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Department of Materials Science & Engineering
Department of Chemical & Biological Engineering
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Education:

- 1981-85 Ph.D. in **Physics** at the Theory of Condensed Matter Group, Cavendish Laboratory, 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:

- 2016-2018 **Co-Director** - Northwestern University/Art Institute of Chicago Center for Scientific Studies in the Arts (NU-ACCESS)
- 2015-Present **Director**- Center for Computation and Theory of Soft Materials, Northwestern University, Evanston IL, 60208
- 2014-Present **Deputy-Director**- Center for Bio-Inspired Energy Science, Northwestern University, Evanston, IL, 60208
- 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:

- 2018 BOSE-125 Distinguished Lecture, S. N. Bose National Center for Basic Sciences, Kolkata, India
- 2017 Polymer Physics Prize, American Physical Society
- 2016 Miller Institute Visiting Professor, University of California, Berkeley
- 2015 McGavock Lecturer, Department of Chemistry, Trinity University
- 2015 ISTeC Distinguished Lecturer, Colorado State 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:

2017-2018 Commemorating the 40th Anniversary of Basic Energy Sciences, Department of Energy, Subcommittee of the Basic Energy Sciences Advisory Committee (BESAC)
 2016 Program Review, MSE, University of California, Berkeley, Oct 23-25th, 2017
 2016 Committee on Vision of the Future of Center-Based, Multidisciplinary Engineering Research, National Academy of Sciences
 2015-2020 International Scientific Advisory Board, Max Planck Institute for Polymer Physics
 2015 ARO Workshop on Potential Future Directions, NC, Sept 24-25, 2015
 2015 ARO Biennial Review of Life Sciences, May 6-8, 2015.
 2015-**Senior Editor**, ACS Journal of Central Science
 2014- National Science Foundation Advisory Committee for International Science and Engineering
 2013-18 Basic Energy Sciences Advisory Committee (BESAC), 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 Forefronts 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*, *Journal of Chemical Theory and Computation*, and *Journal of Chemical Physics*

LIST OF PUBLICATIONS

1. Huanxin Wu, Honghao Li, Francisco J. Solis, Monica Olvera de la Cruz, and Erik Luijten, "**Asymmetric electrolytes near structured dielectric interfaces**" *J. Chem. Phys.* 149, 164701 (2018); DOI: 10.1063/1.5047550
2. Soyoung E. Seo, Martin Girard, Monica Olvera de la Cruz and Chad A. Mirkin, "**Non-equilibrium anisotropic colloidal single crystal growth with DNA**" *Nature Communications* 9, 4558 (2018)
3. Pablo Vázquez-Montejo and Mónica Olvera de la Cruz, "**Flexible paramagnetic membranes in fast precessing fields**" *Phys. Rev. E* 98, 032603 (2018); DOI: <https://doi.org/10.1103/PhysRevE.98.032603>
4. Chao Sun, Meng Shen, Anton D. Chavez, Austin M. Evans, Xiaolong Liu, Boris Harutyunyan, Nathan C. Flanders, Mark C. Hersam, Michael J. Bedzyk, Monica Olvera de la Cruz, and William R. Dichtel, "**High aspect ratio nanotubes assembled from macrocyclic iminium salts**" *PNAS* 115, 8883-8888 (2018); DOI: 10.1073/pnas.1809383115
5. Debadutta Prusty, Victor Pryamitsyn, and Monica Olvera de la Cruz, "**Thermodynamics of Associative Polymer Blends**" *Macromolecules* 51, 5918-5932 (2018); DOI: 10.1021/acs.macromol.8b00661
6. Timothy J. Deming, Harm-Anton Klok, Steven P. Armes, Matthew L. Becker, Julie A. Champion, Eugene Y.-X. Chen, Sarah C. Heilshorn, Jan C. M. van Hest, Darrell J. Irvine, Jeremiah A. Johnson, Laura L. Kiessling, Heather D. Maynard, Monica Olvera de la Cruz, Millicent O. Sullivan, Matthew V. Tirrell, Kristi S. Anseth, Sebastien Lecommandoux, Simona Percec, Zhiyuan Zhong, and Ann-Christine Albertsson, "**Polymers at the Interface with Biology**" *Biomacromolecules* 19, 3151-3162 (2018); DOI: 10.1021/acs.biomac.8b01029
7. Trung Dac Nguyen, Baofu Qiao, and Monica Olvera de la Cruz, "**Efficient encapsulation of proteins with random copolymers**" *PNAS* 115, 6578-6583 (2018); DOI: 10.1073/pnas.1806207115
8. S.M. Chin, C.V. Synatschke, S. Liu, R.J. Nap, N.A. Sather, Q. Wang, Z. Álvarez, A.N. Edelbrock, T. Fyrner, L.C. Palmer, I. Szeleifer, M. Olvera de la Cruz, S.I. Stupp. "**Covalent-supramolecular hybrid polymers as muscle-inspired anisotropic actuators**." *Nature Communications* 9: 2395 (2018); DOI: 10.1038/s41467-018-04800-w.
9. A. Erbaş, M. Olvera de la Cruz, & J. F. Marko. "**Effects of electrostatic interactions on ligand dissociation kinetics**." *Physical Review E* 97: 022405 (2018); DOI: <https://doi.org/10.1103/PhysRevE.97.022405>
10. B. Panganiban, B. Qiao, T. Jiang, C. DelRe, M. M. Obadia, T. D. Nguyen, A. A. A. Smith, A. Hall, I. Sit, M. G. Crosby, P. B. Dennis, E. Drockenmuller, M. Olvera de la Cruz & T. Xu. "**Random Heteropolymers Preserve Protein Function in Foreign Environments**." *Science* 359: 1239-1243 (2018); DOI: 10.1126/science.aa0335

11. S. Sabrina, M. Tasinkevych, S. Ahmed, A.M. Brooks, M. Olvera de la Cruz, T.E. Mallouk, & K.J. M. Bishop. **Shape-directed microspinnners powered by ultrasound.** *Acs Nano* 12: 2939-2947 (2018); DOI: 10.1021/acsnano.8b00525
12. K. Krishnamoorthy, K. Hoffmann, S. Kewalramani, J.D. Brodin, L.M. Moreau, C.A. Mirkin, M. Olvera de la Cruz, & M.J. Bedzyk. **Defining the structure of a protein-spherical nucleic acid conjugate and its counterionic cloud.** *Acs Central Science* 4: 378-386 (2018); DOI: 10.1021/acscentsci.7b00577
13. S. Liu & M. Olvera de la Cruz. **Deformation of elastomeric pyramid pen arrays in cantilever-free scanning probe lithography.** *Journal of Polymer Science Part B: Polymer Physics* 56, 731-738 (2018); DOI: 10.1002/polb.24585.
14. G. Wang, N. D. Eastham, T. J. Aldrich, B. Ma, E. F. Manley, Z. Chen, L. X. Chen, M. Olvera de la Cruz, R. P. H. Chang, Ferdinand S. Melkonyan, Antonio Facchetti, & Tobin J. Marks. **Photoactive blend morphology engineering through systematically tuning aggregation in all-polymer solar cells.** *Advanced Energy Materials*: 1702173 (2018); DOI: 10.1002/aenm.201702173.
15. Z. L. Yu, A. Erbas, F. Tantakitti, L. C. Palmer, J. A. Jackman, M. O. de la Cruz, N. J. Cho, & S. I. Stupp. **Co-assembly of peptide amphiphiles and lipids into supramolecular nanostructures driven by anion- π interactions.** *Journal of the American Chemical Society* 139: 7823-7830 (2017); DOI: 10.1021/jacs.7b02058.
16. M. X. Wang, J. D. Brodin, J. A. Millan, S. E. Seo, M. Girard, M. O. de la Cruz, B. Lee, & C. A. Mirkin. **Altering DNA-programmable colloidal crystallization paths by modulating particle repulsion.** *Nano Letters* 17: 5126-5132 (2017); DOI: 10.1021/acs.nanolett.7b02502.
17. P. Vazquez-Montejo, J. M. Dempster, & M. O. de la Cruz. **Paramagnetic filaments in a fast precessing field: Planar versus helical conformations.** *Physical Review Materials* 1: 20 (2017); DOI: 10.1103/PhysRevMaterials.1.064402.
18. M. Shen, H. H. Li, & M. O. de la Cruz. **Surface polarization effects on ion-containing emulsions.** *Physical Review Letters* 119: 5 (2017); DOI: 10.1103/PhysRevLett.119.138002.
19. A. Ramirez-Hernandez, S. M. Hur, J. C. Armas-Perez, M. O. de la Cruz, & J. J. de Pablo. **Demixing by a nematic mean field: Coarse-grained simulations of liquid crystalline polymers.** *Polymers* 9: 11 (2017); DOI: 10.3390/polym9030088.
20. B. F. Qiao, J. V. Muntean, M. O. de la Cruz, & R. J. Ellis. **Ion transport mechanisms in liquid-liquid interface.** *Langmuir* 33: 6135-6142 (2017); DOI: 10.1021/acs.langmuir.7b01230.
21. V. A. Pryamitsyn, H. K. Kwon, J. W. Zwanikken, & M. O. de la Cruz. **Anomalous phase behavior of ionic polymer blends and ionic copolymers.** *Macromolecules* 50: 5194-5207 (2017); DOI: 10.1021/acs.macromol.7b00523.
22. J. H. Ortony, B. F. Qiao, C. J. Newcomb, T. J. Keller, L. C. Palmer, E. Deiss-Yehiely, M. O. de la Cruz, S. Han, & S. I. Stupp. **Water dynamics from the surface to the interior of a supramolecular nanostructure.** *Journal of the American Chemical Society* 139: 8915-8921 (2017); DOI: 10.1021/jacs.7b02969.
23. J. R. McMillan, J. D. Brodin, J. A. Millan, B. Lee, M. O. de la Cruz, & C. A. Mirkin. **Modulating nanoparticle superlattice structure using proteins with tunable bond distributions.** *Journal of the American Chemical Society* 139: 1754-1757 (2017); DOI: 10.1021/jacs.6b11893.
24. Y. H. Li, M. Girard, M. Shen, J. A. Millan, & M. O. de la Cruz. **Strong attractions and repulsions mediated by monovalent salts.** *Proceedings of the National Academy of Sciences of the United States of America* 114: 11838-11843 (2017); DOI: 10.1073/pnas.1713168114.
25. H. K. Kwon, V. A. Pryamitsyn, J. W. Zwanikken, K. R. Shull, & M. O. de la Cruz. **Solubility and interfacial segregation of salts in ternary polyelectrolyte blends.** *Soft Matter* 13: 4830-4840 (2017); DOI: 10.1039/c7sm00570a.
26. R. I. Kamar, E. J. Banigan, A. Erbas, R. D. Giuntoli, M. O. de la Cruz, R. C. Johnson, & J. F. Marko. **Facilitated dissociation of transcription factors from single DNA binding sites.** *Proceedings of the National Academy of Sciences of the United States of America* 114: E3251-E3257 (2017); DOI: 10.1073/pnas.1701884114.
27. C. He, T. D. Nguyen, K. Edme, M. O. de la Cruz, & E. A. Weiss. **Noncovalent control of the electrostatic potential of quantum dots through the formation of interfacial ion pairs.** *Journal of the American Chemical Society* 139: 10126-10132 (2017); DOI: 10.1021/jacs.7b05501.
28. M. Girard, T. D. Nguyen, & M. O. de la Cruz. **Orbitals for classical arbitrary anisotropic colloidal potentials.** *Physical Review E* 96: 11 (2017); DOI: 10.1103/PhysRevE.96.053309.

29. M. Girard, J. A. Millan, & M. O. de la Cruz (2017) DNA-driven assembly: From polyhedral nanoparticles to proteins. *Annual review of materials research*, vol 47, Annual review of materials research, ed Clarke DR (Annual Reviews, Palo Alto), Vol 47, pp 33-49.
30. C. R. Gao, H. H. Li, Y. Li, S. Kewalramani, L. C. Palmer, V. P. Dravid, S. I. Stupp, M. O. de la Cruz, & M. J. Bedzyk. **Electrostatic control of polymorphism in charged amphiphile assemblies.** *Journal of Physical Chemistry B* 121: 1623-1628 (2017); DOI: 10.1021/acs.jpcc.6b11602.
31. J. M. Dempster, P. Vazquez-Montejo, & M. O. de la Cruz. **Contractile actuation and dynamical gel assembly of paramagnetic filaments in fast precessing fields.** *Physical Review E* 95: 8 (2017); DOI: 10.1103/PhysRevE.95.052606.
32. C. Delre, B. Panganiban, T. Li, C. Huang, M. O. de la Cruz, P. Dennis, & T. Xu. **Rational design of a synthetic peg-like polymer for protein stabilization.** *Biophysical Journal* 112: 59a-59a (2017); DOI: DOI 10.1016/j.bpj.2016.11.355.
33. E. Deiss-Yehiely, J. H. Ortony, B. F. Qiao, S. I. Stupp, & M. O. de la Cruz. **Ion condensation onto self-assembled nanofibers.** *Journal of Polymer Science Part B-Polymer Physics* 55: 901-906 (2017); DOI: 10.1002/polb.24353.
34. N. J. Zhou, A. S. Dudnik, Ting Li, E. F. Manley, T. J. Aldrich, P. J. Guo, H. C. Liao, Z. H. Chen, L. X. Chen, R. P. H. Chang, A. Facchetti, M. O. de la Cruz, *et al.* **All-polymer solar cell performance optimized via systematic molecular weight tuning of both donor and acceptor polymers.** *Journal of the American Chemical Society* 138: 1240-1251 (2016); DOI: 10.1021/jacs.5b10735.
35. Z. W. Yao & M. O. de la Cruz. **Ordered self-similar patterns in anisotropic stochastic growth.** *Journal of Physical Chemistry B* 120: 5960-5965 (2016); DOI: 10.1021/acs.jpcc.6b01789.
36. Z. W. Yao & M. O. de la Cruz. **Electrostatics-driven hierarchical buckling of charged flexible ribbons.** *Physical Review Letters* 116: 5 (2016); DOI: 10.1103/PhysRevLett.116.148101.
37. F. Tantakitti, J. Boekhoven, X. Wang, R. V. Kazantsev, T. Yu, J. H. Li, E. Zhuang, R. Zandi, J. H. Ortony, C. J. Newcomb, L. C. Palmer, G. S. Shekhawat, *et al.* **Energy landscapes and functions of supramolecular systems.** *Nature Materials* 15: 469-+ (2016); DOI: 10.1038/nmat4538.
38. J. Y. Su, Z. W. Yao, & M. O. de la Cruz. **Vesicle geometries enabled by dynamically trapped states.** *Acs Nano* 10: 2287-2294 (2016); DOI: 10.1021/acsnano.5b06991.
39. S. J. Pan, N. Boon, & M. O. de la Cruz. **Liquid crystal phase transition in epitaxial monolayers of DNA-functionalized nanoparticle superlattices.** *Acs Nano* 10: 9948-9956 (2016); DOI: 10.1021/acsnano.6b04115.
40. S. Pan, Ting Li, & M. O. de la Cruz. **Molecular dynamics simulation of DNA-directed assembly of nanoparticle superlattices using patterned templates.** *Journal of Polymer Science Part B-Polymer Physics* 54: 1687-1692 (2016); DOI: 10.1002/polb.24073.
41. M. N. O'Brien, H. X. Lin, M. Girard, M. O. de la Cruz, & C. A. Mirkin. **Programming colloidal crystal habit with anisotropic nanoparticle building blocks and DNA bonds.** *Journal of the American Chemical Society* 138: 14562-14565 (2016); DOI: 10.1021/jacs.6b09704.
42. M. N. O'Brien, M. Girard, H. X. Lin, J. A. Millan, M. O. de la Cruz, B. Lee, & C. A. Mirkin. **Exploring the zone of anisotropy and broken symmetries in DNA-mediated nanoparticle crystallization.** *Proceedings of the National Academy of Sciences of the United States of America* 113: 10485-10490 (2016); DOI: 10.1073/pnas.1611808113.
43. G. S. Longo, M. O. de la Cruz, & I. Szleifer. **Controlling swelling/deswelling of stimuli-responsive hydrogel nanofilms in electric fields.** *Soft Matter* 12: 8359-8366 (2016); DOI: 10.1039/c6sm01172a.
44. S. P. Liu, Z. W. Yao, K. Chiou, S. I. Stupp, & M. O. de la Cruz. **Emergent perversions in the buckling of heterogeneous elastic strips.** *Proceedings of the National Academy of Sciences of the United States of America* 113: 7100-7105 (2016); DOI: 10.1073/pnas.1605621113.
45. H. H. Li, A. Erbas, J. Zwanikken, & M. O. de la Cruz. **Ionic conductivity in polyelectrolyte hydrogels.** *Macromolecules* 49: 9239-9246 (2016); DOI: 10.1021/acs.macromol.6b01276.
46. S. Kewalramani, G. I. Guerrero-Garcia, L. M. Moreau, J. W. Zwanikken, C. A. Mirkin, M. O. de la Cruz, & M. J. Bedzyk. **Electrolyte-mediated assembly of charged nanoparticles.** *Acs Central Science* 2: 219-224 (2016); DOI: 10.1021/acscentsci.6b00023.
47. G. I. Guerrero-Garcia, F. J. Solis, K. Raidongia, A. R. Koltonow, J. X. Huang, & M. O. de la Cruz. **Control of selective ion transfer across liquid-liquid interfaces: A rectifying heterojunction based on immiscible electrolytes.** *Acs Central Science* 2: 857-866 (2016); DOI: 10.1021/acscentsci.6b00266.

48. G. Ferru, B. Reinhart, M. K. Bera, M. O. de la Cruz, B. Qiao, & R. J. Ellis. **The lanthanide contraction beyond coordination chemistry.** *Chemistry-a European Journal* 22: 6899-6904 (2016); DOI: 10.1002/chem.201601032.
49. A. Erbas & M. O. de la Cruz. **Morphology-enhanced conductivity in dry ionic liquids.** *Physical Chemistry Chemical Physics* 18: 6441-6450 (2016); DOI: 10.1039/c5cp07090b.
50. A. Erbas & M. O. de la Cruz. **Interactions between polyelectrolyte gel surfaces.** *Macromolecules* 49: 9026-9034 (2016); DOI: 10.1021/acs.macromol.6b01416.
51. J. M. Dempster & M. O. de la Cruz. **Aggregation of heterogeneously charged colloids.** *Acs Nano* 10: 5909-5915 (2016); DOI: 10.1021/acsnano.6b01218.
52. M. O. de la Cruz. **Mesoscale studies of ionic closed membranes with polyhedral geometries.** *Appl Materials* 4: 8 (2016); DOI: 10.1063/1.4953570.
53. C. R. Bertozzi, C. J. Chang, B. G. Davis, M. O. de la Cruz, D. A. Tirrell, & D. Y. Zhao. **Grand challenges in chemistry for 2016 and beyond.** *Acs Central Science* 2: 1-3 (2016); DOI: 10.1021/acscentsci.6b00010.
54. M. K. Bera, B. F. Qiao, S. Seifert, B. P. Burton-Pye, M. O. de la Cruz, & M. R. Antonio. **Aggregation of heteropolyanions in aqueous solutions exhibiting short-range attractions and long-range repulsions.** *Journal of Physical Chemistry C* 120: 1317-1327 (2016); DOI: 10.1021/acs.jpcc.5b10609.
55. T. Aytun, P. J. Santos, C. J. Bruns, D. X. Huang, A. R. Koltonow, M. O. de la Cruz, & S. I. Stupp. **Self-assembling tripodal small-molecule donors for bulk heterojunction solar cells.** *Journal of Physical Chemistry C* 120: 3602-3611 (2016); DOI: 10.1021/acs.jpcc.5b10064.
56. R. V. Thaner, Y. Kim, Ting Li, R. J. Macfarlane, S. T. Nguyen, M. O. de la Cruz, & C. A. Mirkin. **Entropy-driven crystallization behavior in DNA-mediated nanoparticle assembly.** *Nano Letters* 15: 5545-5551 (2015); DOI: 10.1021/acs.nanolett.5b02129.
57. C. E. Sing, J. W. Zwanikken, & M. O. de la Cruz. **Theory of melt polyelectrolyte blends and block copolymers: Phase behavior, surface tension, and microphase periodicity.** *Journal of Chemical Physics* 142: 18 (2015); DOI: 10.1063/1.4905830.
58. P. S. Randeria, M. R. Jones, K. L. Kohlstedt, R. J. Banga, M. O. de la Cruz, G. C. Schatz, & C. A. Mirkin. **What controls the hybridization thermodynamics of spherical nucleic acids?** *Journal of the American Chemical Society* 137: 3486-3489 (2015); DOI: 10.1021/jacs.5b00670.
59. B. F. Qiao, G. Ferru, M. O. de la Cruz, & R. J. Ellis. **Molecular origins of mesoscale ordering in a metalloamphiphile phase.** *Acs Central Science* 1: 493-503 (2015); DOI: 10.1021/acscentsci.5b00306.
60. A. J. Liu, G. S. Grest, M. C. Marchetti, G. M. Grason, M. O. Robbins, G. H. Fredrickson, M. Rubinstein, & M. O. de la Cruz. **Opportunities in theoretical and computational polymeric materials and soft matter.** *Soft Matter* 11: 2326-2332 (2015); DOI: 10.1039/c4sm02344g.
61. Ting Li & M. O. de la Cruz. **Surface energy fluctuation effects in single crystals of DNA-functionalized nanoparticles.** *Journal of Chemical Physics* 143: 6 (2015); DOI: 10.1063/1.4938533.
62. H. K. Kwon, J. W. Zwanikken, K. R. Shull, & M. O. de la Cruz. **Theoretical analysis of multiple phase coexistence in polyelectrolyte blends.** *Macromolecules* 48: 6008-6015 (2015); DOI: 10.1021/acs.macromol.5b00901.
63. Y. F. Jing, V. Jadhao, J. W. Zwanikken, & M. O. de la Cruz. **Ionic structure in liquids confined by dielectric interfaces.** *Journal of Chemical Physics* 143: 15 (2015); DOI: 10.1063/1.4935704.
64. V. Jadhao, Z. W. Yao, C. K. Thomas, & M. O. de la Cruz. **Coulomb energy of uniformly charged spheroidal shell systems.** *Physical Review E* 91: 14 (2015); DOI: 10.1103/PhysRevE.91.032305.
65. N. E. Jackson, K. L. Kohlstedt, B. M. Savoie, M. O. de la Cruz, G. C. Schatz, L. X. Chen, & M. A. Ratner. **Conformational order in aggregates of conjugated polymers.** *Journal of the American Chemical Society* 137: 6254-6262 (2015); DOI: 10.1021/jacs.5b00493.
66. R. D. Giuntoli, N. B. Linzer, E. J. Banigan, C. E. Sing, M. O. de la Cruz, J. S. Graham, R. C. Johnson, & J. F. Marko. **DNA-segment-facilitated dissociation of fis and nhp6a from DNA detected via single-molecule mechanical response.** *Journal of Molecular Biology* 427: 3123-3136 (2015); DOI: 10.1016/j.jmb.2015.07.015.
67. A. Erbas & M. O. de la Cruz. **Energy conversion in polyelectrolyte hydrogels.** *Acs Macro Letters* 4: 857-861 (2015); DOI: 10.1021/acsmacrolett.5b00363.
68. J. M. Dempster, R. Zhang, & M. O. de la Cruz. **Self-replication with magnetic dipolar colloids.** *Physical Review E* 92: 11 (2015); DOI: 10.1103/PhysRevE.92.042305.

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