urbana, September 2, 2014.
- \*M. Olvera de la Cruz, “Ionic Bilayers, Tail Packing and Mesoscale Geometry”, Workshop on Coarse-Grained Modeling of Polymers and Soft Materials for Genome Initiative, National Institute of Standards and Technology, August 6-7, 2014.
- \*M. Olvera de la Cruz, “Polyhedral Crystalline Membranes”, APS Colloquium, Argonne National Laboratory, Chicago, July 16, 2014.
- \*M. Olvera de la Cruz, “Crystalline Membranes’, Frontiers in Materials Sciences Seminar Series, Pacific Northwest National Laboratory, Richland, Washington, June 2, 2014.
- \*M. Olvera De La Cruz, “Electrostatic Driven Assembly”, Grand Challenges in Soft Matter Workshop, University of California, Santa Barbara, May 17-18, 2014
- T. Li, E. Auyeung, C.A. Mirkin, M. Olvera de la Cruz, “Self-Assembly and Crystallization of DNA-Functionalized Nanoparticle into Wulff Polyhedra”, MRS Spring Meeting, San Francisco, California, April 21-25, 2014.
- J. Zwanikken, Y. Jing, V. Jadhao, C.E. Sing, N. Boon and M. Olvera de la Cruz, “Theoretical analysis on ion transport through polymer networks in electrochemical capacitors”, MRS Spring Meeting, San Francisco, California, April 21-25, 2014.
- C.E. Sing, J.W. Zwanikken<sup>+</sup> and M. Olvera de la Cruz, “Electrostatic Control of Block Copolymer Morphology”, MRS Spring Meeting, San Francisco, California, April 21-25, 2014.
- \* M. Olvera de la Cruz, “DNA-Functionalized Nanoparticle Assembly and Crystallization,” Dept. of Chemical Engineering, University of Texas at Austin, Austin TX, March 27, 2014.
- \*M. Olvera de la Cruz, “Ion adsorption at solid-electrolyte interfaces” Lorentz Center, Leiden (NL) March 10-14, 2014.
- Y. Jing, J.W. Zwanikken, V. Jadhao, M. Olvera de la Cruz, “Ion distributions in electrolyte confined by multiple dielectric interfaces”, ACS National Meeting, Dallas, Texas, March 16-20, 2014.
- \*C. Mirkin, R.J. Macfarlane, E. Auyeung, M. Olvera de la Cruz, “Nucleic acid-modified nanostructures as programmable atom equivalents: Forging a new “Table of Elements”, ACS National Meeting, Dallas, Texas, March 16-20, 2014.
- F.J. Solis, V. Jadhao, M. Olvera de la Cruz, “Variational formulations for electrostatic systems: Applications to molecular dynamics simulations”, ACS National Meeting, Dallas, Texas, March 16-20, 2014.
- F.J. Solis, G.I. Guerrero-Garcia, M. Olvera de la Cruz, “Ion partitioning in confined oil/water interfaces”, ACS

National Meeting, Dallas, Texas, March 16-20, 2014.

G.I. Guerrero-Garcia, N. Boon, M. Olvera de la Cruz, "Giant charge reversal and charge amplification with monovalent ions in highly size-asymmetric colloidal suspensions", ACS National Meeting, Dallas, Texas, March 16-20, 2014.

V. Jadhao, C.K. Thomas and M. Olvera de la Cruz, "Electrostatics-driven shape transitions in charged elastic membranes" ACS Spring Meeting, Dallas, Texas, March 16-20, 2014.

J. Zwanikken, Y. Jing, V. Jadhao, C.E. Sing, N. Boon and M. Olvera de la Cruz, "Theoretical analysis on ion transport through polymer networks in electrochemical capacitors", APS March meeting, Denver, CO, March 3-7, 2014.

Y. Jing, J.W. Zwanikken, V. Jadhao, M. Olvera de la Cruz, "Ion distributions in electrolyte confined by multiple dielectric interfaces", APS March Meeting, Dallas, Texas, March 16-20, 2014.

G. Guerrero Garcia, F. Solis, M. Olvera de la Cruz, "Inversion of the electric field driven by ionic solvation energy", APS March meeting, Denver, CO, March 3-7, 2014.

S. Liu, Z. Yao and M. Olvera de la Cruz, "Spontaneous formation and evolution of kinks in elastic helical structures", APS March meeting, Denver, CO, March 3-7, 2014.

K. Kohlstedt, N. Jackson, B. Savoie, L. Chen, M. Olvera de la Cruz, G. Schatz, M. Ratner, "Controlling conformations of conjugated polymers and small molecules: The role of nonbonded interactions", APS March meeting, Denver, CO, March 3-7, 2014.

R. Zhang and M. Olvera de la Cruz, "Accelerated Self-Replication under Non-equilibrium, Periodic Energy Delivery", APS March meeting, Denver, CO, March 3-7, 2014.

J. Dempster, R. Zhang and M. Olvera de la Cruz, "Self-replicating devices with dipolar colloids", APS March meeting, Denver, CO, March 3-7, 2014.

T. Li, E. Auyeung, C.A. Mirkin and M. Olvera de la Cruz, "Multi-scale modeling for the self-assembly of DNA-functionalized nanoparticle into superlattice and Wulff polyhedra", APS March meeting, Denver, CO, March 3-7, 2014.

C.E. Sing, J.W. Zwanikken and M. Olvera de la Cruz, "Dramatic changes in Polyelectrolyte Blend Phase Behavior due to Charge Correlations" APS March Meeting, Denver, Colorado, March 3-7, 2014.

C.E. Sing, J.W. Zwanikken, M. Olvera de la Cruz, "Highly-correlated Charges in Block Copolyelectrolytes: Charge as a Tool for Morphology Manipulation", APS March Meeting, Denver, Colorado, March 3-7 2014.

V. Jadhao, C.K. Thomas and M. Olvera de la Cruz, "Changing shape of elastic shells via electrostatic interactions", APS March Meeting, Denver, Colorado, March 3-7, 2014.

N. Boon, G.I. Guerrero, R. van Roij and M. Olvera de la Cruz, "Improving the accuracy of DLVO theory for dense systems of macroions", APS March Meeting, Denver, Colorado, March 3-7, 2014.

Z. Yao and M. Olvera de la Cruz, "Topological Defects by Size Polydispersity", APS March Meeting, Denver, Colorado, March 3-7, 2014.

B. Qiao and M. Olvera de la Cruz, "Why Hydrophilic Water can Permeate Hydrophobic Interior of Lipid Membranes", APS March Meeting, Denver, Colorado, March 3-7, 2014.

M. Olvera de la Cruz, "Report on NSF Workshop on Challenges and Opportunities of Polymer and Soft Matter Theory and Simulation", APS March meeting, Denver, CO, March 3-7, 2014

\*M. Olvera de la Cruz, Condensed Matter Seminar, James Franck Institute, Departments of Chemistry and Physics & Astronomy, University of Chicago, Feb.18, 2014.

\* M. Olvera de la Cruz, "DNA-Functionalized Nanoparticle Assembly and Crystallization," Dept. of Materials Science and Engineering, University of California, Berkeley, February 11, 2014.

- \* M. Olvera de la Cruz, "Molecular Crystallization and Mesoscale Geometry of Functionalized Nanoparticles", Telluride Conference, Telluride, Colorado, February 2-5, 2014
- \*M. Olvera de la Cruz, International Symposium on Polyelectrolytes, Ein Gedi, Israel, Jan.20-23, 2014.
- \* M. Olvera de la Cruz, "Blebbing of Nuclear Lamin Networks", American Society for Cell Biology Annual Meeting, Dec 14, 2013, New Orleans, LA.
- \*M. Olvera de la Cruz, "Spherical Nucleic Acid-Au Nanoparticle Assemblies", Materials Research Society Fall Meeting, Dec 1-6, 2013, Boston, MA.
- \*M. Olvera de la Cruz, "Molecular Crystallization and Mesoscale Geometry of Multicomponent Ionic Membranes", Materials Research Society Fall Meeting, Dec 1-6, 2013, Boston, MA.
- \*M. Olvera de la Cruz, Department of Physics Colloquium, UNAM, Mexico City, Nov. 21, 2013.
- \* M. Olvera de la Cruz, "Derieux Lecture", Department of Physics at North Carolina State University, Nov 11, 2013.
- \* M. Olvera de la Cruz, Condensed Matter Seminar, Dept. of Physics & Astronomy, University of Pennsylvania, Oct 16, 2013.
- C. Sing and M. Olvera de la Cruz, "Effects of Ion Correlations on the Thermodynamics of Polymer Interfaces" ACS Fall Meeting (Indianapolis IN), Sept. 12, 2013.
- \* M. Olvera de la Cruz, "Electrostatics in Spherical Nucleic Acid-Au Nanoparticle Assemblies" Programmable Self-Assembly of Matter workshop (June 30-July 2, NYC), 2013.
- \*C. Sing and M. Olvera de la Cruz, "Highly-correlated Charges in Polymer Gels and Blends", Telluride Polymer Physics Workshop, June 17, 2013.
- \* M. Olvera de la Cruz, "Platonic and Archimedean geometries in elastic membranes" The 13<sup>th</sup> International conference on Properties and Phase Equilibria for Product and Process Design (PPEPPD), May 26-30, Iguaza Falls, Argentina.
- \*M. Olvera de la Cruz, "The Role of Electrolytes in the Assembly of Colloids" Gordon Research Conference: Self-Assembly & Supramolecular Chemistry, Les Diablerets, May 5-10, 2013, Switzerland
- \* M. Olvera de la Cruz, "Charge and Composition Patterns in Ionic Fibers, Gels and Membranes" High Polymer Research Group Conference, April 28-May 3, 2013, UK.
- \* C.E Sing, J. Zwanikken, and M. Olvera de la Cruz, "Highly-correlated charges in polyelectrolyte gels: Reentrant swelling and ion-ion correlations" in Celebrating 50 Years of Polymers at Case Western, ACS National Meeting & Exposition, April 9, 2013, New Orleans, Louisiana.
- G.I. Guerrero-Garcia, and M. Olvera de la Cruz "Inversion of the electric field at the electrified liquid-liquid interface", ACS National Meeting & Exposition, April 7-11, 2013, New Orleans, Louisiana.
- B. Qiao and M. Olvera de la Cruz "Crystallization of ionic lipid membranes, elucidated by atomistic simulation", ACS National Meeting & Exposition, April 7-11, 2013, New Orleans, Louisiana.
- \* M. Olvera de la Cruz, "Polyhedral Geometries in the Living World," Dept. of Chemical Engineering, University of Texas at Austin, Austin TX, April 4, 2013.
- R. Zhang, P. Jha, and M. Olvera de la Cruz, "Non-equilibrium Ionic Assemblies of Oppositely Charged Colloids," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.
- Y. Jing, G.I. Guerrero Garcia, and M. Olvera de la Cruz, "Enhancing and reversing the electric field at liquid/liquid interfaces," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.
- F. Solis, V. Jadhao, and M. Olvera de la Cruz, "A variational formulation of electrostatics for heterogeneous dielectric media," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.
- B. Qiao, R.J. Ellis, and M. Olvera de la Cruz, "For a Safe Diamide Extraction Process, Elucidated by Atomistic Simulations," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

C.K. Thomas, and M. Olvera de la Cruz, "Why square lattices are not seen on curved ionic membranes," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

C-Y. Leung, M. Greenfield, S. Kewalramani, L. Palmer, R. Sknepnek, B. Qiao, C. Newcomb, G. Vernizzi, M. Bedzyk, S. Stupp, and M. Olvera de la Cruz, "Mesoscopic Membrane Morphology Regulated by Molecular Crystallization," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

G.I. Guerrero Garcia, P. Gonzalez-Mozuelos, and M. Olvera de la Cruz, "Colloidal stability in concentrated electrolyte solutions using large counterions," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

K.L. Kohlstedt, M. Olvera de la Cruz, and G.C. Schatz, "Controlling orientational order of multivalent prisms in superlattice assemblies," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

A. Osorio-Vivanco, M. Olvera de la Cruz, and S. Glotzer, "Optimized assembly and steady-state length-scale control in dissipative systems of photo-switchable colloids," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

T.I.N.G. Li, R. Sknepnek, and M. Olvera de la Cruz, "Hybridization dynamics to DNA guided crystallization," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

S. Kewalramani, C-Y. Leung, J. Zwanikken, R. Macfarlane, M. Olvera de la Cruz, C. Mirkin, and M. Bedzyk, "Determination of counterion distribution around DNA coated nanoparticles (DNA-AuNP) by small angle X-ray scattering (SAXS)," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

J. Zwanikken, and M. Olvera de la Cruz, "Tunable Soft Structure in Charged Fluids confined by Dielectric Interfaces," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

Z. Yao, and M. Olvera de la Cruz, "Packing of charged chains on toroidal geometries," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

C. Sing, J. Zwanikken, and M. Olvera de la Cruz, "Highly-correlated charges in polyelectrolyte gels," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

V. Jadhao, F. Solis, and M. Olvera de la Cruz, "Ion distributions near dielectric interfaces from Car-Parrinello molecular dynamics," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

C. Funkhouser, R. Sknepnek, T. Shimi, A. Goldman, R. Goldman, and M. Olvera de la Cruz, "An Elastic Model of Blebbing in Nuclear Lamin Meshworks," American Physical Society March Meeting, Baltimore, MD, March 18-22, 2013.

\*M. Olvera de la Cruz, "Polyhedral geometries in crystalline membranes", XLII Winter meeting on Statistical Physics, January 8-11, 2012, Taxco, Mexico.

\*M. Olvera de la Cruz, "Platonic and Archimedean Geometries in Elastic Membranes", Materials Research Society Fall Meeting, Nov 27, 2012, Boston, MA.

S. Patala, L. Marks, and M. Olvera de la Cruz, "Stability Analysis for Faceted Pentagonal Nanoparticles", Materials Research Society Fall Meeting, Nov 30, 2012, Boston, MA.

\*M. Olvera de la Cruz, "Modeling mesoscale phenomena in crystalline membranes", SACNAS National Conference, October 11-14, 2012, Seattle WA.

\*M. Olvera de la Cruz, "Polyhedral Geometries in the Living World", Condensed Matter Seminar, Dept. of Physics, University of Illinois at Urbana-Champaign, September 21, 2012, Urbana IL.

\* M. Olvera de la Cruz, "Computational efforts in Polymer Science", 244<sup>th</sup> ACS National Meeting, August 19-23, 2012, Philadelphia, PA.

\* M. Olvera de la Cruz, "Computational modeling of polyelectrolyte gels: Charge regulation and nanoscale phase behavior", 244<sup>th</sup> ACS National Meeting, August 19-23, 2012, Philadelphia, PA.

\* M. Olvera de la Cruz, "Platonic and Archimedean Geometries in Multicomponent Elastic Membranes" XXI International Materials Research Congress (IMRC), August 13-17, 2012, Cancun, Mexico.

- \* M. Olvera de la Cruz, "The stability of polyvalent nanoparticles and effective interactions in molecular electrolytes" XXI International Materials Research Congress (IMRC), August 13-17, 2012, Cancun, Mexico.
- \* M. Olvera de la Cruz, "Surprises in ionic driven assembly of membranes" Argonne National Laboratory, August 7, 2012, Argonne, IL.
- \* M. Olvera de la Cruz, "Charge and Composition Patterns in Ionic Membranes" Recent Progresses on Coulomb Many-body Systems Workshop, Shanghai Jiao Tong University, June 9-16, 2012, Shanghai, China.
- \* M. Olvera de la Cruz, "Polyelectrolyte Gels" International Symposium on Polymer Physics, June 4-8, 2012, Chengdu, China.
- \* M. Olvera de la Cruz, "Ionic driven assembly of membranes: Surprising findings in shell shape and composition", May 3, 2012, Dept. of Physics, North Dakota State University.
- \* M. Olvera de la Cruz, "Modeling heterogeneous fibers and membranes" (in "Computational Materials Design In Heterogeneous Systems") MRS Spring meeting, April 9-13, 2012, San Francisco, CA.
- \* M. Olvera de la Cruz, "Physical Properties of Heterogeneous Microcompartments", Procter and Gamble Lecture Series, Spring 2012, Department of Chemistry and Biochemistry, University of California, April 16, 2012, Los Angeles, CA.
- C. Thomas and M. Olvera de la Cruz, "Charge correlations in multicomponent ionic crystalline membranes", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- M. Olvera de la Cruz, J. Zwanikken and C.A. Mirkin, "Local ionic environment around polyvalent nucleic-acid functionalized gold nanoparticles", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- M. Demers, R. Sknepnek and M. Olvera de la Cruz, "Curvature driven domain formation in ternary lipid membranes", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- R. Sknepnek and M. Olvera de la Cruz, "Thin-shell model for faceting of multicomponent elastic vesicles", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- T. Li, R. Sknepnek, R.J. Macfarlane, C.A. Mirkin and M. Olvera de la Cruz, "Modeling of DNA-directed colloidal self-assembly and crystallization", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- C-Y. Leung, L. Palmer, S. Kewalramani, R. Sknepnek, G. Vernizzi, M. Greenfield, S. Stupp, M. Bedzyk and M. Olvera de la Cruz, "Electrostatics-driven assembly of uni-lamellar cationic faceted vesicles", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- J. Zwanikken and M. Olvera de la Cruz, "Ion-induced interactions between charged macroions and dielectric inhomogeneities", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- P. Jha, J. Zwanikken, F. Detcheverry, J. de Pablo and M. Olvera de la Cruz, "Influence of charge and network inhomogeneities on the swollen-collapsed transition in polyelectrolyte nanogels", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- J. Su, H. Guo and M. Olvera de la Cruz, "Solubility and transport of cationic and anionic patterned nanoparticles", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- B. Grzybowski, M. Olvera de la Cruz, P. Jha and V. Kuzovkov, "A novel kinetic Monte Carlo algorithm for non-equilibrium simulations", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- G.I. Guerrero Garcia and M. Olvera de la Cruz, "Ion correlations in the electrical double layer near liquid/liquid interfaces", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.
- C. Funkhouser, R. Sknepnek and M. Olvera de la Cruz, "Morphologies of elastic membranes with fluctuating connectivity", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.

B. Qiao and M. Olvera de la Cruz, "Effect of valence of counterions on the structure of charged membranes, a computer simulation study", American Physical Society March Meeting, Boston, MA, February 27- March 2, 2012.

\* M. Olvera de la Cruz, "Surprises in ionic driven assembly of membranes", Caltech Chemical Physics Seminar Series, California Institute of Technology, January 31, 2012, Pasadena, CA.

\* M. Olvera de la Cruz, "Surprises in electrostatic driven assembly of ionic crystalline shells", Department of Materials Science, University of Michigan, November 18, 2011, Ann Arbor, MI.

\* M. Olvera de la Cruz, J. W. Zwanikken and C. A. Mirkin "Ionic screening and ion-induced attractions in solutions of nanoparticles" First Workshop on Advances in Colloidal Materials- 25<sup>th</sup> Anniversary-Biocolloid and Fluid Physics Group (1986-2011), University of Granada, September 23, 2011, Granada, Spain.

\* M. Olvera de la Cruz, "Ionic Crystalline Shells", Colloquium, Dept. of Chemical & Biological Engineering, Rensselaer Polytechnic Institute, September 14, 2011, Troy, NY.

\* M. Olvera de la Cruz, "Platonic and Archimedean Geometries in Elastic Membranes", Colloquium, Applied Physics, Harvard University, September 9, 2011, Cambridge, MA.

\* M. Olvera de la Cruz, "New Geometries of Elastic Closed Membranes and Crystalline Shells", Laboratoire de Physique de Solides, University of Orsay, July 12, 2011, Orsay, France.

\* M. Olvera de la Cruz, "Heterogeneous Elastic Membranes: New Shapes of Microcompartments", Telluride Workshop on Polymer Physics, June 20-24, 2011, Telluride, CO.

\*M. Olvera de la Cruz, J. W. Zwanikken, P. Guo, R. J. Macfarlane, and C. A. Mirkin, "Grafting density effect on ionic screening around functionalized Nanoparticles", 241st ACS National Meeting & Exposition - March 27-31, 2011, Anaheim, California.

G. Ivan Guerrero-Garcia, P. Gonzalez-Mozuelos, and M. Olvera de la Cruz, "On the interaction of equally charged nanoparticles in presence of a size-asymmetric salt", 241st ACS National Meeting & Exposition - March 27-31, 2011, Anaheim, California.

J. W. Zwanikken and Monica Olvera de la Cruz, "Ions and charged macromolecules near the interface between two electrolyte solutions", 241st ACS National Meeting & Exposition - March 27-31, 2011, Anaheim, California.

\*M. Olvera de la Cruz, "Responsive Polyelectrolyte Gels and Tethered Membranes", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

F. J. Solis and M. Olvera de la Cruz, "Ionic conduction at liquid-liquid interfaces", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

P. Jha, J. Zwanikken, F. Detchevery, J. de Pablo, M. Olvera de la Cruz, "Theoretically informed coarse-grained simulations of polymer nanogels", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

P. Guo, R. Sknepnek, M. Olvera de la Cruz, "Ridge formation of charged end group ligands grafted on faceted nanoparticle", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

V. Jadhao, F. J. Solis, G. Guerrero-Garcia, M. Olvera de la Cruz, "Towards simulation of charges in the presence of varying dielectric response", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

M. Demers, F. J. Solis, M. Olvera de la Cruz, "Pattern formation in ternary lipid membranes with composition-deformation coupling", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

S. Dhakal, F. J. Solis, M. Olvera de la Cruz, "Orientational order and defect structures on curved surfaces", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

J. Zwanikken, M. Olvera de la Cruz, "Correlated electrolyte solutions and ion-induced attractions between nanoparticles", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

C. Y. Leung, R. Sknepnek, L. Palmer, G. Vernizzi, M. Greenfield, S. Stupp, M. Bedzyk, M. Olvera de la Cruz, "Crystallization induced by electrostatic correlations in vesicles of mixed-valence ionic amphiphiles",

American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

S. Swaminathan, F. J. Solis, M. Olvera de la Cruz, "Conformation and mechanical properties of diblock fibers", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

R. Sknepnek, C. Leung, L. C. Palmer, G. Vernizzi, S. I. Stupp, M. J. Bedzyk, M. Olvera de la Cruz, "Faceting of multicomponent charged elastic shells", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

A. Parsaeian, J. F. Marko, M. Olvera de la Cruz, "Binding-rebinding dynamics of proteins interacting non-specifically with a long DNA molecule", American Physical Society March Meeting, Dallas, TX, March 21-25, 2011.

\* M. Olvera de la Cruz "Regular and Irregular Polyhedra in Multi-Component Crystalline Shells", Fay Ajzenberg-Selove Colloquium, Physics Department, University of Wisconsin, Madison, Feb. 18, 2011.

\* M. Olvera de la Cruz "Regular and Irregular Polyhedra in Multi-Component Elastic Membranes" Workshop on Self-Assembled Bio-Inspired Materials for Energy, Argonne, February 4, 2011.

\*M. Olvera de la Cruz "Heterogeneous Membranes" Colloquium, Department of Chemical Engineering, University of Illinois at Chicago, January 13, 2011.

\* M. Olvera de la Cruz, "Surprises in Heterogeneous Elastic Membranes" Colloquium, Department of Polymer Science and Eng., University of Massachusetts, Amherst Physics, September 24, 2010.

\* M. Olvera de la Cruz, "Ionic Membranes and Gels" **Plenary Lecture**, 2nd International Soft Matter Conference (ISMC 2010), Granada Spain July 5-8, 2010.

\* M. Olvera de la Cruz, "Heterogeneous Elastic Membranes" Self-assembly in Biology and Materials Science Workshop, Huatulco, Oaxaca, June 9-11, 2010.

\* M. Olvera de la Cruz, "Symmetries Broken by Electrostatics in Nanoscale Ionic Assemblies", **Plenary Speaker**, Society of Industrial and Applied Mathematics (SIAM) meeting on Mathematical Aspects of Materials Science, Philadelphia, PA, May 23-26, 2010.

\* M. Olvera de la Cruz, "Self-Assembly in Molecular Electrolytes" **Plenary Talk**, The 4th PENN-UPRH PREM Symposium on Soft Matters in Materials Science, Humacao, Puerto Rico, May 7, 2010.

D. Zhang, P. González Mozuelos, and M. Olvera de la Cruz, "Cluster Formation by Charged Nanoparticles on a Surface in Aqueous Solution" American Chemical Society Spring Meeting, San Francisco, CA, March 21-25, 2010.

\* M. Olvera de la Cruz and P. Gonzalez-Mozuelos, "Nanoparticles in aqueous media" American Chemical Society Spring Meeting, San Francisco, CA, March 21-25, 2010.

R. Sknepnek, A. J. Morris-Cohen, G. D. Lilly, M. Olvera de la Cruz and E. Weiss "Ligand exchange on CdSe quantum dots", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

F. J. Solis, G. Vernizzi, S. Swaminathan and M. Olvera de la Cruz "Semi-flexible polymer with heterogeneous bending rigidity adsorbed at interfaces" American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

D. Zhang, G. Vernizzi, and M. Olvera de la Cruz, "Simulation of structural phase transition in two dimensional ionic crystal", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

J. W. Zwanikken, R. Sknepnek, and M. Olvera de la Cruz, "Effective interactions between pH-responsive particles", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

G. Vernizzi, R. Sknepnek, and M. Olvera de la Cruz "The shapes of two-component crystalline shells", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

K. L. Kohlstedt, G. Vernizzi, F. J. Solis and M. Olvera de la Cruz, "Optimal arrangement of lamellar and triangular lattices confined to cylindrical fibers", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

M. Olvera de la Cruz, R. Sknepnek, G. Vernizzi "The buckling transition of ionic shells and electrostatics", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

M. J. Bedzyk, C. Leung, M. A. Greenfield, L. C. Palmer, G. Vernizzi, M. Olvera de la Cruz and S. I. Stupp "Buckled membranes in mixed-valence ionic amphiphile vesicles analyzed by x-ray scattering", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

P. K. Jha, J. W. Zwanikken, J. J. de Pablo, and M. Olvera de la Cruz "Effects of charge inhomogeneities on the phase behavior of polyelectrolyte gels", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

G. I. Guerrero-Garcia, E. Gonzalez-Tovar, and M. Olvera de la Cruz "Effects of the Ionic-size Asymmetry around a Charged Colloid: Unequal Charge Neutralization and Electrostatic Screening", American Physical Society March Meeting, Portland, OR, March 15-19, 2010.

\* M. Olvera de la Cruz "Ionic Driven Self-Assembly", Physics Department Colloquium, University of Texas, San Antonio, March 5, 2010.

\* M. Olvera de la Cruz "Asymmetric Interactions and Assembly of Positive and Negative Charged Nanoparticles in Water" 2010 Colloidal, Macromolecular & Polyelectrolyte Solutions Gordon Research Conference, Ventura, CA, February 21-26, 2010.

\* M. Olvera de la Cruz "Ionic Driven Self-Assembly", Physics Department Colloquium, Boston University, January 26, 2010.

\* M. Olvera de la Cruz, 4<sup>th</sup> Africa Materials Research Society (Africa MRS Meeting), Abuja, Nigeria, 14<sup>th</sup> to 18<sup>th</sup> of December, 2009 (cancelled).

\* M. Olvera de la Cruz "Ionic Membranes and Gels" Materials Science Division, Argonne, November 20, 2009.

\* M. Olvera de la Cruz "Spontaneous Buckling of Ionic Membranes", Martin Weiner Lecture Series Department of Physics Colloquium, Brandeis University, November 17, 2009.

Dorsi Grillo, M. Olvera de la Cruz, and I. Szleifer "Phase Behavior Calculations of DOPC Phospholipid Bilayers" AIChE Annual Meeting, Nashville, TN, November 8-13, 2009.

\* M. Olvera de la Cruz "Spontaneous Buckling of Ionic Membranes", Polymer Science Lecture Series, Polymer Science Department, University of Akron, Akron, OH, October 8, 2009.

\* M. Olvera de la Cruz "Current Status of Materials Research", Kyoto Institute of Technology, Kyoto, Japan, September 28, 2009.

\* M. Olvera de la Cruz "Ionic self-Assemblies" Kyoto Institute of Technology, Kyoto, Japan, September 28, 2009.

\* M. Olvera de la Cruz "Lectures on Critical Phenomena in Polymers" Lecture series at the Kyoto Institute of Technology, Kyoto, Japan, September 25, 2009.

\* M. Olvera de la Cruz "Functional Ionic Membranes" 6<sup>th</sup> International Discussion Meeting on Relaxations in Complex Systems, Rome, Italy Aug 30-Sept 6, 2009.

\* M. Olvera de la Cruz, Lecture Series on Molecular Electrolytes and Ionic Assemblies at the Nanoscale, "Meeting on the Science and Technology of Complex Fluids" San Luis Potosi, Mexico, August 17-21, 2009.

\* M. Olvera de la Cruz "Polyelectrolyte Gels: Solvation versus Segregation" Polymer Physics Workshop, Telluride Science Research Center, Telluride, CO, July 6-10, 2009.

\* M. Olvera de la Cruz "Self-Assembly via Electrostatics: Simple and Complex Shapes and Symmetries", Chemistry of Supramolecules and Assemblies, Gordon Research Conference, Waterville, Maine, June 28 to July 3, 2009.

\* M. Olvera de la Cruz "Buckled membranes and other surprises in the ionic driven self-organization of biomolecules", Molecular Biophysics, Northwestern University, April 15, 2009.

\* M. Olvera de la Cruz "Asymmetric Charge Renormalization and Interactions of Nanoparticles in Aqueous Media", American Chemical Society Meeting, Salt-Lake City, March 22-26, 2009.

M. Olvera de la Cruz, Megan Greenfield, Liam Palmer, Graziano Vernizzi and Samuel Stupp "Buckled Membranes in Mixed-Valence Ionic Amphiphiles" American Chemical Society Meeting, Salt-Lake City, March 22-26, 2009.

D. Zhang and M. Olvera de la Cruz "Nano-patterns in Tethered Membranes of Polyelectrolyte with Hydrophobic Backbones" American Chemical Society Meeting, Salt-Lake City, March 22-26, 2009.

D. Zhang, P. Gonzalez-Mozuelos and M. Olvera de la Cruz "Crystallization of charged nano-particles in solution" American Chemical Society Meeting, Salt-Lake City, March 22-26, 2009.

\* Monica Olvera de la Cruz "Spontaneous Symmetry Breaking by Electrostatics in Helical Fibers and Buckled Membranes" Materials Science and Engineering Seminar Series, MIT, Cambridge, MA, February 6, 2009.

\* M. Olvera de la Cruz "Nano-patterns in Gels of Charged Chains" Kent State University, January 28, 2009.

\* M. Olvera de la Cruz "Self-Organization of Complex Molecular Electrolytes", Macromolecular Materials Gordon Research Conference, Ventura, CA, January 11-15, 2009.

\* M. Olvera de la Cruz "Ionic Assemblies: Symmetries and Functions", 10th Berkeley Mini Stat. Mech. Meeting, Berkeley University, CA, January 09-11, 2009.

\* G. Vernizzi and M. Olvera de la Cruz "Icosahedral Ionic Shells", Fall 2008 MRS Symposium, Boston, December 1-5, 2008.

\* M. Olvera de la Cruz "Nanostructures in Molecular Electrolytes" 2008 Dow Foundation Distinguished Lecturer at UCSB, Graduate Students Diversity of Science, Materials Department Colloquium, University of California Santa Barbara, October 3, 2008.

\* M. Olvera de la Cruz "Ionic Membranes and Gels" Institute of Materials Science Colloquium, University of Connecticut, September 19, 2008.

\* M. Olvera de la Cruz "Functionalities driven by Symmetries Broken in Assemblies with Charge Heterogeneities" 2008 American Conference in Theoretical Chemistry (ACTC 2008), Northwestern University, July 19-24, 2008.

\* M. Olvera de la Cruz, "Symmetries in Ionic Assemblies: Vesicles, Membranes and Gels" 2008 Polymer Physics, Gordon Research Conference, Salve Regina University Newport, RI, June 29 - July 4, 2008.

\* M. Olvera de la Cruz "Patterns in Charged Gels: from Actuators to Chromosomes" 8<sup>th</sup> International Symposium of Polymer Physics, Xiamen, China, June 8-12, 2008 (Trip cancelled).

\* M. Olvera de la Cruz "Organic and Inorganic Nanoelectronic Materials" **Plenary Lecture**, International Conference on Molecular Electronic Devices, Korea, May 29-30, 2008.

\* M. Olvera de la Cruz "Novel Processing Methods for Nanostructured Materials and Supramolecular Structures", Ajou University, Korea, May 28, 2008.

\* M. Olvera de la Cruz "Broken Symmetries in Ionic Nanopatterns: from Fibers to Gels" Department of Physics Colloquium, Northwestern University, April 25, 2008.

\* M. Olvera de la Cruz "Educational outreach activities at the Northwestern University Materials Research Science; Engineering Center" American Chemical Society March Meeting, New Orleans, LA, April 6-10, 2008.

\* M. Olvera de la Cruz "Microphase Segregation in Gels of Charged Chains with Hydrophobic Backbones" American Chemical Society Meeting, New Orleans, LA, April 6-10, 2008.

\* M. Olvera de la Cruz "The Mutual Benefit of International Research Interactions" American Physical Society March Meeting, New Orleans, LA, March 10-14, 2008,

M. Olvera de la Cruz and J. J. de Pablo "Nano-patterns in gels of charged chains with self-attracting interactions" American Physical Society March Meeting, New Orleans, LA, March 10-14, 2008.

Megan Greenfield, Graziano Vernizzi, Liam Palmer, Samuel Stupp and Monica Olvera de la Cruz "Self Assembly of Mixed-Valence Ionic Amphiphiles into Faceted Vesicles" American Physical Society March Meeting, New Orleans, LA, March 10-14, 2008.

William Kung and Monica Olvera de la Cruz "Mystery on Charge Asymmetry: Anionic Macroions in Periodic Lattices Held by Hydrated Cations and Not vice versa" American Physical Society March Meeting, New Orleans, LA, March 10-14, 2008.

\* M. Olvera de la Cruz "Charged Molecule Co-Absorption at Liquid-Liquid Interfaces: Membrane Buckling and Nanopatterned Membranes" Physic Department Colloquium, University of Illinois, Chicago, March 5, 2008.

\* M. Olvera de la Cruz "Ion Absorption at Liquid-Liquid Interfaces and Charged Patterned Membranes: Thermodynamics and Structure", Physics Department, Kyoto University, Kyoto, Japan, October 10, 2007

\* M. Olvera de la Cruz "Charged Gels" Kyoto Institute of Technology, October 9, 2007.

\* M. Olvera de la Cruz "Ionic Assemblies: Patterns and Symmetries", Department of Physics, Edinburgh University, September 24, 2007.

\* M. Olvera de la Cruz "Structures and Symmetries in Self-Assembly" Polymer Physics Workshop, Telluride Science Research Center, Telluride, CO, August 06-10, 2007.

\* M. Olvera de la Cruz "Symmetries in Ionic Assemblies" Colloquium, Service de Physique Théorique, CEA, Saclay, France, June 26, 2007.

\* M. Olvera de la Cruz "Surface Assembly of Adsorbed Ionic Molecules", Department of Materials Science, ETH, Zurich, June 22, 2007.

\* M. Olvera de la Cruz "Electrostatic Driven Self-Assembly" Department of Chemistry, Northwestern University, Evanston, IL, May 29, 2007.

\* M. Olvera de la Cruz "Ionic Molecular Assemblies" Colloquium, Department of Physics, University of California Santa Cruz, May 17, 2007.

\* G. Vernizzi and M. Olvera de la Cruz "Faceting of Ionic Shells into Icosahedra via Electrostatics" American Chemical Society, Chicago, IL, March 25-29, 2007.

K. Kohlstedt, G. Vernizzi F.J. Solis and M. Olvera de la Cruz, "The Breaking of Chiral Symmetry Using Long-Range Electrostatic Forces" American Chemical Society, Chicago Illinois, March 25, 2007.

\* M. Olvera de la Cruz "Electrostatic Driven Self-Assembly" Department of Chemistry, Purdue University, March 21, 2007.

\* M. Olvera de la Cruz "Theoretical and Numerical Modeling of Faceted Vesicles of Viral Size" American Physical Society, Denver, Colorado, March 5-9, 2007.

W. Kung, A.W.C. Lau and M. Olvera de la Cruz "Electrostatics of Planar Interfaces in Salt Solution" American Physical Society, Denver, Colorado, March 5-9, 2007.

K. L. Kohlstedt, F. J. Solis, G. Vernizzi and M. Olvera de la Cruz "The Breaking of Chiral Symmetry Using Long-Range Electrostatic Forces" American Physical Society, Denver, Colorado, March 5-9, 2007.

Y. Velichko, F. J. Solis, S. M. Loverde and M. Olvera de la Cruz "Ion Condensation near Patterned Surfaces" American Physical Society, Denver, Colorado, March 5-9, 2007.

M. Greenfield, Y. Velichko, S. I. Stupp and M. Olvera de la Cruz "Physical Properties of Anionic Peptide Amphiphile Fibers Grown in the Presence of Polyion Salt" American Physical Society, Denver, Colorado, March 5-9, 2007.

\* M. Olvera de la Cruz "Theoretical and Numerical Modeling of Ionic Molecular Assemblies" ESPCI, Paris, February 19, 2007.

\*M. Olvera de la Cruz, "Complexes of Oppositely Charged Molecules: Bulk and Surface Structures" Materials Research Society Meeting, Boston, November 27, 2006.

K. L. Kohlstedt, F. J. Solis, G. Vernizzi and M. Olvera de la Cruz "Charged Helical Patterns on the Surface Nanofibers and the Salt-induced Melting of the Nanopatterns", Materials Research Society Meeting, Boston, November 27, 2006.

M. J. Bedzyk, J. A. Libera, H. Cheng, K. Zhang, and M. Olvera de la Cruz, "X-Ray Standing Wave Observation of Cations and Polynucleotides Explains Polyion Adsorption to Like-Charged Surfaces", American Chemical Society Meeting, San Francisco. September 2006.

M. Lefebvre, H. Guo, K. Shull, and M. Olvera de la Cruz, "Formation of Swollen Micelles and Inverse Swollen Micelles Using a Block Copolymer with Favorable Interactions", American Chemical Society Meeting, San Francisco. September 2006.

G. Vernizzi, and M. Olvera de la Cruz, "Electrostatic Effects on the Shape of Charged Lipid Membranes", American Chemical Society Meeting, San Francisco. September 2006.

\* M. Olvera de la Cruz "Mechanics of Biosystems" Pan-American Advanced Studies Institute Program (PASI) on Nano and Biotechnology – Barriloché, Argentina, Nov. 13-22, 2006

\* M. Olvera de la Cruz "Modeling of Materials" workshop KISTI (Korea Institute of Science and Technology Information) Daejeon, Korea, July 6, 2006.

\* M. Olvera de la Cruz "Complexes of Oppositely Charged Molecules: Bulk Structures and Surface Pattern Formation" Seoul University, Seoul, Korea, July 5, 2006.

\* M. Olvera de la Cruz "Electrostatics in Biomaterials" Kyoto University, Kyoto, Japan, July 11, 2006

\* M. Olvera de la Cruz "Statistical Mechanics Applied to Bio-systems", NSF Summer Institute: A Short Course on Micro and Nano Devices With Applications to Biology and Nanoelectronics, Northwestern University, Evanston, IL, August 7-11, 2006.

S. M. Loverde, F. J. Solis, M. Olvera de la Cruz "Phase Segregation and Patterning in Two Dimensional Systems: Competition between Van der Waals and Electrostatic interactions" American Physical Society, March Meeting, March 2006, Baltimore, MD.

Y. S. Velichko and M. Olvera de la Cruz, "Electrostatic Attraction Between Cationic-Anionic Assemblies with Surface Compositional Heterogeneities" American Physical Society, March Meeting, March 2006, Baltimore, MD.

K. L. Kohlstedt, F. J. Solis and M. Olvera de la Cruz "Surface Patterns on Co-Assembled Fibers from Charged, Amphiphilic Molecules" American Physical Society, March Meeting, March 2006, Baltimore, MD.

S. M. Loverde, Y. S. Velichko and M. Olvera de la Cruz "Competing Interactions in Two Dimensional Coulomb Systems: Surface Charge Heterogeneities in Co-Assembled Cationic-Anionic Incompatible Mixtures" American Physical Society, March Meeting, March 2006, Baltimore, MD.

M. Greenfield, M. Olvera de la Cruz and S. I. Stupp "Physical Properties of Anionic Peptide Amphiphile Fibers Grown in the Presence of Cationic Proteins" American Physical Society, March Meeting, March 2006, Baltimore, MD.

M. Lefebvre, M. Guvendiren, M. Olvera de la Cruz and K. Shull "Interfacial Segregation and Micellization of Hydrogen Bonding Copolymers" American Physical Society, March Meeting, March 2006, Baltimore, MD.

\* M. Olvera de la Cruz "Physical Properties of Polyelectrolytes of Biological Interest", Schools in Physics and Mathematics, The International Center for Theoretical Physics, ICTP, at Trieste, and the Brazilian National Research Council, CNPq, Sao Paulo, Brazil, Feb 20-24, 2006.

\* M. Olvera de la Cruz "Electrostatic Interactions in Mixtures of Cationic and Anionic Biomolecules: Bulk Structures and Induced Surface Pattern Formation" as part of the "North American Lectures in Chemical Engineering and Materials Science", NSF and Universidades de San Luis Potosi and Guanajuato, Mexico, 11/23/05 and 11/25/05

- \* M. Olvera de la Cruz "Cationic and Anionic Assemblies: Bulk Ionic Structures and Surface Pattern Formation in Mixtures of Oppositely Charged Amphiphiles", Colloquium, Department of Materials science and Engineering, University of Illinois, Urbana-Champaign, IL, 08/29/05
- \*M. Olvera de la Cruz "Charged Induced Pattern Formation on Surfaces of Assemblies of Cationic-Anionic Amphiphiles", "Correlations in Polymer melts, blends and solutions", "Heterogeneous Macromolecule" and "Polyelectrolyte Solutions", Advanced Summer School 2005, Physics Department, Centro de Investigaciones y Estudios Avanzados (Cinvestav), Mexico D. F. Mexico from 07/18 to 07/22, 2005.
- \* M. Olvera de la Cruz "Co-assembly of Cationic and Anionic Heterogeneous Macromolecules: Bulk and Surface Nano-Pattern Formation" European Polymer Congress, Moscow at Moscow State University, Moscow (declined) June 27-July 1, 2005.
- \*M. Olvera de la Cruz, "Charged Induced Pattern Formation on Surfaces of Assemblies of Cationic-Anionic Amphiphiles", Polymer Physics Workshop, Telluride Science Research Center, Telluride, CO, 07/27-29, 2005.
- \*M. Olvera de la Cruz, "Pattern Formation in Mixtures of Oppositely Charged Biomolecules" Seminar general de Service de Physique Theorique, CEA-Saclay, France, 06/28/05.
- \*M. Olvera de la Cruz, "Pattern Formation in Self-Assembled Heterogeneous Molecules: Co-Assembled Cationic and Anionic Amphiphiles" Laboratoire de Physique des Solides, University de Paris-Sud, Orsay, 07/24/2005.
- \*M. Olvera de la Cruz, "Charged Induced Pattern Formation on Surfaces of Cationic and Anionic Peptide Amphiphiles", Gordon Research Conference, Ion-Containing Polymers, Il Ciocco, Italy, 04/02/05.
- Y. Velichko and M. Olvera de la Cruz, "Charged Binary Fluid Confined to Cylindrical Monolayer: Pattern Formation", American Physical Society, March Meeting, March 2005, Los Angeles, CA.
- J. A. Libera, K. Zhang, M. J. Bedzyk and M. Olvera de la Cruz "Polynucleotide Adsorption onto Negatively Charged Surfaces", American Physical Society, March Meeting, March 2005, Los Angeles, CA.
- S. M. Loverde, Y. Velichko and M. Olvera de la Cruz "Charge Induced Pattern Formation on Surfaces", American Physical Society, March Meeting, March 2005, Los Angeles, CA.
- M. Olvera de la Cruz and H. Cheng "Charged Surface Induced Diblock Copolymer Micellization", American Physical Society, March Meeting, March 2005, Los Angeles, CA.
- H. Guo and M. Olvera de la Cruz "Structure and Dynamics of Microemulsions/Micelles in the Presence of a Monolayer Interface in the Ternary Amphiphilic Systems: A Computer Simulation Study" American Physical Society, March Meeting, March 2005, Los Angeles, CA.
- \*M. Olvera de la Cruz, "Charge Induced Pattern Formation on Surfaces of Cylindrical Micelles of Cationic-Anionic Peptide-Amphiphiles", American Chemical Society Meeting, ACS Award In Polymer Chemistry, March 14, San Diego, CA.
- \*M. Olvera de la Cruz, "Charged Macromolecules: Solutions, Aggregates and Gels" and "Surface Pattern Formation in Self-Assembled Heterogeneous Molecules: Co-Assembled Cationic and Anionic Peptide Amphiphiles", Baetjer Colloquium Series, Department of Mechanical and Aerospace engineering, Princeton University, Princeton, NJ, March 3-4, 2005.
- \*M. Olvera de la Cruz, "Electrostatic Interactions in Mixtures of Cationic and Anionic Biomolecules: Bulk Structures and Surface Pattern Formation" Colloquium, Physics Department, University of Houston, TX, 02/15/05.
- \*M. Olvera de la Cruz, "Electrostatic Interactions in Mixtures of Cationic and Anionic Biomolecules: Bulk Structures and Induced Surface Pattern Formation", Chemical Engineering Department, University of Columbia, New York, October 19, 2004.
- \*M. Olvera de la Cruz, "Strongly Correlated Macro-Ionic Solutions: Charged Chains Complexes, Charged Telechelics and Charged Peptide-Amphiphiles Mixtures," XIII International Materials Research Congress, Cancun, Mexico. 22-26, August, 2004.

- \*M. Olvera de la Cruz, "Electrostatic Interactions in Mixtures of Cationic and Anionic Biomolecules: Bulk Structures and Induced Surface Pattern Formation", US-South America Workshop "Mechanics and Advanced Materials: research and Education", Rio de Janeiro, Brazil, August 2-6, 2004.
- \* M. Olvera de la Cruz, "Cell: Simple Structures," NSF Biophysics Workshop, Tempe, AZ, May 16-18, 2004.
- \* M. Olvera de la Cruz, "Charged Macromolecules," IGERT, Northwestern University, March 3, 2004.
- \* M. Olvera de la Cruz, "Self-Organization of Mixtures of Peptide-Amphiphiles of Opposite Charge," Biophysics Workshop, Theoretical Physics Institute, University of Minnesota, April 30-May 2, 2004.
- A. Ermoshkin, A. Kudlay, and M. Olvera de la Cruz, "Thermoreversible Crosslinking of Polyelectrolyte Chains," Annual American Physical Society March Meeting 2004, Montreal, Quebec, March 22, 2004.
- M. D. Lefebvre, M. Olvera de la Cruz, and K. R. Shull, "Homopolymer Volatilization in Diblock Copolymer Micelles," Annual American Physical Society March Meeting 2004, Montreal, Quebec, March 24, 2004.
- S. Levered, A. Ermoshkin, M. Olvera de la Cruz, "Computer Simulation of Associating Ideal Chains," Annual American Physical Society March Meeting 2004, Montreal, Quebec, Canada, March 24, 2004.
- A. Kudlay, A. Ermoshkin, M. Olvera de la Cruz, "Complication in Solutions of Oppositely Charged Polyelectrolytes," Annual American Physical Society March Meeting 2004, Montreal, Quebec, March 24, 2004.
- M. D. Lefebvre, M. Olvera de la Cruz, K. R. Shull, "Homopolymer Volatilization in Diblock Copolymer Micelles," Annual American Physical Society March Meeting 2004, Montreal, Quebec, March 24, 2004.
- F. J. Solis, M. Olvera de la Cruz, "Pattern Formation in Charged Micelles," Annual American Physical Society March Meeting 2004, Montreal, Quebec, March 25, 2004.
- H. Cheng and M. Olvera de la Cruz, "Rod-like Polyelectrolyte Adsorption Onto Charged Surfaces in Monovalent and Divalent Salt Solutions," (Poster) Gordon Research Conferences Colloidal, Macromolecular & Polyelectrolyte Solutions Ventura, CA, February 1-6, 2004
- A. Kudlay, A.V. Ermoshkin, and M. Olvera de la Cruz, "Phase Diagram of Charged Dumbbells," (Poster) Gordon Research Conferences, Colloidal, Macromolecular & Polyelectrolyte Solutions, Ventura CA, February 1-6, 2004.
- A. V. Ermoshkin and M. Olvera de la Cruz, "Association of Charged Telephonic Chains," (Poster) Gordon Research Conferences. Colloidal, Macromolecular & Polyelectrolyte Solutions Ventura CA, February 1-6, 2004.
- M. Olvera de la Cruz, "Association of Charged Chains," Chemistry department, University of Oregon, Eugene, OR, Jan 26, 2004.
- M. Olvera de la Cruz, "Solutions of Charged Polymers," "Second International Conference on Applied Statistical Physics: Molecular Engineering (ASTATPHYS-MEX-2003)", Puerto Vallarta, Mexico, August 24-29, 2003.
- M. Olvera de la Cruz, "Polyelectrolytes: Gelation and Adsorption," 2003 Telluride Workshop on "Polymer Theory vs. Polymer Experiment, Colorado, July 2003.
- M. Olvera de la Cruz, "Statistical Mechanics," Nano Training Bootcamp, ASME Nanotechnology Institute, Northwestern University, Evanston IL, July 8-11, 2003.
- M. Olvera de la Cruz, "Polyelectrolyte Solutions in Multivalent Salts," The 43<sup>rd</sup> High Polymer Research Group Conference, 2003, Moretonhampstead, Devon, England, April 2003.
- M. Olvera de la Cruz and A. Ermoshkin, "Polyelectrolyte Solutions: Gelation and Segregation," American Physical Society March Meeting, Austin TX, March 2003.
- H. Cheng and M. Olvera de la Cruz, "Adsorption of Polyelectrolytes onto Like-Charged and Oppositely Charged Chains," American Physical Society Meeting, Austin TX, March 2003.
- A. Kudlay and M. Olvera de la Cruz, "Phase Behavior of Solutions of Flexible Oppositely Charged Polyelectrolytes," American Physical Society Meeting, Austin TX, March 2003.

A. Ermoshkin and M. Olvera de la Cruz, "Modified Random Phase Approximation of Polyelectrolyte Solutions," American Physical Society Meeting, Austin TX, March 2003.

M. S. Yeom and M. Olvera de la Cruz, "Monte Carlo Simulations of Solutions of Rod-Like Charged Chains," American Physical Society Meeting, Austin TX, March 2003.

M. Lefebvre, K. Shull and M. Olvera de la Cruz, "Phase Segregation in Gradient Copolymer Melts," American Physical Society March meeting in Austin, TX, 2003.

S. Loverde, M. S. Yeom, A. Ermoshkin and M. Olvera de la Cruz, "Computer Simulations of Physically Associating Ideal Chains," American Physical Society meeting in Austin, TX, March 2003.

\* M. Olvera de la Cruz, "Polyelectrolyte Solutions," Colloquium Chemical Engineering Department, University of Texas, Austin, TX, January 2003.

A. Ermoshkin and M. Olvera de la Cruz, "Polyelectrolytes in the Presence of Multivalent Ions: Gelation versus Segregation," Physics Gordon Conference (as a poster), Salve Regina University, Newport, RI, Aug 11-16, 2002.

\* M. Olvera de la Cruz, "Polyelectrolyte Solutions in Multivalent Salts," American Chemical Society, 34<sup>th</sup> Central Regional Meeting, Ypsilanti, MI, June 27, 2002.

\* M. Olvera de la Cruz "Polyelectrolytes in Multivalent Salts" Aspen Center for Physics, Aspen, CO, June 5, 2002.

A. Ermoshkin and M. Olvera de la Cruz, "Phase Behavior of Strongly Charged Polyelectrolytes in the Presence of Multivalent Ions," American Physical Society March Meeting, Indianapolis, IN, March 2002.

K. A. Smith, J. Ottino, and M. Olvera de la Cruz, "Breakup and Rupture of Encapsulated Droplets," American Physical Society March Meeting, Indianapolis, IN, March 2002.

M. Yeom, A. Ermoshkin, and M. Olvera de la Cruz, "Phase behavior of Rod-Like Biopolymers," American Physical Society March Meeting, Indianapolis, IN, March 2002.

K. A. Smith, J. Ottino, and M. Olvera de la Cruz, "Encapsulated Droplets in Shear Flow," with K. A. Smith, American Physical Society Fluid Dynamics Meeting, San Diego, CA, November 2001.

\*M. Olvera de la Cruz, "Polyelectrolytes in Multivalent Salts," Colloquium Polymer Science and Engineering Department, University of Massachusetts, Amherst, MA, September 7, 2001.

\*M. Olvera de la Cruz, F. J. Solis, and P. Gonzalez-Mozuelos, "Polyelectrolytes and Multivalent Salt Solutions," in Computer Modeling of Polymer, American Chemical Society Meeting, Chicago IL, August 26-30, 2001.

\*M. Olvera de la Cruz, "Polyelectrolytes in Multivalent Salt Solutions," Gordon Research Conference on Condensed Matter Physics, Connecticut College, June 2001.

\*F. J. Solis, M. Olvera de la Cruz, and P. Gonzalez-Mozuelos, "Competing Electrostatic Interactions in DNA Condensation," in "Electrostatic Interactions in Polymers, Colloids, and Biophysics," Theoretical Physics Institute, Minneapolis, MN, May 11-13, 2001.

M. Olvera de la Cruz, M. Sayar, F.J. Solis, and S. I Stupp, "Modeling Polar Self Assembly," American Physical Society March meeting, Seattle, WA, 2001.

F. J. Solis and M. Olvera de la Cruz, "Attractions Between Charged Colloidal Spheres Mediated by Correlated Distributions of Absorbed Mobile Ions," American Physical Society March meeting, Seattle, WA, 2001.

\*M. Olvera de la Cruz, "Self-Organized Complex Polymers: From Condensed Polyelectrolytes to Non-Centrosymmetric Supramolecular Films of Rod-Coil Polymers," NSF Workshop on Opportunities in Materials Theory, Arlington, VA, October 5, 2000.

\*M. Olvera de la Cruz "An Ionic Glass Approach to Polyelectrolyte Solutions," Colloquium Chemical Engineering Department, Georgia Tech, Atlanta, GA, September 13, 2000.

\*M. Olvera de la Cruz, "Polyelectrolytes in Salt Solutions," Air Force, Dayton, OH, June 12, 2000.

- F. J. Solis and M. Olvera de la Cruz, "Collapse of Flexible Polyelectrolytes with Multivalent Salt," American Physical Society March meeting, MN, 2000.
- M. Olvera de la Cruz, F.J. Solis, and K. A. Smith, "Domain Growth During Phase Separation in Binary and Ternary Fluids" Dillon Symposium, American Physical Society March meeting, MN, 2000.
- \*F. J. Solis and M. Olvera de la Cruz, "Strong Coupling Approach to Polyelectrolyte Theory," Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte, Ventura, CA, February 2000.
- \*M. Olvera de la Cruz, "Polyelectrolyte Solutions," 20-20 Vision of Polymer Science in the Next Two Decades Symposium, Akron, OH, May, 1999.
- F. J. Solis and M. Olvera de la Cruz, "Attractions Between Rod-like Polyelectrolytes with Multivalent Counterions," APS Meeting, St. Louis, MO, March 1999.
- M. Olvera de la Cruz and F. J. Solis, "Multilayer Polyelectrolyte Blend," Dillon Symposium, APS Meeting, St. Louis, MO, March 1999.
- K. Mahdi and M. Olvera de la Cruz, "Phase Diagrams of Salt Free Polyelectrolyte Semi-Dilute Solutions," APS Meeting, St. Louis, MO, March 1999.
- \*M. Olvera de la Cruz and F. Solis, "Polyelectrolytes: Ion Condensation and Conformation," Polymer Winter Gordon Conference, Ventura, CA, January 1999.
- \*M. Olvera de la Cruz, P. Gonzalez-Mozuelos, L. Belloni, and F. Solis, "Ion Condensation in Dilute Polyelectrolyte Solutions," Electrostatics in Complex Systems Workshop, Institute of Theoretical Physics, Santa Barbara, CA, November, 1998.
- \*M. Olvera de la Cruz, C. Huang, F. Solis, and K. Thorton, "Phase Separation in Ternary Mixtures," University of Wisconsin-Madison, Chemistry Department, October 19, 1998.
- \*M. Olvera de la Cruz and F. J. Solis, "Multilayer Polyelectrolyte Blend," American Chemical Society Fall Meeting, Boston, MA, August, 1998.
- \*M. Olvera de la Cruz, C. Huang, F. Solis, and K. Thorton, "Phase Separation in Ternary Polymer Blends," Computational Tools for Multiphase/Multicomponent Polymer Materials Workshop, NIST, Maryland, May, 20-21 1998.
- \*M. Olvera de la Cruz, P. Gonzalez-Mozuelos, and F. Solis, "Polyelectrolyte Solutions," Statistical Mechanics Midwest Meeting, University of Notre Dame, May, 1998.
- K. Thorton, L. Tao, F. Solis, and M. Olvera de la Cruz, "Hydrodynamical Effects in Ternary Mixtures Decomposition," American Physical Society March Meeting, Los Angeles, CA, March 16-20, 1998.
- F. Solis and M. Olvera de la Cruz, "Necklace Formation Polyelectrolytes," American Physical Society March Meeting, Los Angeles, CA, March 16-20, 1998.
- E. Rasband, M. Olvera de la Cruz, S.L. Sikorav, and F. Livolant, "Precipitation of DNA by Polyamines: Polyelectrolyte Behavior," American Physical Society March Meeting, Los Angeles, CA, March 16-20, 1998.
- M. Olvera de la Cruz, P. Gonzalez-Mozuelos, L. Bellon, and F. Solis, "Dilute Polyelectrolyte Aqueous Solution," American Physical Society March Meeting, Los Angeles, CA, March 16-20, 1998.
- \*M. Olvera de la Cruz, C. Huang, F. Solis, and K. Thorton, "Phase Segregation in Multicomponent Polymer Blends," Department of Materials Science & Engineering, Northwestern University, January 13, 1998.
- \*M. Olvera de la Cruz, "Polyelectrolyte Conformation in Dilute Solutions," "Journé des Systemes Complexes Charges," LLB, CE-Saclay, France, March, 1997.
- F. J. Solis and M. Olvera de la Cruz, "Concentrated Solutions of Star Diblock Copolymers and Colloids with Grafted Polymers," American Physical Society March Meeting, Kansas City, MO, March, 1997.
- \* M. Olvera de la Cruz, "Phase Separation of Ternary Mixtures," SCM, CE-Saclay, France, December, 1996.

- \* M. Olvera de la Cruz, "Charged Block Copolymer Micelles in Salt Free Solutions," Service de Chimie Moleculaire, CE-Saclay, France, May 23, 1996.
- \* C. Huang and M. Olvera de la Cruz, "Interfacial Studies of Ternary Polymer Blends," The American Physical Society March Meeting, St. Louis, MO. March 1996. (The paper was selected to be presented at the Padden award symposium for graduate students; C. Huang won the Padden award with this paper).
- \* M. Olvera de la Cruz, "Ion Condensation in Dilute Salt-Free Polyelectrolyte Solutions," Service de Chimie Moleculaire, CE-Saclay, France, Jan. 18, 1996.
- \* M. Olvera de la Cruz, "Salt-free Polyelectrolyte Solutions," Laboratoire Leon Langevin, CE-Saclay, France, December 15, 1995.
- \* M. Olvera de la Cruz, "Phase Separation of Ternary Mixtures," TMS Meeting, Cleveland, OH, October, 1995.
- B. W. Swift and M. Olvera de la Cruz, "Random Copolymer Chain Statistics and Dynamics in Semi-Dilute and Concentrated Solutions," The American Physical Society March Meeting, San Jose, CA, March, 1995.
- M. Olvera de la Cruz and P. Gonzales-Mozuelos, "Ion Condensation in Dilute Salt-free Polyelectrolyte Solutions," The American Physical Society March Meeting, San Jose, CA, March 1995.
- \* M. Olvera de la Cruz, "Polyelectrolytes," 1994 David & Lucile Packard Fellows Meeting, Monterey Bay, CA, September, 1994.
- A. S. Mendelsohn, M. Olvera de la Cruz, and J.M. Torkelson, "Investigation of Correlations and Phase Separation in Polymer Blends by Fluorescence Nonradiative Energy Transfer," The American Physical Society March Meeting, Pittsburgh, PA, March, 1994.
- L. Belloni, J. P. Dalbiez, M. Delsanti, M. Drifford, M. Olvera de la Cruz, and O. Spalla, "Thermodynamics of Highly Charged Polyelectrolytes," The American Physical Society March Meeting, Pittsburgh, PA, March, 1994.
- A. Nesarikar, B. Crist, and M. Olvera de la Cruz, "Coarsening Kinetics of Model Copolymer Blends," The American Physical Society March Meeting, Pittsburgh, PA, March, 1994.
- \* M. Olvera de la Cruz, "Thermodynamics of Polyelectrolytes in Multi-Valent Salts," University of Texas A&M, Department of Chemistry Coll., TX, March 31, 1994.
- M. Olvera de la Cruz, "Can RPA describe Microphase Separation Transitions in Block Copolymers?" The American Physical Society March Meeting, Pittsburgh, PA, March, 1994.
- \* M. Olvera de la Cruz, "Polyelectrolytes: Correlations and Conformations," First USA-Mexico Bilateral Symposium on the Physics of Complex Fluids, San Louis Potosi, Mexico, July, 1993.
- \* M. Olvera de la Cruz, "Aggregation in Copolymer Systems," Akron Polymer Lecture Group, University of Akron, OH, April 12, 1993.
- \* M. Olvera de la Cruz "Aggregation in Copolymer Systems," Research Center, The Glidden Company, Strongsville, OH, April 12, 1993.
- A. S. Mendelsohn, M. Olvera de la Cruz, and J. M. Torkelson, "Investigation of Correlations in Polymer Blends and Semi-dilute Solution by Fluorescence Nonradiative Energy Transfer," The American Physical Society March Meeting, Seattle, WA, March 1993.
- B. Swift and M. Olvera de la Cruz, "Monte Carlo Simulation of Single Chain Random Copolymers," The American Physical Society March Meeting, Seattle, WA, March, 1993.
- \* M. Olvera de la Cruz, "Aggregation in Block Copolymer Melts," Dept. of Materials Science and Engineering, Pennsylvania State University, PA, February 17, 1993.
- \* M. Olvera de la Cruz, "Transition to Periodic Structures in Block Copolymer Melts" Polymers West Gordon Conference, Los Angeles, CA. January 4-8, 1993.
- A. S. Mendelsohn, M. Olvera de la Cruz, and J. M. Torkelson, "Correlations in Miscible Polymer Blends, Melts and Solutions: A Novel Comparison of Donor Fluorescence Intensity Decay Theory to Fluorescence Energy Transfer Experiments," MRS Fall Meeting 1992, Boston, MA, November 30 - December 4, 1992.

- \* M. Olvera de la Cruz, "Polymers in Random Media," 1992 David & Lucile Packard Fellows Meeting, Monterey Bay, CA, September 9-11, 1992.
- \* M. Olvera de la Cruz, "Polymers in Disordered Media," Physics Department, Universidad Nacional Autonoma de Mexico, Mexico City, June 17, 1992.
- \* M. Olvera de la Cruz, "Aggregation in Copolymer Systems," Physics Department, Universidad Nacional Autonoma de Mexico, Mexico City, June 12, 1992.
- \* M. Olvera de la Cruz "Transitions to Periodic Structures in Block Copolymers," University of Pittsburgh, PA, June 5, 1992.
- \* M. Olvera de la Cruz, "Weakly Segregated Diblock Copolymer Melts," the American Chemical Society Meeting, San Francisco, CA, April 1992.
- D. Gersappe and M. Olvera de la Cruz, "Ring Polymers in Disordered Media," The American Physical Society March Meeting, Indianapolis, IN, March, 1992.
- A. Mendelsohn, M. Olvera de la Cruz and J.M. Torkelson, "Correlations in Polymer Blends Studied by Fluorescence Techniques," The American Physical Society March Meeting, Indianapolis, IN, March, 1992.
- K. E. Bassler and M. Olvera de la Cruz, "Simulations of Diblock Copolymer Solutions," The American Physical Society March Meeting, Indianapolis, IN, March, 1992.
- M. Olvera de la Cruz, A.M. Mayes, and B.W. Swift, "Transition to Lamellar-Catenoid Structure in Block Copolymer Melts," The American Physical Society March Meeting, Indianapolis, IN, March, 1992.
- A. Nesarikar, M. Olvera de la Cruz and B. Crist, "Phase Relations in Multicomponent Random Copolymer Mixtures," The American Physical Society March Meeting, Indianapolis, IN, March, 1992.
- M. Olvera de la Cruz, "Hexagonal Lattices in Nearly Continuous Transitions to Periodic Structures," The Materials Research Society Fall Meeting, Boston, MA, December, 1991.
- \* M. Olvera de la Cruz, "Transitions to Periodic Structures in Block Copolymer Melts," 1991 David & Lucile Packard Fellows Meeting, Monterey Bay, CA, September 4, 1991.
- \* M. Olvera de la Cruz, "Transitions to Periodic Structures in Block Copolymers," Seminar to honor Prof. Mondragon, Instituto de Fisica, Mexico, August 15-16, 1991.
- \* M. Olvera de la Cruz, "Correlations and Phase Transitions in Polymers," IV Meeting on the Science & Technology of Colloids and Complex Fluids, San Luis Potosi, Mexico, July 16-20, 1991.
- \* M. Olvera de la Cruz, "Transitions to Periodic Structures in Block Copolymers," University of Texas at Austin, TX, June 11, 1991.
- A. M. Mayes and M. Olvera de la Cruz, "Transitions to Periodic Structures in Block Copolymer Melts," The Materials Research Society Spring Meeting 1991, Anaheim, CA, April, 1991.
- M. Olvera de la Cruz and A.M. Mayes, "Transitions to Periodic Structures in Block Copolymer Melts," The American Physical Society March Meeting, Cincinnati, OH, March, 1991.
- \* M. Olvera de la Cruz, "Dynamics of DNA during Pulsed-Field Gel Electrophoresis," International Meeting of the Electrophoresis Societies, Washington, D.C., March, 1991.
- \* M. Olvera de la Cruz, "Gel Electrophoresis Dynamics," XX Winter Symposium in Statistical Physics, Mexico, January, 1991.
- \*M. Olvera de la Cruz, "Effects of Concentration Fluctuations in Polymer Blends and Block Copolymer Melts," The American Institute of Chemical Engineers' Annual Meeting, Chicago, IL, November, 1990.
- \*M. Olvera de la Cruz, "Aggregation in Block Copolymers," 1990 David & Lucile Packard Fellows Meeting, Monterey Bay, CA, September 6, 1990.
- \*M. Olvera de la Cruz, "Aggregation in Block Copolymer Systems," Polymers Physics Gordon Conference (as a poster), Newport, RI, July, 1990.

- \* M. Olvera de la Cruz, "Pulsed Field Gel Electrophoresis," The American Chemical Society, 22nd Central Regional Meeting, Midland, MI, June 6, 1990.
- \* M. Olvera de la Cruz, "Aggregation in Block Copolymer Systems," DOW, Midland, MI, May 5, 1990.
- \* M. Olvera de la Cruz, "Local Segregation in Block Copolymers," The American Chemical Society Meeting, Boston, MA, April, 1990.
- A. M. Mayes and M. Olvera de la Cruz, "Microphase Separation in Block Copolymer Systems," The American Physical Society Meeting 1990, Anaheim, CA, March, 1990.
- D. Gersappe, J.M. Deutsch and M. Olvera de la Cruz, "Density Fluctuations of Self Avoiding Walks in Random Systems," The American Physical Society March Meeting, 1990, Anaheim. CA, March, 1990.
- M. Olvera de la Cruz and D. Gersappe, "Dynamics of Pulsed Field Gel Electrophoresis," The American Physical Society March Meeting, Anaheim, CA, March, 1990.
- M. Olvera de la Cruz, "Aggregation in Block Copolymer Solutions," The Materials Research Society Fall Meeting, Boston, MA, November, 1989.
- A. M. Mayes and M. Olvera de la Cruz, "Microphase Separation in Multiblock Copolymer Melts," The Materials Research Society Fall Meeting, Boston, MA, November, 1989.
- \* M. Olvera de la Cruz "Aggregation in Block Copolymer Systems," The James Frank Institute, University of Chicago, Chicago, IL, October 2, 1989.
- \* M. Olvera de la Cruz and D. Gersappe, "Dynamics of Gel Electrophoresis," The American Chemical Society Meeting, Miami, FL, September, 1989.
- \* M. Olvera de la Cruz, "Weak Crystallization in Block Copolymer Systems," Department of Physics, University of California, Santa Cruz, CA, May 18, 1989.
- \* M. Olvera de la Cruz, "Disorder-Order Transitions in Block Copolymer Systems," Department of Physics, Northwestern University, Evanston, IL, April 6, 1989.
- \* M. Olvera de la Cruz, "Aggregation in Block Copolymer Systems," Department of Physics, Universidad Nacional Autonoma de Mexico, Mexico D. F., March 7, 1989.
- D. Gersappe, M. Olvera de la Cruz, and J. M. Deutsch, "Chain Statistics in Random Frozen Impurities," The American Physical Society Meeting, St. Louis, MO, March, 1989.
- \* M. Olvera de la Cruz "Concentration Fluctuations in Polymer Blends," Polymers West Gordon Conference, Ventura, CA, January, 1989.
- \* M. Olvera de la Cruz, "Aggregation in Block Copolymer Systems," Allied Signal Inc., Morristown, NJ, November 18, 1988.
- \* M. Olvera de la Cruz, "Theory of Microphase Separation in Block Copolymer Solutions," Polymer Division, National Bureau of Standards, Gaithersburg, MD, August 18, 1988.
- \* M. Olvera de la Cruz and I. C. Sanchez, "Microphase Separation in Block Copolymers and Related Systems," The American Chemical Society Meeting, Dallas, TX, April 19-22, 1988.
- E. O. Shaffer and M. Olvera de la Cruz, "Computer Simulation of Gel Electrophoresis," The American Physical Society Meeting, New Orleans, LA, March 21-25, 1988.
- \* M. Olvera de la Cruz, "Segregation in Block Copolymers/Homopolymer Blends," Department of Materials Science and Engineering, University of Illinois, Champaign Urbana, IL, October 1, 1987.
- \* M. Olvera de la Cruz, "Phase Separation in Polymer Blends," Department of Physics, University of Wisconsin, Madison, WI, September 14, 1987.
- \* M. Olvera de la Cruz, "Micelle Formation in Block Copolymer/Homopolymer Blends," Johnson Wax Company, Racine, Wisconsin, May 11, 1987.

\* I. C. Sanchez and M. Olvera de la Cruz, "The Processing Window for Block, Graft and Star Copolymers," The Third Annual Meeting of the Polymer Processing Society, Stuttgart, West Germany, April 7-10, 1987.

A. M. Mayes and M. Olvera de la Cruz, "Micelle Formation in Diblock Copolymers-Homopolymers Blends," The American Physical Society Meeting, New York, NY, March 16-20, 1987.

\* M. Olvera de la Cruz, "Polymer Diffusion in Topologically Restricted Environments," The James Frank Institute, University of Chicago, February 18, 1987.

\* M. Olvera de la Cruz, "Polymer Diffusion in Topologically Restricted Environments," Department of Physics, University of California at Los Angeles (UCLA), March 13, 1986.

\* M. Olvera de la Cruz, "Polymer Diffusion in Topologically Restricted Environments," Department of Physics, California State University, Los Angeles, CA. February 1986.

\* M. Olvera de la Cruz, "Dynamics of a Polymer in an Electric Field," Department of Physics, State University of New York at Albany, February 21, 1986.

\* M. Olvera de la Cruz and I. C. Sanchez, "Theory of Microphase Separation in Copolymer Stars," The Polymers Gordon Research Conference (as a poster), Santa Barbara, CA, January, 1986.

\* M. Olvera de la Cruz, "Phase Separation in Block Copolymer Melts," Department of Chemical Engineering and Materials Science, University of Minnesota, November 26, 1985.

\* M. Olvera de la Cruz, "Microphase Separation in Graft and Stars Block Copolymer Melts," Statistical Mechanics Meeting in the Washington D. C. area, National Bureau of Standards, March, 1985.

\* M. Olvera de la Cruz, "Phase Separation in Polymer Blends," Polymer Division, National Bureau of Standards, January, 1985.

\* M. Olvera de la Cruz, J. M. Deutsch, and S. F. Edwards, "Electrophoresis in Strong Fields," The Polymers Gordon Research Conference (as a poster), Santa Barbara, CA, January, 1985.

\* M. Olvera de la Cruz, "Phase Separation in Polymer Blends," Department of Polymer Science and Engineering, University of Massachusetts, November, 1984.

\* M. Olvera de la Cruz, "Equilibrium Properties of Polymer Blends," Department of Physics, Imperial College, London, U.K., March 1984.

\* M. Olvera de la Cruz and S. F. Edwards, "Spinodal Decomposition in Protonated and Deuterated Polymer Mixtures," in "Recontre de Physique Statistique," Paris, France, February, 1984.

M. Olvera de la Cruz and S. F. Edwards, "Model of a Ground State of a Spin Glass," The "2<sup>nd</sup> Conference of the Condensed Matter Division of the European Physical Society," Manchester, U. K., March, 1982.

(\* invited presentations)