

Curriculum Vitae Fardin Khabaz

(1) School of Polymer Science and Polymer Engineering
(2) Department of Chemical, Biomolecular, Corrosion Engineering
The University of Akron, 250 S. Forge Street, Akron, OH 44325-0301
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Education

- Postdoctoral Fellow
McKetta Department of Chemical Engineering, The University of Texas at Austin, Austin, TX. September 2016–December 2019.
Center for Dynamics and Control of Materials, The University of Texas at Austin, Austin, TX. August 2017–December 2019.
Advisor: Roger T. Bonnecaze
Research area: Developing models and simulations of magnetically–driven flows of dilute suspensions of magnetite particles, Rheology of soft particle glasses, and mechanics of nanowire aerogels.
- Doctor of Philosophy (Ph.D.), Chemical Engineering
Texas Tech University, Lubbock, Texas, January 2012–August 2016.
Thesis title: Structure, Dynamic, and Viscoelastic Properties of Complex Soft Materials Using Molecular Dynamics Simulations
Advisor: Rajesh Khare
Research area: Rheology and dynamics of polyacrylate gels, polymer solutions, asphalt, and ionic liquids using molecular dynamics simulations
- Bachelor of Science (B.S.), Chemical Engineering
Sharif University of Technology, Tehran, Iran, August 2007–May 2011.

Appointments

- Assistant Professor, School of Polymer Science and Polymer Engineering, The University of Akron, OH., January 2020–present.
- Assistant Professor, Department of Chemical, Biomolecular, and Corrosion Engineering, The University of Akron, OH., January 2020–present.
- Postdoctoral Fellow (UT Austin), September 2016–December 2019.
- Research Scientist at École supérieure de physique et de chimie industrielles de la Ville de Paris (ESPCI), February 2019–April 2019.

Research Interests

- Theory and simulations
- Rheology and dynamics of associative and dissociative polymers
- Flow, friction, and adhesion in dense suspensions

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Awards

- Joliot-Curie Faculty Award, ESPCI Paris (Summer 2023 and Spring 2022).

Students Awards at The University of Akron:

- Axalta Scholarship from the Powder Coating Institute (PCI)
- 1st Place at the Poster Competition Award of the 18th international Congress on Rheology (ICR).
- 2020 SPE Foundation Automotive & Composites Division ACCE Scholarship.
- 2020 SPE Foundation Irv Poston Detroit Section Scholarship.
- 2020 ACS Rubber Division Student Chapter Scholarship.

Before joining The University of Akron

- Raider Red Award for Outstanding Peer-Reviewed Journal Paper, Society of Plastics Engineers (SPE) Student Chapter and Department of Chemical Engineering, Texas Tech University (2016).
- TTU STX SPE Scholarship (2015).
- Society of Rheology Travel Grant (2014).
- TTU T Fullern Engineering Graduate School Scholarship (2012, 2013).
- TTU Harrington Grad Engineering Scholarship (2012).

Grants

5. National Science Foundation (NSF): "Unfolding the elementary building blocks of dynamics and rheology of soft glassy materials," Role: PI, Total budget: \$345,000. Duration: Feb, 2023-Feb, 2026.

4. National Science Foundation (NSF): "NRT-HDR: Graduate Traineeship on Advances in Materials Science using Machine Learning," Role: Co-PI, Total budget: \$2,000,000. Duration: May, 2022-May, 2027. Principal investigator: Sadhan Jana (PI), Other Co-PIs: Junpeng Wang, Kwek-Tze Tan, Zhong-Hui Duan, and En Chen.

3. U.S. Department of Energy (DOE)-REMADE Institute: "Supramolecular Interfacial Reinforcement for Manufacture Utilizing Mixed Secondary Plastic Feedstock," Role: Co-PI; Total budget: \$ 2,851,186; Duration: Fall 2021–Fall 2023; PI: Li Jia (PI), Other Co-PIs: Ali Dhinojwala, James Eagan, Mark D. Foster, Vinicius Grassi, Sadhan Jana, and Toshi Miyoshi.

2. AMLCI-SPSPE seed Grant: "Understanding and control of flow-induced phase transitions of 3D printing liquid crystal elastomers and their composites," Role: PI; \$25,000; Other PI: Elda Hegmann (Kent State University PI), Co-PIs: Ruel McKenzie, and Robert Clement. Duration: Summer 2021-Summer 2022.

1. R C Firestone Research Fellowship: "Identifying Adsorption Mechanism of Ionic Friction Modifiers on Rigid Surface," Amount: \$7,000; Duration: July 2020–June 2021.

Peer-Reviewed Journal Articles

37. Pukale DD.; Lazarenko, D.; Aryal, SR., Khabaz, F.; Shriver, LP. and ND Leipzig, ND "Osmotic Contribution of Synthesized Betaine by Choline Dehydrogenase Using In Vivo and In Vitro Models of Post-traumatic Syringomyelia," Cellular and Molecular Bioengineering, 1-14, 2022.
36. Lazarenko, D. and Khabaz, F.; "A Molecular Dynamics Study on the Tribological Performance of Imidazolium-Based Ionic Liquids Mixed with Oil in Comparison to Pure Liquids," Fluids 2022, 7(12), 384.
35. Perego, A.; Lazarenko, D.; Cloitre, M. and Khabaz, F. "Microscopic dynamics and viscoelasticity of vitrimers," Macromolecules 55, 17, 7605–7613, 2022.
34. Perego, A. and Khabaz, F. "Creep and Recovery in Vitrimers with Fast Exchange Reaction", Macromolecular Rapid Communications, 2200313, 2022.
33. Di Dio BF, Khabaz F, Bonnecaze RT, and Cloitre M. "Transient Dynamics of Soft Particle Glasses in Startup Shear Flow. Part II: Memory and Aging" J. Rheol. 66(4), 717-730, 2022.
32. Perego, A.; Mani, S. and Khabaz, F. "Rheology of Styrene-Butadiene Rubber: Resolving the Gap between Timescales in Simulations and Experiments," ACS Appl. Polym. Mater., 2022, 4, 4, 2314–2322.
31. Liu, T.; Khabaz, F.; Cloitre, M. and Bonnecaze, R. T. "High Frequency Viscoelasticity of Soft Particle Glasses," J. Rheol. 66, 293, 2022.
30. Shen, N.; Liu, S.; Kasbe, P.; Khabaz, F.; Kennedy, J. and Xu, W. "Macromolecular Engineering and Additive Manufacturing of Poly(styrene-b-isobutylene-b-styrene) (SIBS)," ACS Appl. Polym. Mater., 2021.
29. Perego, A. and Khabaz, F. "Effect of Kinetics of Bond Exchange Reaction on Dynamics and Mechanics of Vitrimers," J. Pol. Sci.,1–13, 2021.
28. Mani, S.; Khabaz, F.; Liechti, K.; Bonnecaze, R.T. and Haung, R. "A Numerical Study on Elastic Properties of Low-Density Two-Dimensional Networks of Crosslinked Long Fibers," Int. J. Solids Struct., 230–231, 111164, 2021.
27. Balogun, A.; Lazarenko, D. and Khabaz, F., and Khare, R.; "Extending Timescale of Molecular Simulations by Using Time-Temperature Superposition Principle: Rheology of Ionic Liquids," Soft Matter, 17, 7210–7220, 2021.
26. Lazarenko, D. and Khabaz, F.; "Thermodynamics and Rheology of Imidazolium-based Ionic Liquids–Oil Mixtures: A Molecular Simulation Study," J. Phys. Chem. B., 125, 22, 5897–5908, 2021.
25. Khabaz, F.; Di Dio, B. F.; Cloitre, M and Bonnecaze, R.T. "Transient Dynamics of Soft Particle Glasses in Startup Shear Flow: Part I Microstructure and Timescales," J. Rheol. 65, 241, 2021.

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24. Khabaz, F. and Bonnecaze, R.T. "Thermodynamics of Shear-Induced Phase Transition in Polydisperse Soft Particle Glasses," Special issue of Phys. Fluids. 33, 013315, 2021.
23. Perego, A. and Khabaz, F. "Volumetric and Rheological Properties of Vitrimers: A Hybrid Molecular Dynamics and Monte-Carlo Simulation Study," Macromolecules, 53, 19, 8406–8416, 2020.
22. Perego, A. and Khabaz, F. "Thermodynamics, Dynamics, and Rheology of Fuel Surrogates: Application of Time-Temperature Superposition Principle in Molecular Dynamics Simulations," Energy & Fuels, 34, 9, 1061-10641, 2020.
21. Das, S.; Khabaz, F.; N.; Nguyen, Q. and Bonnecaze, R. T. "Molecular Dynamics Simulations of Aqueous Nonionic Surfactants on a Carbonate Surface," J. Phys. Chem. B, 124, 37, 8158–8166, 2020.
20. Bonnecaze, R. T.; Khabaz, F.; Mohan, L.; Cloitre, M. "Excess Entropy Scaling for Soft Particle Glasses," Special issue of J. Rheol., 64, 423, 2020.
19. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T. "Particle Dynamics Predicts Shear Rheology of Soft Particle Glasses," Special issue of J. Rheol., 64, 459, 2020.
18. Howard M. P.; Jadrich R. B.; Lindquist, B. A.; Khabaz, F., Bonnecaze, R. T.; Milliron, D. J. and Truskett, M. "Structure and Phase Behavior of Polymer-Linked Colloidal Gels," J. Chem. Phys. 151 (12), 124901, 2019.
17. Jiang, T.; Khabaz, F.; Marne, A; Wu, C.; Gearba, R.; Bodepudi, R., Bonnecaze, R. T., Liechti, K. M. and Korgel, B. A. "Mechanical Properties of Hydrogenated Amorphous Silicon (a-Si:H) Particles," J. Appl. Phys., 126, 2019.
16. Kadulkar, S.; Banerjee, D.; Khabaz, F.; Ganesan, V.; Truskett, T. and Bonnecaze, R. T. "Influence of Morphology of Colloidal Nanoparticle Gels on Ion Transport and Rheology," J. Chem. Phys. 150 (21), 214903, 2019.
15. Fallah, F.; Khabaz, F.; Kim Y-R, Kommidi; S. R. and Haghshenas, H. "Molecular Dynamics Modeling and Simulation of Asphalt Binder Chemical Aging Due to Variation of Oxidation Level and Saturate-Aromatic-Resin-Asphaltene Fraction," Fuel, 237, 71-80, 2018.
14. Liu, T.; Khabaz, F.; Cloitre, M. and Bonnecaze, R. T. "The Universality of the Flow Curve for Soft-Particle Glasses," Soft Matter, 14, 7064-7074 (2018).
13. Khabaz, F. and Khare, R. "Temperature Dependence of Rheological Properties of Asphalt: Application of Time-Temperature-Superposition Principle," J. Rheol., 62, 941, 2018.
12. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T. "Structural State Diagram of Concentrated Suspensions of Jammed Soft Particles in Oscillatory Shear Flow," Phys. Rev. Fluids, 3, 033301, 2018.

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11. Khabaz, F.; Zhang, Y.; Xue, L.; Quitevis E. J.; Maginn E. J. and Khare, R. "Temperature Dependence of Volumetric and Dynamic Properties of Imidazolium-Based Ionic Liquids," J. Phys. Chem. B, 122 (8), 2414-2424, 2018.
10. Khabaz, F.; Liu, T.; Cloitre, M. and Bonnecaze, R. T. "Shear-Induced Crystallization in Jammed Soft Particle Glasses," Phys. Rev. Fluids, 2, 93301, 2017.
9. Godbole, R.; Khabaz, F.; Khare, R. and Hedden, R. "Extension of Flory-Rehner Theory to Multi Component Polymer Network Solvent Systems," J. Phys. Chem. B, 121 (33), 7963-7977, 2017.
8. Habib, T.; Sundaravadivelu Devarajan, D.; Khabaz, F.; Parviz, D.; Achee, T.; Khare, R. and Green, M. J. "Co-solvents as Liquid Surfactants for Boron Nitride Nanosheet (BNNS) Dispersions," Langmuir, 32 (44), 11591-11599, 2016.
7. Khabaz, F.; Mani, S. and Khare, R. "Molecular Origins of Dynamic Coupling between Water and Hydrated Polyacrylate Gels," Macromolecules, 49 (19), 7551-7562, 2016.
6. Mani, S.; Khabaz, F.; Godbole, R. V.; Hedden, R. C. and Khare, R. "Structure and Hydrogen Bonding of Water in Polyacrylate Gels: Effects of Polymer Hydrophilicity and Water Concentration," J. Phys. Chem. B, 119 (49), 15381-15393, 2015.
5. Zhang, Y.; Xue, L.; Khabaz, F.; Doerfler, R.; Khare, R.; Quitevis, E. L. and Maginn, E. J. "Molecular Topology and Local Dynamics Govern the Viscosity of Imidazolium-Based Ionic Liquids," J. Phys. Chem. B, 119 (47), 14934-14944, 2015.
4. Khabaz, F. and Khare, R. "Glass Transition and Molecular Mobility in Styrene-Butadiene Rubber Modified Asphalt," J. Phys. Chem. B, 119 (44), 14261-14269, 2015.
3. Bari, R.; Parviz, D.; Khabaz, F.; Klaassen, C. D.; Metzler, S. D.; Hansen, M. J.; Khare, R. and Green, M. J. "Liquid Phase Exfoliation and Crumpling of Inorganic Nanosheets," Phys. Chem. Chem. Phys., 17 (14), 938, 2015.
2. Khabaz, F. and Khare, R. "Effect of Chain Architecture on the Size, Shape, and Intrinsic Viscosity of Chains in Polymer Solutions: A Molecular Simulation Study," J. Chem. Phys., 141 (21), 21409, 2014.
1. Khare, K. S.; Khabaz, F. and Khare, R. "Effect of Carbon Nanotube Functionalization on Mechanical and Thermal Properties of Cross-linked Epoxy-Carbon Nanotube Nanocomposites: Role of Strengthening the Interfacial Interactions," ACS Appl. Mater. Interfaces, 6 (9), 6098-6110, 2014.

Conference Proceeding

1. Khabaz, F.; Khare, K. S. and Khare, R., "Temperature Dependence of Creep Compliance of Highly Cross-linked Epoxy: A Molecular Simulation Study," *TIMES OF POLYMERS (TOP) AND COMPOSITES 2014, Book Series: AIP Conference Proceedings*, 1599, 262-265, 2014.

Book Chapter

2. Perego, A., Pandya, H., and Khabaz, F. "Modeling and simulation of self-healing materials," Book Chapter (Accepted)- Springer Nature, 2022.
1. Khabaz, F.; Islam, R. and Khare, R; "Thermal Conductivity of Polymer Nanocomposites: Applications of Molecular Dynamics Simulations," Thermal Behavior and Applications of Carbon-based Nanomaterials, Elsevier Publications, 2020.

Total number of citations: 880 (Google Scholar)

h-index: 15

Invited Talks

9. Khabaz, F. "Rheology and Stress-induced Dynamics in Vitrimers" ESPCI Paris, Paris, France, 2022.
8. Khabaz, F. "Role of microscopic dynamics in determining the macroscopic properties of vitrimers" Oakland State University, 2022 (Virtual).
7. Khabaz, F. "Computer Simulation of Mechanical and Rheological Properties of Vitrimers," Amirkabir University of Technology, 2022 (Virtual).
6. Khabaz, F. "Connection between Macroscopic Properties of Vitrimers and their Microscopic Dynamics," Iranian Congress of Rheology, 2021 (Virtual).
5. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T.; "Particle Dynamics Predicts Shear Rheology of Soft Particle Glasses," Virtual Symposium on Physics of Dense Suspensions, 2020.
4. Khabaz, F.; "Nanoscale Transport Phenomena: Insights from Molecular Simulations," Tokyo Electron Ltd., Austin, 2019.
3. Khabaz, F.; "Microstructure and Rheology of Soft Solids," ESPCI, Paris, France, 2019.
2. Khabaz, F.; "Microstructure, Thermodynamics, and Rheology of Soft Particle Glasses," Department of Polymer Engineering, University of Akron., OH, 2019.
1. Khabaz, F.; "Interaction of Flow and Chemistry: Insights from Molecular Simulations" *Oil and Gas Chemistry*, Houston, TX, 2017.

Contributed Conference Talks

46. Khabaz, F.; "Relationship between the Macroscopic Rheology and Shear-Induced Dynamics of Vitrimers," American Institute of Chemical Engineers (AIChE) – Annual Meeting, Phoenix, AZ, 2022.
45. Lazarenko, A. and Khabaz, F.; "Tribology of Confined Imidazolium-Based ILs Using Atomistically-Detailed Molecular Simulations," American Institute of Chemical Engineers (AIChE) – Annual Meeting, Phoenix, AZ, 2022.

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44. Khabaz, F.; Perego, A.; and Cloitre, M.; "Viscoelastic properties of vitrimers with fast exchange reaction," Society of Rheology (SoR), Chicago, IL, 2022.
43. Di Dio, B. F.; Khabaz, F.; Bonnecaze, R.T.; and Cloitre, M.; "Transient yielding of attractive soft particle glasses," Society of Rheology (SoR), Chicago, IL, 2022.
42. Lazarenko, A. and Khabaz, F.; " Thermodynamics, dynamics, and rheology of imidazolium-based ionic liquids in bulk and under confinement conditions.," North American Thermal Analysis Society (NATAS), Cleveland, OH, 2022.
41. Perego, A. and Khabaz, F.; "Creep and Stress-induced Dynamics in Glassy Vitrimers," United States Congress of Theoretical and Applied Mechanics (USCTAM) –Austin, TX, 2022.
40. Lazarenko, D. and Khabaz, F.; "Interfacial flow and thermodynamics of imidazolium-based ionic liquid", American Physical Society (APS) - March Meeting, 2022.
39. Perego, A. and Khabaz, F.; "Stress-induced Dynamics in Glassy Vitrimers," American Physical Society (APS) – Annual March Meeting, Chicago, IL, 2022.
38. Perego, A. and Khabaz, F.; " Structure and Rheology of Vitrimers Using Dynamic Simulations," American Institute of Chemical Engineers (AIChE) – Annual Meeting, Boston, MA, 2021.
37. Perego, A. and Khabaz, F.; "Effect of Bond Exchange Rate on the Mechanical Properties of Vitrimers," American Institute of Chemical Engineers (AIChE) – Annual Meeting, Boston, MA, 2021.
36. Lazarenko, D. and Khabaz, F.; "Interfacial Thermodynamics, Structure, and Dynamics of Imidazolium-Based Ionic Liquid and Oil Under Confinement", American Institute of Chemical Engineers (AIChE) - Annual Meeting, 2021.
35. Perego, A. and Khabaz, F.; "Effect of reaction kinetics on dynamics and rheology of vitrimers," American Chemical Society (ACS) – Spring Meeting, Virtual Conference, 2021.
34. Lazarenko, A. and Khabaz, F.; " Dependence of adsorption free energy of imidazolium-based ionic liquids on cation architecture and surface roughness," American Chemical Society (ACS) – Spring Meeting 2021, Virtual Conference, 2021
33. Perego, A. and Khabaz, F.; "Rheology of Vitrimers: A Hybrid Molecular Dynamics-Monte Carlo Simulation Study," American Physical Society (APS)–March Meeting, Virtual Conference, 2021.
32. Lazarenko, A. and Khabaz, F.; "Bulk and interfacial thermodynamics and dynamics of ionic liquids-oil mixtures: A molecular dynamics simulation study," American Physical Society March (APS) –Meeting 2021, Virtual Conference, 2021.

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31. Perego, A. and Khabaz, F.; "Rheology of Vitrimers Using a Hybrid Molecular Dynamics-Monte Carlo Simulation Technique," International Conference on Rheology (ICR), Virtual Conference, 2020.
30. Perego, A. and Khabaz, F.; "Rheology of Covalent Adaptive Networks," American Society of Mechanical Engineers (ASME)-International Mechanical Engineering Congress & Exposition (IMECE), Virtual Conference, 2020.
29. Perego, A. and Khabaz, F.; "Rheology of Covalent Adaptive Networks Using a New Computational Technique," Annual Meeting of American Institute of Chemical Engineers (AIChE), Virtual Conference, 2020.
28. Khabaz, F.; Di Dio, B. F.; Cloitre, M. and Bonnecaze, R. T.; "Stress Overshoot in Startup Flow of Soft Particle Glasses in Experiments and Large-Scale Computer Simulations," Annual Meeting of American Institute of Chemical Engineers (AIChE), Virtual Conference, 2020.
27. Bonnecaze, R. T.; Khabaz, F.; Mohan, L. and Cloitre, M.; "Excess Entropy Scaling for Soft Particle Glasses," Virtual Symposium on Physics of Dense Suspensions, 2020.
26. Khabaz, F.; Traettino, S., Cloitre, M. and Bonnecaze, R. T.; "Connecting Microscopic Dynamics and Macroscopic Properties of Soft Particle Glasses," Annual Meeting of American Institute of Chemical Engineers (AIChE), Orlando, FL, 2019.
25. Das, S., Khabaz, F.; Nguyen, Q. P., S., and Bonnecaze, R. T.; "Mechanism of Adsorption of Non-Ionic Surfactants on Calcite," Annual Meeting of American Institute of Chemical Engineers (AIChE), Orlando, FL, 2019.
24. Khabaz, F.; Traettino, S., Cloitre, M. and Bonnecaze, R. T.; "Short and Long-Time Relaxation Processes Determine the Macroscopic Rheology of Soft Particle Glasses," Annual Meeting of American Institute of Chemical Engineers (AIChE), Orlando, FL, 2019.
23. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T.; "Start-up Shear Flow of Soft Particle Glasses Reveals Microscopic Dynamics," Society of Rheology (SoR), Raleigh, NC, 2019.
22. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T.; "Short and Long-Time Relaxation Processes Determine the Macroscopic Rheology of Soft Particle Glasses," Society of Rheology (SoR), Raleigh, NC, 2019.
21. Khabaz, F.; Mattiello, M.; Cloitre, M. and Bonnecaze, R. T.; "Microstructure and Rheology of Associative Soft Particles Glasses," Annual Meeting of American Institute of Chemical Engineers (AIChE), Pittsburgh, PA, 2018.
20. Das, S.; Khabaz, F. and Bonnecaze, R. T.; "The Surprising Mechanism for Wettability Alteration by Non-Ionic Surfactants," Annual Meeting of American Institute of Chemical Engineers (AIChE), Pittsburgh, PA, 2018.
19. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T.; "Relationship between Dynamical Heterogeneity and Rheology of Soft Particle Glasses," Society of Rheology (SoR), Houston, TX, 2018.

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18. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T.; "Microstructure and Rheology of Associative Soft Particles Glasses," Society of Rheology (SoR), Houston, TX, 2018.
17. Mattiello, M.; Khabaz, F.; Bonnecaze, R. T.; Cloitre, M.; "Jamming of soft associative colloids", Society of Rheology (SoR), Houston, TX, 2018.
16. Khabaz, F.; Liu, T.; Cloitre, M. and Bonnecaze, R. T.; "Shear-Induced Structural Ordering in Jammed Suspensions of Soft Particle Glasses," Annual European Rheology Conference (AERC), Sorrento, Italy, 2018.
15. Khabaz, F.; Liu, T.; Cloitre, M. and Bonnecaze, R. T.; "Shear-Induced Structural Ordering in Jammed Suspensions of Soft Particle Glasses," Annual Meeting of American Institute of Chemical Engineers (AIChE), Minneapolis, MN, 2017.
14. Khabaz, F.; Liu, T.; Cloitre, M. and Bonnecaze, R. T.; "Shear-Induced Crystallization in Jammed Soft Particle Glasses," Annual Meeting of the Society of Rheology (SoR), Denver, CO, 2017.
13. Hedden, R. C.; Godbole, R. V.; Khabaz, F. and Khare, R. "Multi-Component Flory-Rehner Theory: Swelling of Copolymer Networks and Swelling of Networks in Solvent Mixtures," Annual Meeting of American Institute of Chemical Engineers (AIChE), San Francisco, CA, 2016.
12. Khabaz, F. and Khare, R., "Rheology of Neat and Polymer Modified Asphalt from Molecular Simulations," International Congress of Rheology (ICR), Kyoto, Japan, 2016.
11. Khabaz, F.; Mani, S.; Godbole, R. V.; Hedden, R. C. and Khare, R., "Design of Polymeric Pervaporation Membranes for Energy Efficient Separation of Alcohol-Water Mixtures," The Polymer Composites and High-Performance Materials Workshop (ACS), Santa Rosa, CA, 2016.
10. Khabaz, F.; Mani, S.; Godbole, R. V.; Hedden, R. C. and Khare, R., "Guidance for Design of Pervaporation Membranes from Molecular Simulations and Experiments," Annual Meeting of The American Chemical Society (ACS), San Diego, CA, 2016.
9. Mani, S.; Khabaz, F. and Khare, R., "Mechanism of Concentration Dependence of Water Diffusivity in Polyacrylate Gels," Annual Meeting of the American Physical Society (APS) March Meeting, Baltimore, MD, 2016.
8. Khabaz, F.; Mani, S. and Khare, R., "Effect of Gel Hydrophobicity on the Dynamics of Small Penetrant Molecules inside Polymeric Networks: A Molecular Simulation Study," Annual Meeting of American Institute of Chemical Engineers (AIChE), Salt Lake City, UT, 2015.
7. Khabaz, F. and Khare, R., "Effects of Polymer Additives on the Structural, Dynamic and Rheological Properties of Asphalt," Annual Meeting of the Society of Rheology (SoR), Baltimore, MD, 2015.

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6. Khabaz, F.; Mani, S. and Khare, R., "Effects of Polymer Hydrophobicity on the Diffusivity of Water and Ethanol in Acrylate Copolymer Gels," Annual Meeting of the American Physical Society (APS), San Antonio, TX, 2015.
5. Mani, S.; Khabaz, F. and Khare, R., "Effect of Water Concentration on the Molecular Structure of Polyacrylate Gels," Annual Meeting of the American Physical Society (APS) March Meeting, San Antonio, TX, 2015.
4. Khabaz, F. and Khare, R., "Scaling Relations for Structural and Rheological Properties of Chains of Different Architectures in Dilute Solutions: A Molecular Simulation Study," Annual Meeting of the Society of Rheology (SoR), Philadelphia, PA, 2014.
3. Khare, R.; Khare, K. S. and Khabaz, F., "Role of the Interphase in the Transfer of Mechanical Load and Thermal Energy between the Matrix and the Filler in Cross-linked Epoxy: Carbon Nanotube Nanocomposites," Annual Meeting of The American Chemical Society (ACS), Dallas, TX, 2014.
2. Khabaz, F.; Khare, K. S. and Khare, R., "Temperature Dependence of Creep Compliance of Highly Cross-linked Epoxy: A Molecular Simulation Study," TIMES OF POLYMERS (TOP) AND COMPOSITES, Ischia, Italy, 2014.
1. Khabaz, F. and Khare, R., "Effect of Chain Architecture on the Structural and Rheological Properties of Dilute Polymer Solutions: A Molecular Simulation Study," Annual Meeting of the American Physical Society (APS), Denver, CO, 2014.

Poster Presentations

14. Perego, A. and Khabaz, F.; "Thermodynamics, Dynamics, and Rheology of Fuel Surrogates: Application of Time-Temperature Superposition Principle in Molecular Dynamics Simulations," Annual Meeting of American Institute of Chemical Engineers (AIChE), Virtual Conference, 2020.
13. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T.; "Thermodynamic Description of Shear-Induced Phase Transition in Jammed Soft Particle Glasses," Annual Meeting of American Institute of Chemical Engineers (AIChE), Pittsburgh, PA, 2018.
12. Khabaz, F.; "Control of Slip at the Fluid-Surface Interface Using Molecular Additives," Annual Meeting of American Institute of Chemical Engineers (AIChE), Pittsburgh, PA, 2018.
11. Khabaz, F.; Cloitre, M. and Bonnecaze, R. T.; "Thermodynamic Description of Shear-Induced Phase Transition in Jammed Soft Particle Glasses," Society of Rheology (SoR), Houston, TX, 2018.
10. Mane, S.; Khabaz, F.; Jiang, T.; Bodepudi, R.; Bonnecaze, R. T.; Liechti, K. M. and Huang, R.; "Mechanical Properties of Germanium Nanowire Aerogels," Annual Meeting of MRSEC, Austin, TX, 2018.

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9. Khabaz, F.; "In silico Design of Ionic Liquid Adducts for Biomedical and Electrochemical Applications," Annual Meeting of American Institute of Chemical Engineers (AIChE), Minneapolis, MN, 2017.
8. Khabaz, F.; Liu, T.; Cloitre, M. and Bonnecaze, R. T.; "Phase Transition of Jammed Suspensions of Soft Particles Glasses in Steady and Oscillatory Shear Flows," Annual Meeting of the Society of Rheology (SoR), Denver, CO, 2017.
7. Khabaz, F. and Khare, R., "Dynamic Coupling between Solvent Molecules and Hydrated Polyacrylate Gels," The Polymer Composites and High Performance Materials Workshop (ACS), Santa Rosa, CA, 2016.
6. Godbole, R. V.; Khabaz, F.; Mani, S.; Ravichandran, A.; Ma, L.; Hedden, R. C. and Khare, R., "Combinatorial Methods to Enable Rapid Prototyping of Polymeric Pervaporation Membranes for Biofuels," Texas Tech University Graduate School Poster Competition, Lubbock, TX, 2016.
5. Khabaz, F. and Khare, R., "Origin of Stress Overshoot in Start-up of Shear Deformation of Polymer Modified Asphalt," Annual Meeting of the Society of Rheology (SoR), Baltimore, MD, 2015.
4. Mani, S.; Khabaz, F.; Godbole, R. V.; Hedden, R. C. and Khare, R., "Hydrogen Bonding and Clustering of Water Molecules in Polyacrylate Gels: Effect of Water Concentration and Polymer Hydrophobicity," LAMMPS Workshop, Albuquerque, NM, 2015.
3. Khabaz, F.; Godbole, R. V.; Mani, S.; Ravichandran, A.; Ma, L.; Hedden, R. C. and Khare, R., "Combinatorial Methods to Enable Rapid Prototyping of Polymeric Pervaporation Membranes for Biofuels," Texas Tech University Graduate School Poster Competition, (3rd place), Lubbock, TX, 2015.
2. Godbole, R. V.; Khabaz, F.; Khare, R. and Hedden, R. C., "Combinatorial Methods to Enable Rapid Prototyping of Polymeric Pervaporation Membranes for Biofuels," International Polyolefins Conference: "Four Decades of Advancing Polyolefins Technology," Houston, TX, 2015.
1. Mani, S.; Khabaz, F. and Khare, R., "Molecular Simulation Study of Diffusion of Alcohol-Water Mixture in Polyacrylate Membranes," Annual Meeting of American Institute of Chemical Engineering (AIChE), Atlanta; GA, 2014.

Teaching Experience

- CHEE: 310 Equilibrium Thermodynamics (undergraduate)
- PLYE: 610 Polymer Engineering Analysis (graduate)
- CHEE: 631 Chemical Engineering Analysis (graduate)
- CHEE: 408 Polymer Engineering (undergraduate)

**Curriculum Vitae
Fardin Khabaz**

Professional Society

1. American Institute of Chemical Engineers (AIChE)
2. Society of Rheology (SoR)
3. American Society of Mechanical Engineers (ASME)
4. American Physical Society (APS)
5. American Chemical Society (ACS)
6. Society of Plastic Engineers (SPE)

Mentoring (The University of Akron)

Graduate students:

- Hrishikesh Pable (Fall 2022-present).
5. Patrick Cuddihy (Fall 2022-present).
4. Harsh Pandya (Fall 2021-present).
3. Nazanin Sadeghi (Fall 2021-present).
2. Daria Lazarenko (Ph.D., Spring 2020–Fall 2022), currently at NREL.
1. Alessandro Perego (Ph.D., Summer 2019–Summer 2022), currently at 3M

Undergraduate students:

2. Kelly Kim (June 2022-August 2022: REU student)
1. Seungyun Ryu (June 2021–October 2021)

High School students:

2. Amelia Moll (Fall 2020–present)
1. James Warhol (Fall 2020–present)

Mentoring before joining The University of Akron

Graduate students:

3. Sanket R. Kadulkar, The University of Texas at Austin (Spring 2018-Summer 2019).
2. Soumik Das, The University of Texas at Austin (Fall 2017-December 2019).
1. Tianfei Liu, The University of Texas at Austin (Fall 2016-December 2019).

Undergraduate students:

3. Delilah Dsouza, The University of Texas at Austin (Fall 2019).

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2. Peter Chen, The University of Texas at Dallas (Summer 2019).
1. Stratos Maragoudakis, The University of Texas at Austin (Summer 2017-Spring 2019).

Service

- Organizing a mini-symposium at the United State Congress of Theoretical and Applied Mechanics (Summer 2022).
- Chair of the Awards Committee of the School of Polymer Sciences and Polymer Engineering at The University of Akron (Summer 2021–Summer 2022).
- Member of the Awards Committee of the School of Polymer Sciences and Polymer Engineering at The University of Akron (Fall 2020–Summer 2021).
- Member of the Undergraduate Program Studies Committee of the School of Polymer Sciences and Polymer Engineering at The University of Akron (Spring 2020–present).
- Member of the Admission Committee in the School of Polymer Science and Polymer Engineering (Fall 2020–present).
- Member of the Program Review Committee of the Department of Polymer Engineering at The University of Akron (Spring 2020).
- Reviewer of Nature Communications, Macromolecules, AIP Advances, Physics of Plasmas, Physical Review E, Physical Review Fluids, Energy & Fuels, Soft Matter, European Physical Journal Plus, Journal of Materials Chemistry C, Journal of Composites Part A, Journal of Materials in Civil Engineering, Applied Sciences, Journal of Molecular Modeling, and Modelling and Simulation in Materials Science and Engineering