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EDUCATION

Changchun Institute of Applied Chemistry, Chinese Academy of Sciences
Ph.D. in Polymer Chemistry and Physics — June 2012
Dissertation title: "Crystallization and Glass Transition in Colloidal Systems"
Advisor: Prof. Lijia An

Tianjin University
B.S. in Materials Science and Engineering — June 2007

RESEARCH EXPERIENCE

Oak Ridge National Laboratory
Postdoctoral Researcher — 2016–present
Research topic: Dynamics and nonlinear rheology of polymers
Advisor: Dr. Bobby G. Sumpter

The University of Chicago
Postdoctoral Scholar — 2013–2016
Research topic: Glass formation and thermodynamics of polymers
Advisor: Prof. Karl F. Freed

Changchun Institute of Applied Chemistry, Chinese Academy of Sciences
Graduate Researcher and Research Assistant — 2007–2013
Research topic: Crystallization and glass formation in colloidal systems
Advisor: Prof. Lijia An

PUBLICATIONS

(*) As a corresponding author when not the first author.

Refereed Journal Articles

1. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Influence of Pressure on Glass Formation in a Simulated Polymer Melt", *Macromolecules* 50, 2585–2598 (2017).

2. Xiaozheng Duan, Ran Zhang, Mingming Ding, Qingrong Huang, **Wen-Sheng Xu**, Tongfei Shi, and Lijia An, "Adsorption of a Hydrophobic Cationic Polypeptide onto Acidic Lipid Membrane", *Polymer* 122, 125–138 (2017). (*)
3. Xiaozheng Duan, Yang Zhang, Liangyi Li, Ran Zhang, Mingming Ding, Qingrong Huang, **Wen-Sheng Xu**, Tongfei Shi, and Lijia An, "Effects of Concentration and Ionization Degree of Anchoring Cationic Polymers on Lateral Heterogeneity of Anionic Lipid Monolayers", *J. Phys. Chem. B* 121, 984–994 (2017). (*)
4. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Generalized entropy theory of glass-formation in fully flexible polymer melts", *J. Chem. Phys.* 145, 234509 (2016).
5. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Stringlike Cooperative Motion Explains the Influence of Pressure on Relaxation in a Model Glass-forming Polymer Melt", *ACS Macro Lett.* 5, 1375–1380 (2016).
6. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Influence of Cohesive Energy on the Thermodynamic Properties of a Model Glass-Forming Polymer Melt", *Macromolecules* 49, 8341–8354 (2016).
7. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Influence of Cohesive Energy on Relaxation in a Model Glass-Forming Polymer Melt", *Macromolecules* 49, 8355–8370 (2016).
8. Xiaozheng Duan, Ran Zhang, Yang Zhang, Mingming Ding, Tongfei Shi, Lijia An, Qingrong Huang, and **Wen-Sheng Xu**, "Monte Carlo study on a complex of cationic polymers and anionic lipid monolayer", *Polymer* 104, 138–148 (2016). (*)
9. Xiaozheng Duan, Yang Zhang, Ran Zhang, Mingming Ding, Tongfei Shi, Lijia An, Qingrong Huang, and **Wen-Sheng Xu**, "Spatial Rearrangement and Mobility Heterogeneity of an Anionic Lipid Monolayer Induced by the Anchoring of Cationic Semiflexible Polymer Chains", *Polymers* 8, 235 (2016). (*) (Invited contribution for a special issue on semiflexible polymers)
10. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Entropy Theory of Polymer Glass Formation in Variable Spatial Dimension", *Adv. Chem. Phys.* 161, 443–497 (2016).
11. **Wen-Sheng Xu** and Karl F. Freed, "Self-assembly and glass-formation in a lattice model of linear telechelic polymer melts: Influence of stiffness of the sticky bonds", *J. Chem. Phys.* 144, 214903 (2016).
12. **Wen-Sheng Xu** and Karl F. Freed, "Lattice model of linear telechelic polymer melts. I. Inclusion of chain semiflexibility in the lattice cluster theory", *J. Chem. Phys.* 143, 024901 (2015).
13. **Wen-Sheng Xu** and Karl F. Freed, "Lattice model of linear telechelic polymer melts. II. Influence of chain stiffness on basic thermodynamic properties", *J. Chem. Phys.* 143, 024902 (2015).
14. **Wen-Sheng Xu**, Xiaozheng Duan, Zhao-Yan Sun, and Li-Jia An, "Glass formation in a mixture of hard disks and hard ellipses", *J. Chem. Phys.* 142, 224506 (2015).
15. Xiaozheng Duan, Mingming Ding, Ran Zhang, Liangyi Li, Tongfei Shi, Lijia An, Qingrong Huang, and **Wen-Sheng Xu**, "Effects of Chain Rigidity on the Adsorption of a Polyelectrolyte Chain on Mixed Lipid Monolayer: A Monte Carlo Study", *J. Phys. Chem. B* 119, 6041–6049 (2015). (*)
16. **Wen-Sheng Xu** and Karl F. Freed, "Generalized Entropy Theory of Glass Formation in Polymer Melts with Specific Interactions", *Macromolecules* 48, 2333–2343 (2015).
17. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Relaxation dynamics in a binary hard-

ellipse liquid", *Soft Matter* 11, 627–634 (2015).
18. **Wen-Sheng Xu** and Karl F. Freed, "Influence of Cohesive Energy and Chain Stiffness on Polymer Glass Formation", *Macromolecules* 47, 6990–6997 (2014).
19. **Wen-Sheng Xu** and Karl F. Freed, "Lattice cluster theory for polymer melts with specific interactions", *J. Chem. Phys.* 141, 044909 (2014).
20. Yan-Wei Li, **Wen-Sheng Xu**, and Zhao-Yan Sun, "Growing point-to-set length scales in Lennard-Jones glass-forming liquids", *J. Chem. Phys.* 140, 124502 (2014).
21. **Wen-Sheng Xu** and Karl F. Freed, "Thermodynamic scaling of dynamics in polymer melts: Predictions from the generalized entropy theory", *J. Chem. Phys.* 138, 234501 (2013).
22. **Wen-Sheng Xu**, Yan-Wei Li, Zhao-Yan Sun, and Li-Jia An, "Hard ellipses: Equation of state, structure, and self-diffusion", *J. Chem. Phys.* 139, 024501 (2013). (Selected as the cover article of the issue)
23. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Effect of attractions on correlation length scales in a glass-forming liquid", *Phys. Rev. E* 86, 041506 (2012). (Selected as Kaleidoscope of the issue)
24. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Structure, compressibility factor and dynamics of highly size-asymmetric binary hard-disk mixtures", *J. Chem. Phys.* 137, 104509 (2012).
25. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Dynamics and correlation length scales of a glass-forming liquid in quiescent and sheared conditions", *J. Phys.: Condens. Matter* 24, 325101 (2012).
26. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Diffusive redistribution of small spheres in crystallization of highly asymmetric binary hard sphere mixtures", *EPL* 97, 66007 (2012).
27. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Assembly of body-centered cubic crystals in hard spheres", *Eur. Phys. J. E* 34, 47 (2011).
28. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Heterogeneous crystallization of hard spheres on patterned substrates", *J. Chem. Phys.* 132,144506 (2010).
29. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Dense packing in the monodisperse hard-sphere system: A numerical study", *Eur. Phys. J. E* 31, 377–382 (2010).

CONFERENCES

1. **Wen-Sheng Xu**, Jan-Michael Y. Carrillo, and Yangyang Wang, "Polymers Undergoing Pairwise Head-to-Head Association and Dissociation: Molecular Dynamics Model, Reaction Kinetics, and Linear Viscoelastic Relaxation", OLCF Users Meeting, Oak Ridge National Laboratory, Oak Ridge, USA, 2017. (Poster presentation)
2. **Wen-Sheng Xu**, Jan-Michael Y. Carrillo, and Yangyang Wang, "Polymers Undergoing Pairwise Head-to-Head Association and Dissociation: Molecular Dynamics Model, Reaction Kinetics, and Linear Viscoelastic Relaxation", Joint Nanoscience and Neutron Scattering User Meeting, Oak Ridge National Laboratory, Oak Ridge, USA, 2017. (Poster presentation)
3. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Entropy Theory of Polymer Glass-Formation in Variable Spatial Dimension", APS March Meeting, Baltimore, USA, 2016. (Contributed talk)
4. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Recent Advances in the Generalized Entropy Theory of Polymer Glass-Formation", Center for Nanophase Materials Sciences at Oak Ridge National Laboratory, Oak Ridge, USA, 2016. (Seminar)

5. **Wen-Sheng Xu**, Jack F. Douglas, and Karl F. Freed, "Polymer Glass-Formation in Variable Dimension", Gordon Research Seminar and Conference on the Chemistry and Physics of Liquids, Holderness, USA, 2015. (Poster presentation)
6. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Template-induced crystallization of colloidal hard spheres", China-Korea Bilateral Symposium on Polymer Materials, Weihai, China, 2011. (Selected speaker for opening ceremony presentation)
7. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Glass transition in the binary colloidal systems", The 27th Symposium of Chinese Chemical Society, Xiamen, China, 2010. (Poster presentation)
8. **Wen-Sheng Xu**, Zhao-Yan Sun, and Li-Jia An, "Homogeneous crystal nucleation in hard-sphere polymer colloids", China-Korea Bilateral Symposium on Polymer Materials, Hangzhou, China, 2009. (Poster presentation)

AWARDS AND HONORS

2016	Marie Sklodowska-Curie Actions, Individual Fellowships. (Declined)
2007–2012	Research Scholarship of Changchun Institute of Applied Chemistry.
2007–2012	Graduate Fellowship of Chinese Academy of Sciences.
2007, 2008	Excellent Student of Changchun Institute of Applied Chemistry.
2004, 2005	Excellent Student of Tianjin university.
2005	National Scholarship of P. R. China.
2004	Scholarship of Ping An of P. R. China.

SERVICE TO PROFESSION

Journal referee: *EPL, Materials Horizons, SCIENCE CHINA Chemistry, Scientific Reports, Soft Matter*, *The Journal of Chemical Physics*, *The Journal of Physical Chemistry B*.

PROFESSIONAL MEMBERSHIPS

2015–present Member, American Physical Society

RESEARCH INTERESTS

Polymer dynamics; Polymer thermodynamics; Rheology of polymers; Supercooled liquids and glasses; Associating polymers; Colloids; Statistical mechanics; Computer simulation.

LANGUAGES

English (fluent); Chinese (native).

REFERENCES

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