

RUI WANG

Phone: (626)808-8130/ruiwang325@berkeley.edu

Education:

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| Ph.D. in Chemical Engineering, <i>California Institute of Technology, USA</i> | Oct.2008-Oct. 2014 |
| M. S. in Chemical Engineering, <i>Zhejiang University, China</i> | Sep. 2005-June. 2008 |
| B. S. in Chemical Engineering, <i>Zhejiang University, China</i> | Sep. 2001-June. 2005 |

Honors/Awards:

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| Spark Grant Award, <i>UC Berkeley</i> | 2023 |
| Cupola Era Endowed Chair, <i>College of Chemistry, UC Berkeley</i> | 2022 |
| Petroleum Research Fund Doctoral New Investigator Award, <i>American Chemical Society</i> | 2022 |
| Finalist in Victor K. LaMer Award, <i>American Chemical Society</i> | 2016 |
| Finalist in Frank J. Padden Award, <i>American Physical Society</i> | 2013 |
| Constantin G. Economou Memorial Prize, <i>California Institute of Technology</i> | 2010 |
| First Prize in Natural Science Award, <i>Ministry of Education, China</i> | 2009 |
| 100 Most Influential Scientific Papers Award, <i>Ministry of Science and Technology, China</i> | 2008 |
| Excellent Thesis Award for Master's Degree, <i>Zhejiang Province, China</i> | 2008 |
| Excellent Graduate, <i>Zhejiang Province, China</i> | 2005 |

Research Appointments:

Assistant Professor, Department of Chemical and Biomolecular Engineering, *University of California, Berkeley*
Jan. 2019-present

Faculty Scientist, Division of Materials Sciences, *Lawrence Berkeley National Laboratory, Berkeley*
Jul. 2020-present

Postdoctoral Researcher, Department of Chemical Engineering, *Massachusetts Institute of Technology, MA*
Advisors: Bradley D. Olsen and Alfredo Alexander-Katz
Jan.2015-Jun. 2018

Graduate Researcher, Department of Chemical Engineering, *California Institute of Technology, CA*
Advisors: Zhen-Gang Wang
Oct.2008-Oct. 2014

Graduate Researcher, State Key Laboratory of Chemical Engineering, *Zhejiang University, China*
Advisors: Shiping Zhu, Yingwu Luo, Bo-Geng Li
Sep. 2005-Jun. 2008

Publications:

1. Y. Luo, **R. Wang**, L. Yang, B. Yu, B. -G. Li and S. Zhu, Effect of reversible addition-fragmentation transfer (RAFT) reactions on (mini)emulsion polymerization kinetics and estimate of RAFT equilibrium constant, *Macromolecules* 2006, 39, 1328.
2. **R. Wang**, Y. Luo, B. G. Li, X. Sun and S. Zhu, Design and control of copolymer composition distribution in living radical polymerization using semi-batch feeding policies: A model simulation, *Macromol. Theory. Simul.* 2006, 15, 356.
3. J. Gao, Y. Luo, **R. Wang**, B. -G. Li and S. Zhu, Kinetics of methyl methacrylate and n-butyl acrylate copolymerization mediated by 2-cyanoprop-2-yl dithiobenzoate as a RAFT agent, *J. Polym. Sci., Part A: Polym. Chem.* 2007, 45, 3098.
4. X. Sun, Y. Luo, **R. Wang**, B. -G. Li and S. Zhu, Programmed synthesis of copolymer with controlled chain composition distribution via semibatch RAFT copolymerization, *Macromolecules* 2007, 40, 849.
5. **R. Wang**, Y. Luo, B. -G. Li and S. Zhu, Control of gradient copolymer composition in ATRP using semibatch feeding policy, *AIChE Journal* 2007, 53, 174.

6. X. Sun, Y. Luo, **R. Wang**, B. -G. Li and S. Zhu, Semibatch RAFT polymerization for producing ST/BA copolymers with controlled gradient composition profiles, *AIChE Journal* 2008, *54*, 1073.
7. J. Gao, Y. Luo, **R. Wang**, B. -G. Li and S. Zhu, Effect of monomer composition on apparent chain transfer coefficient in RAFT copolymerization, *Polymer* 2009, *50*, 802.
8. **R. Wang**, Y. Luo, B. -G. Li and S. Zhu, Modeling of Branching and Gelation in RAFT Copolymerization of Vinyl/Divinyl Systems, *Macromolecules* 2009, *42*, 85.
9. **R. Wang**, W. Li, Y. Luo, B. -G. Li, A. -C. Shi and S. Zhu, Phase behavior of ternary homopolymer/gradient copolymer blends, *Macromolecules* 2009, *42*, 2275.
10. **R. Wang** and Z. -G. Wang, Theory of side-chain liquid crystal polymers: bulk behavior and chain conformation, *Macromolecules* 2010, *43*, 10096.
11. **R. Wang** and Z. -G. Wang, Effect of ion solvation on phase equilibrium and interfacial tension of liquid mixtures, *J. Chem. Phys.* 2011, *135*, 014707.
12. **R. Wang** and Z. -G. Wang, Theory of polymers in poor solvent: phase behavior and nucleation process, *Macromolecules* 2012, *45*, 6266.
13. **R. Wang** and Z. -G. Wang, Effects of image charges on double layer structure and forces, *J. Chem. Phys.* 2013, *139*, 124702.
14. **R. Wang** and Z. -G. Wang, Continuous self energy at the dielectric interface, *Phys. Rev. Lett.* 2014, *112*, 136101.
15. **R. Wang** and Z. -G. Wang, Theory of polymer chains in poor solvent: single-chain structure, solution thermodynamics and Θ point, *Macromolecules* 2014, *47*, 4094.
16. **R. Wang** and Z. -G. Wang, On the theoretical description of weakly charged surfaces, *J. Chem. Phys.* 2015, *142*, 104705.
17. K. Kawamoto, M. Zhong, **R. Wang**, B. D. Olsen and J. A. Johnson, Loops versus branch functionality in model click hydrogels, *Macromolecules* 2015, *48*, 8980.
18. **R. Wang** and Z. -G. Wang, Inhomogeneous screening near a dielectric interface, *J. Chem. Phys.* 2016, *144*, 134902.
19. **R. Wang**, A. Alexander-Katz, J. A. Johnson and B. D. Olsen, Universal cyclic topology in polymer networks, *Phys. Rev. Lett.* 2016, *116*, 188302.
20. M. Zhong*, **R. Wang***, K. Kawamoto*, J. A. Johnson and B. D. Olsen, Quantifying the impact of molecular defects on polymer network elasticity, *Science* 2016, *353*, 1264. (*equal contribution)
21. **R. Wang**, M. K. Sing, R. K. Avery, B. S. Souza, M. Kim and B. D. Olsen, Classical challenges in the physical chemistry of polymer networks and the design of new materials, *Acc. Chem. Res.*, 2016, *49*, 2786.
22. **R. Wang**, J. A. Johnson and B. D. Olsen, Effect of junction functionality on the topology and elasticity of polymer networks, *Macromolecules* 2017, *50*, 2556.
23. C. R. Stewart-Sloan, **R. Wang**, M. K. Sing, B. D. Olsen, Self-Assembly of poly(vinylpyridine-b-oligo(ethylene glycol) methyl ether methacrylate) diblock copolymers, *J. Polym. Sci., Part B: Polym. Phys.* 2017, *55*, 1181.
24. **R. Wang**, T. -S. Lin, J. A. Johnson and B. D. Olsen, Kinetic Monte Carlo simulation to quantifying the gel point of polymer networks, *ACS Macro Lett.*, 2017, *6*, 1414.
25. T. -S. Lin, **R. Wang**, J. A. Johnson and B. D. Olsen, Topology structure of networks formed from symmetric four-arm precursors, *Macromolecule*, 2018, *7*, 244.
26. J. P. Wang, T. -S. Lin, Y. Gu, **R. Wang**, B. D. Olsen and J. A. Johnson, Counting secondary loops is required for accurate prediction of end-linked polymer network elasticity, *ACS Macro Lett.*, 2018, *6*, 1414.
27. T. -S. Lin, **R. Wang**, J. A. Johnson and B. D. Olsen, Revisiting the elasticity theory for real Gaussian phantom network, *Macromolecule*, 2019, *52*, 1685.
28. J. P. Wang, **R. Wang**, Y. W. Gu, A. Sourakov, B. D. Olsen and J. A. Johnson, Counting loops in sidechain-crosslinked polymers from elastic solids to single-chain nanoparticles, *Chem. Sci.* 2019, *10*, 5332.
29. T. -S. Lin, **R. Wang**, J. A. Johnson and B. D. Olsen, Extending the phantom network theory to account for cooperative effect of defects, *Macromol. Symp.*, 2019, *385*, 1900010.
30. A. Arora, T. -S. Lin, H. Beech, H. Mochigases, **R. Wang**, B. D. Olsen, Fracture of polymer networks containing topological defects, *Macromolecules* 2020, *53*, 7346.
31. F. Zhang, X. Gao, Y. Luo, **R. Wang**, Copolymerized sulfur with intrinsically ionic conductivity, superior dispersibility, and compatibility for all-solid-state lithium batteries, *ACS Sustain. Chem. Eng.* 2020, *8*, 12100.

32. Y. Zhuang, Y. Luo, X. Gao, **R. Wang**, High-safety all-solid-state lithium-ion battery working at ambient temperature with in situ UV-curing polymer electrolyte on the electrode, *ChemElectroChem*, 2020, 7, 2599.
33. C. Duan, W. H. Li, **R. Wang**, Conformation of a single polyelectrolyte in poor solvents, *J. Chem. Phys.* 2020, 153, 064901.
34. C. Fang, W. S. Loo, **R. Wang**, Salt activity coefficient and chain statistics in poly(ethylene oxide)-based electrolytes, *Macromolecules* 2021, 54, 2873.
35. W. S. Loo, C. Fang, N. P. Balsara, **R. Wang**, Uncovering local correlation in polymer electrolytes by X-ray scattering and molecular dynamics simulation, *Macromolecules* 2021, 54, 6639.
36. C. Duan, W. H. Li, **R. Wang**, Stable vesicles formed by a single polyelectrolyte in salt solutions, *Macromolecules*, 2022, 55, 906.
37. D. M. Halat, C. Fang, D. Hickson, A. Mistry, J. A. Reimer, N. P. Balsara, **R. Wang**, Electric field-induced spatially dynamic heterogeneity of solvent motion and cation transference in electrolytes, *Phys. Rev. Lett.* 2022, 128, 198002.
38. A. Mistry, Z. Yu, B. Peters, C. Fang, **R. Wang**, L. Curtis, N. P. Balsara, L. Cheng, V. Srinivasan, Toward bottom-up understanding of transport in concentrated battery electrolytes *ACS Cent. Sci.* 2022, 8, 880.
39. H. Xu, S. Ma, Y. Hou, Q. Zhang, **R. Wang**, Y. Luo, X. Gao, Machine learning-assisted identification of copolymer microstructures based on microscopic image, *ACS Appl. Mater. Interfaces*, 2022, 14, 47157
40. N. Agrawal, **R. Wang**, Electrostatic correlation induced ion condensation and charge inversion in multivalent electrolytes, *J. Chem. Theory Comput.* 2022, 18, 6271.
41. L. Liu, C. Duan, **R. Wang**, Theory of polymers in poor solvents: intra-chain interaction, second virial coefficient and Θ point, *Polymer*, 2022, 258, 125312.
42. C. Duan, **R. Wang**, Association of two polyelectrolytes in salt solutions, *Soft Matter*, 2022, 18, 6934.
43. X. Yu, Z. J. Hoffman, J. Lee, C. Fang, L. A. Gido, V. Patel, H. B. Eitouni, **R. Wang**, N. P. Balsara, A practical polymer electrolyte for lithium and sodium batteries: poly(pentyl malonate), *ACS Energy Lett.*, 2022, 7, 3791.
44. N. Agrawal, **R. Wang**, Self-consistent description of vapor-liquid interface in ionic fluids, *Phys. Rev. Lett.* 2022, 129, 228001.
45. J. Im, D. M. Halat, C. Fang, D. Hickson, **R. Wang**, N. P. Balsara, J. A. Reimer, Understanding the solvation structure of Li-ion battery electrolytes using DFT-based computation and ^1H NMR spectroscopy, *J. Phys. Chem. B*, 2022, 126, 9893.
46. C. Fang, D. M. Halat, N. P. Balsara, **R. Wang**, Dynamic heterogeneity of solvent motion and ion transport in concentrated electrolytes, *J. Phys. Chem. B*, 2023, 127, 1803.
47. C. Fang, A. Mistry, V. Srinivasan, N. P. Balsara, **R. Wang**, Elucidating the molecular origins of the transference number in battery electrolytes using computer simulations, *J. Am. Chem. Soc. Au*, 2323, 3, 306.
48. C. Duan, **R. Wang**, Protein aggregation via two-step nucleated conformational transition, *Phys. Rev. Lett.*, 2023, 130, 158401.
49. C. Fang, X. Yu, S. Chakraborty, N. P. Balsara, **R. Wang**, Molecular origin of high cation transference in mixtures of poly(pentyl malonate) and lithium salt, *ACS Macro Lett.*, 2023, 12, 612.
50. C. Fang, D. M. Halat, A. Mistry, J. A. Reimer, N. P. Balsara, **R. Wang**, Quantifying selective solvent transport under an electric field in mixed-solvent electrolytes, *Chem. Sci.*, 2023, 14, 5332.
51. C. Fang, S. Chakraborty, Y. Li, J. Lee, N. P. Balsara, **R. Wang**, Ion solvation cage structure in polymer electrolytes determined by combining X-ray scattering and simulations, *ACS Macro Lett.*, 2023, 12, 1244.

Teaching Experience:

CBE141 Chemical Engineering Thermodynamics

Spring 2020, Fall 2020, Spring 2022, Spring 2023

CBE240 Statistical Thermodynamics

Fall 2019, Fall 2021, Fall 2022

Service Activities:

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| Graduate Admission and Recruitment Committee in CBE Department | 2019, 2020, 2021 |
| Chair of the Graduate Admission and Recruitment Committee in CBE Department | 2022 |
| Junior Faculty Search Committee in CBE Department | 2023 |
| Diversity, Equity and Inclusion Committee in CBE Department | 2022-2023 |