

CURRICULUM VITAE

VANESSA ORTIZ

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OBJECTIVE

Faculty position for teaching and research in the field of molecular simulations of soft matter.

EDUCATION

Ph.D. Chemical and Biomolecular Engineering
University of Pennsylvania, Philadelphia, PA, May 2007
Dissertation: Soft Matter Systems Simulated by Molecular Methods
Advisors: Michael L. Klein and Dennis E. Discher
B.S. Chemical Engineering
University of Puerto Rico at Mayagüez, Mayagüez, PR, 2002
Luis C. Monzón Award for Best Chem. Eng. Student of Class of 2002

AWARDS

06/2007 – 05/2009 NLM Computation and Informatics in Biology and Medicine
Postdoctoral Training Fellowship
01/2006 – 05/2007 NIH Ruth L. Kirschstein Predoctoral Research Fellowship
01/2003 – 12/2005 NSF IGERT Predoctoral Research Fellowship

RESEARCH EXPERIENCE

Summer 2004 Max Planck Institute for Colloids and Interfaces, Golm, Germany,
research under the supervision of Dr. Reinhard Lipowsky
Summer 2001 Pacific Northwest National Laboratory, Richland, WA, research
under the supervision of Dr. René Corrales
9/2000 – 5/2002 University of Puerto Rico at Mayagüez, undergraduate research under
the supervision of Dr. Gustavo López

TEACHING EXPERIENCE

Fall 2003-2006 Guest Lecturer, University of Pennsylvania, Advanced
Thermodynamics
Spring 2004 Teaching Assistant, University of Pennsylvania, Separation Processes
Fall 2003 Teaching Assistant, University of Pennsylvania, Introduction to
Process Design

PRESENTATIONS

Contributed Talks

1. Ortiz V, Johnson CP, Nielsen SO, Klein ML, Discher DE, "Molecular Dynamics and Experimental Studies on the Stability of Spectrin Repeats" 2006 AIChE National Meeting, San Francisco, CA
2. Ortiz V, Nielsen SO, Klein ML, and Discher DE, "Dissipative Particle Dynamics for the Simulation of Aqueous Block Copolymer Assemblies at Experimental Molecular Weights" 2006 AIChE National Meeting, San Francisco, CA
3. Ortiz V, Nielsen SO, Moore PB, Klein ML, and Discher DE, "Membrane Simulations by Coarse-grained MD and Dissipative Particle Dynamics: Molecular-scale insights into Polydispersity and Curvature" 2005 AIChE National Meeting, Cincinnati, OH
4. Ortiz V, Nielsen SO, Johnson CP, Klein ML, Discher DE, "Mechanical Properties of Spectrin Family Proteins: Unfolding a linker between helical repeats" 2005 AIChE National Meeting, Cincinnati, OH
5. Ortiz V, Nielsen SO, Moore PB, Klein ML, and Discher DE, "Membrane Simulations by Coarse-grained MD and Dissipative Particle Dynamics: Molecular-scale insights into Polydispersity and Curvature" 2005 ACS National Meeting, Washington, DC
6. Ortiz V, Nielsen SO, Klein ML, and Discher DE, "Unfolding a linker between Helical Repeats" 2004 Biomedical Engineering Society (BMES) Annual Fall Meeting, Philadelphia, PA

Posters

1. Ortiz V, Nielsen SO, Johnson CP, Klein ML, and Discher DE, "Mechanical Properties of Spectrin Family Proteins: Unfolding a linker between helical repeats" 2006 Biophysical Society (BS) Annual Meeting, Salt Lake City, UT
2. Ortiz V, Nielsen SO, Discher DE, Klein ML, Lipowsky R, and Shillcock J, "Dissipative Particle Dynamics Simulations of Polymersomes: Structural and Mechanical Properties" 2005 Biophysical Society (BS) Annual Meeting, Long Beach, CA
3. Ortiz V, Nielsen SO, Klein ML, and Discher DE, "Unfolding a linker between Helical Repeats" 2004 Biophysical Society (BS) Annual Meeting, Baltimore, MD

PUBLICATIONS

Research Articles

1. Johnson CP, Massimiliano G, Ortiz V, Bhasin N, Harper S, Gallagher PG, Speicher DW and Discher DE, "A Pathogenic Proline Mutation in the Linker between Spectrin Repeats: Disease due to Spectrin Unfolding" *Blood* 109 (8) 3538-3543 2007
2. Ortiz V, Nielsen SO, Discher DE, Klein ML, Lipowsky R, and Shillcock J, "Dissipative particle dynamics simulations of polymersomes" *Journal of Physical Chemistry B* 109 (37) 17708-17714 2005
3. Nielsen SO, Ensing B, Ortiz V, Moore PB, and Klein ML, "Lipid bilayer perturbations around a transmembrane nanotube: A coarse grain molecular dynamics study" *Biophysical Journal* 88 (6) 3822-3828 2005
4. Ortiz V, Nielsen SO, Klein ML, and Discher DE, "Unfolding a linker between helical repeats" *Journal of Molecular Biology* 349 (3) 638-647 2005
5. Ortiz V, Lopez-Alvarez YM, and Lopez GE, "Phase diagrams and capillarity condensation of methane confined in single- and multi layer nanotubes" *Molecular Physics* 103 (19) 2587-2592 2005

6. Ortiz V, Maury-Evertsz JR, and Lopez GE, "Parallel tempering-cavity-bias algorithm in the Gibbs ensemble" *Chemical Physics Letters* 368 (3-4) 452-457 2003
7. Ortiz V and Lopez GE, "Fourier path integral Monte Carlo study of a two-dimensional model quantum monolayer" *Molecular Physics* 100 (7) 1003-1009 2002

Review Articles

1. Discher DE, Ortiz V, Srinivas G, Klein ML, Kim Y, Christian D, Cai S, Photos P, and Ahmed F, "Emerging Applications of Polymersomes in Delivery: From molecular dynamics to shrinkage of tumors" *Progress in Polymer Science* 32 (8) 838-857 2007
2. Ortiz V, Nielsen SO, Klein ML, and Discher DE, "Computer simulation of aqueous block copolymer assemblies: Length scales and methods" *Journal of Polymer Science Part B: Polymer Physics* 44 (14) 1907-1918 2006

PROFESSIONAL AFFILIATIONS

American Institute of Chemical Engineers (AIChE)
 American Chemical Society (ACS)
 Biophysical Society (BS)

REFERENCES

1. Dennis E. Discher, Department of Chemical and Biomolecular Engineering, University of Pennsylvania, 112 Towne Bldg., 220 S. 33rd St., Philadelphia, PA 19104-6315, Ph.215-898-4809, discher@seas.upenn.edu
2. Michael L. Klein, Department of Chemistry, University of Pennsylvania, 231 S. 34th Street, Philadelphia, PA 19104-6315, Ph.215-898-5425, klein@lrsm.upenn.edu
3. Steven O. Nielsen, Department of Chemistry, BE26, University of Texas at Dallas, P.O. Box 830688, Richardson TX 75083-0688, Ph.972-883-5323 steven.nielsen@utdallas.edu
4. Preston B. Moore, Department of Chemistry & Biochemistry, University of the Sciences in Philadelphia, 600 South 43rd Street, Philadelphia, PA 19104, Ph.215-596-7537, p.moore@usip.edu
5. Gustavo E. Lopez, Department of Chemistry, University of Puerto Rico at Mayagüez, PO Box 9019, Mayagüez, P.R. 00681-9019, Ph.787-265-5458, glopez@uprm.edu

ADDITIONAL INFORMATION

- Fluent in Spanish and English.
- Featured in the student profiles section of the IGERT Program website.
- Video-conference presentation for the NSF funded Collaborative to Integrate Research and Education (CIRE) Program between the PENN MRSEC and the University of Puerto Rico at Humacao
- Member of the Penn graduate student recruiting team in Puerto Rico
- Member of the organizing committee for the 2006 Graduate Research Symposium in the Penn School of Engineering