

Professional Preparation

Ph.D., Mechanical Engineering, Iowa State University
M.S., Materials Science and Engineering, Iowa State University
M.S., Physics, Kiev National University, Kiev, Ukraine
B.S., Physics, Kiev National University, Kiev, Ukraine

Appointments

2015 – Present Assistant Professor, Dept. of Mechanical Engineering, University of Kentucky
2010 – 2015 Postdoctoral fellow, U.S. Dept. of Energy's Ames Lab., Iowa State University
2004 – 2010 Graduate Research Assistant, Dept. of Mechanical Eng., Iowa State University
2002 – 2004 Graduate Research Assistant, Dept. of Materials Science and Engineering, Iowa State University

Publications

1. S. Markutsya, M. H. Lamm, "A coarse-graining approach for molecular simulation that retains the dynamics of the all-atom reference system by implementing hydrodynamic interactions," *The Journal of Chemical Physics*, 141, 174107 (2014)
2. S. Markutsya, R. O. Fox, S. Subramaniam, "Characterization of sheared colloidal aggregation using Langevin dynamics simulation," *Physical Review E*, 89, 062312 (2014)
3. S. Markutsya, A. Devarajan, J. Y. Baluyut, T. L. Windus, M. S. Gordon, M. H. Lamm, "Evaluation of coarse-grained mapping schemes for polysaccharide chains in cellulose," *The Journal of Chemical Physics*, 138, 214108 (2013)
4. A. Devarajan, S. Markutsya, M. H. Lamm, X. Cheng, J. C. Smith, J. Y. Baluyut, Y. Kholod, M. S. Gordon, T. L. Windus, "Ab initio Study of Molecular Interactions in Cellulose I α ," *The Journal of Physical Chemistry B*, 117, 10430-10443 (2013)
5. S. Markutsya, Y. Kholod, A. Devarajan, T. L. Windus, M. S. Gordon, M. H. Lamm, "A coarse-grained model for β -D-glucose based on force matching," *Theoretical Chemistry Accounts*, 131, 1162 (2012)
6. S. Markutsya, R. O. Fox, S. Subramaniam, "Coarse-graining approach to infer mesoscale interaction potentials from atomistic interactions for aggregating systems," *Industrial & Engineering Chemistry Research*, 51(49), 16116-16134 (2012)
7. S. Markutsya, S. Subramaniam, R. D. Vigil, R. O. Fox, "On Brownian dynamics simulation of nanoparticle aggregation," *Industrial & Engineering Chemistry Research*, 47(10), 3338-3345 (2008)
8. S. Markutsya, C. Y. Jiang, Y. Pikus, V. V. Tsukruk, "Freely suspended layer-by-layer nanomembranes: Testing micromechanical properties," *Advanced Functional Materials*, 15(5), 771-780 (2005)
9. C. Y. Jiang, S. Markutsya, H. Shulha, V. V. Tsukruk, "Freely suspended gold nanoparticle arrays," *Advanced Materials*, 17(13), 1669-1673 (2005)
10. S. Markutsya, M. Rapeaux, V. V. Tsukruk, "Intensive electric arc interaction with polymer surfaces: reorganization of surface morphology and microstructure", *Polymer*, 46(18), 7028-7036 (2005)

11. C. Y. Jiang, B. M. Rybak, S. Markutsya, P. E. Kladitis, V. V. Tsukruk, "Self-recovery of stressed nanomembranes," *Applied Physics Letters*, 86(12), 121912, (2005)
12. C. Y. Jiang, S. Markutsya, Y. Pikus, V. V. Tsukruk, "Freely suspended nanocomposite membranes as highly sensitive sensors," *Nature Materials*, 3(10), 721-728 (2004)
13. C. Y. Jiang, S. Markutsya, V. V. Tsukruk, "Compliant, robust, and truly nanoscale free-standing multilayer films fabricated using spin-assisted layer-by-layer assembly," *Advanced Materials*, 16(2), 157-161 (2004)
14. C. Y. Jiang, S. Markutsya, V. V. Tsukruk, "Collective and individual plasmon resonances in nanoparticle films obtained by spin-assisted layer-by-layer assembly," *Langmuir*, 20(3), 882-890 (2004)
15. V. V. Tsukruk, K. Genson, S. Peleshanko, S. Markutsya, M. Lee, Y. S. Yoo, "Molecular reorganizations of rod-coil molecules on a solid surface," *Langmuir*, 19(3), 495-499 (2003)
16. M. Lee, J. W. Kim, S. Peleshanko, K. Larson, Y. S. Yoo, D. Vaknin, S. Markutsya, V. V. Tsukruk, "Amphiphilic hairy disks with branched hydrophilic tails and a hexa-peri-hexabenzocoronene core," *Journal of the American Chemical Society*, 124(31), 9121-912 (2002)