SHAOTING LIN
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RESEARCH OVERVIEW

My lab, at the intersection of solid mechanics, polymer science, and advanced manufacturing, aims to understand the processing-structure-property relationships of soft materials, thereby pushing the limit of mechanical and physical properties of soft materials. The mission of my lab is to develop high-performing soft materials for next generation technologies that can solve societal challenges in long-term healthcare and environmental sustainability. Our current research interests include:
1) understand multiscale mechanics of particle transport in deformed polymer networks,
2) develop physics-empowered and vision-based tactile robots for multi-physical perception and ultra-gentle manipulation,
3) understand topological mechanics of polymer networks with slidable crosslinks,
4) develop electrical tissue adhesives for site-specific drug delivery and in-situ biosensing,
5) design elastocaloric polymers with ultra-high solid-state cooling.

ACADEMIC APPOINTMENT

2026	Assistant Professor, Department of Mechanical Engineering, UW-Madison
2022-2026	Assistant Professor, Department of Mechanical Engineering, MSU

EDUCATION

2019-2022	Postdoctoral Associate, Department of Mechanical Engineering, MIT Advisor: Prof. Gang Chen; Co-advisor: Prof. Xuanhe Zhao
2014-2019	Ph.D. in Department of Mechanical Engineering, MIT Advisor: Prof. Xuanhe Zhao
2010-2013	M.S. in Automotive Engineering, Tsinghua University Advisor: Prof. Yong Xia; Co-advisor: Prof. Qing Zhou
2006-2010	B.S. in Automotive Engineering, Tsinghua University

HONORS & AWARDS

2026	ASME ORR Early Career Award
2026	PMSE Early Investigator Honoree
2025	ASME Rising Star of Mechanical Engineering
2025	Nominee of 2027 Benjamin Franklin NextGen Award by MSU
2025	American Chemical Society (ACS) Petroleum Research Fund (PRF) Doctoral New Investigator grant (DNI)
2024	Lead PI Award, NSF Foundation Research in Robotics Program
2024	NSF Faculty Early Career Award
2024	Early Career Materials Researcher by MRS Communications
2023	Lead PI Award, NSF Biosensing Program

RESEARCH GRANTS (**$4.2M** in total as PI; **$2.1M** Personal Share)

Current grants

2025-2028 NSF-FRR, *Collaborative Research: Chemotaxis-Driven Neuromorphic Amoeboid Hydrogel Microrobot (GEL-Bot)*, $329,412, Co-PI

2025-2027 ACS PRF-DNI, *Strain-Programmable Particle Transport in Organogels*, $110,000, Sole PI

2025-2028 NSF CMMI-MOMS, *Collaborative Research: Mechanics of End-Linked Polymer Networks with Strain-Induced Crystallization Regulated by Topological Defects*, $369,427, Co-PI

2024-2027 NSF CMMI-FRR, *Collaborative Research: Physics-empowered Vision-based Tactile Gel-Robots for Multi-physical Perception and Ultra-gentle Manipulation*, $366,358, Lead PI

2024-2029 NSF CAREER, *CAREER: Multiscale Mechanics of Particle Transport in Soft Active Materials*, $619,198, Sole PI

2024-2025 Michigan Translational Research and Commercialization (MTRAC) AgBio Starter (Tier II) Grant Award, *Tactile-Integrated Intelligent Vacuum System for Efficient Robotic Tree Fruit Harvesting*, $40,000, Lead PI

2024-2027 U.S. Army Engineer Research and Development Center (ERDC), *Revealing the Design Principles of Extremely Tough and Stretchable Fiber-reinforced Hydrogel Composites*, $45,000, Sole PI

2023-2026 NSF CBET-Biosensing, *Collaborative Research: Chemo-Physics and Molecular Design of In-situ Hydrogel-MXene Biosensors*, $335,789, Lead PI

2022-2023 MSU TIFF, *Multi-Chemo-Physics and Molecular Design of In-situ Hydrogel*-MXene-Protein Biosensors, $5,000, Sole PI

Pending grants

2026-2029 NSF SCH, *Collaborative Research: SCH: AI-Empowered Endoscopic Tactile Gel-Sensors for High-Resolution Multi-Physical Tissue Perception*, $300,000, Lead PI

2026-2028 DOE BES-MSE, *Kinetically Reconfigurable Adapt-Ring and Hop-Ring Networks with Extreme Mechanics*, $180,000, Co-PI

PROFESSIONAL SERVICES

University Service

2026 College of Engineering 1855 Faculty Search Committee, MSU
2025 ME Faculty Search Committee, MSU
2024 ME Undergraduate Curriculum Committee, MSU
2024 ME Faculty Search Committee, MSU
2023 ME Faculty Search Committee, MSU

Conference Organization

2026 Materials Research Society (MRS) Spring Meeting, Honolulu, Hawai'i
Organizer of the symposium on "High-Performance Soft Materials by Polymer Network Design", link

2025 The International Chemical Congress of Pacific Basin Societies, Honolulu, Hawai'i
Co-organizer of the symposium on "Bringing Order to Disordered Polymer Gels", link

2024 Society of Engineering Science Technical Meeting, Hangzhou, China
Co-organizer of the session on "Extreme Mechanics of Soft Materials by Polymer Network Design", link

2023 EML Webinar Series, online
Invited discussion leader, link

2022 Society of Engineering Science Technical Meeting, Texas A&M, TX
Co-organizer of the session on "Extreme Mechanics of Soft Materials by Polymer Network Design", link

2020 Engineering and Applied Science Forum for Young, online
Co-founder of the EASF_Young Webinar, link

2020 iMechanica Journal Club, online
Discussion leader on "Fatigue-resistant hydrogels: Principles, Experiments, and Applications", link

2020 Materials Research Society (MRS) Fall Meeting, Boston, MA
Session chair for "Soft Materials and Biomaterials", link

2019 ASME International Mechanical Engineering and Congress and Exhibition
Session chair for "Aging and Damaging in Soft Materials", link

2018 Materials Research Society (MRS) Spring Meeting, Phoenix, AZ
Session chair for "Smart Hydrogels and Living Materials", link

Advisory and Editorial Board

2026-present Early Career Advisory Board of *Extreme Mechanics Letter*
2026-present Chair of the *ASME Technical Committee of Mechanics of Soft Materials*
2025 Vice Chair of the *ASME Technical Committee of Mechanics of Soft Materials*
2024 Secretary of the *ASME Technical Committee of Mechanics of Soft Materials*
2023 Editor of the *ASME Technical Committee of Mechanics of Soft Materials*

2022-present Executive Editorial Board Member of *Giant*
2022-present Youth Editor of *International Journal of Extreme Manufacturing*
2020 Guest Associate Editor of *Frontier in Robotics and AI*
2020-present Review Editor of *Frontier in Soft Matter*
2020-present Review Editor of *Frontier in Mechanical Engineering*
2020 Guest Editor of *Polymers*

Outreach

06/2025 High School Engineering Institute (HSEI, a residential program to give in-depth experiences in engineering majors for high school students)
Instructor on "Introduction to Mechanical Engineering"

05/2025 NSF-funded University-Industry Workshop
Organizer on "High-Throughput Soft Material Development"

07/2023 NSF Research Experiences for Teachers (RET) Site
Team faculty member leading the project on "Photoelastic Soft Materials for Perceptive Soft Robots"

07/2023 Detroit Area Pre-college Engineering Program (DAPCEP, an educational organization providing high quality and standards-aligned science, technology, engineering, and mathematics programming to youth in metropolitan Detroit)
Instructor on "Introduction to Mechanical Engineering"

06/2023 High School Engineering Institute (HSEI, a residential program to give in-depth experiences in engineering majors for high school students)
Instructor on "Introduction to Mechanical Engineering"

Proposal Reviewer

2026 NSF DMR (Biomaterials Program)
Ad Hoc Review

2026 ACS Petroleum Research Fund (Doctoral New Investigator)
Proposal Review

2025 National Science Centre (NCN), Poland
Proposal Review

2025 European Science Foundation (ESF)
Proposal Review

2025 NSF DMR (Biomaterials Program)
Ad Hoc Review

2024 Army Research Office
Proposal Review

2024 DOE BES (Basic Energy Sciences)
Proposal Review

2024 NSF CMMI (Mechanics of Materials and Structures Program)
Panel Review

2023 NSF CMMI (Mechanics of Materials and Structures Program)
Panel Review
2023 NSF DMR (Biomaterials Program)
Ad Hoc Review

Award Reviewer

2025 Judge for 2024 Outstanding Self-Financed Chinese Students Abroad
2024 Judge for 2023 Outstanding Self-Financed Chinese Students Abroad
2023 Judge for 2022 Outstanding Self-Financed Chinese Students Abroad

Journal Reviewer

Multidisciplinary

Science, Nature Communications, Science Advances, Science Robotics, Proceedings of the National Academy of Sciences, Nature Electronics, Nature Water, Nature Sensors, npj Flexible Electronics, Research, Cyborg and Bionic Systems, Advanced Intelligent Systems

Mechanics

Journal of the Mechanics and Physics of Solids, Mechanics of Materials, Extreme Mechanics Letter, International Journal of Solids and Structures, Journal of Applied Mechanics, SIAM Journal on Applied Mathematics

Materials

Materials Today, Advanced Materials, Advanced Functional Materials, Advanced Science, Chemistry of Materials, ACS Applied Materials & Interfaces, ACS Macro Letters, Journal of Materials Chemistry B, Composites Part B, Materials Science & Engineering, Polymer Testing

Physics

Physical Review X, Physical Review Letters, Journal of Heat and Mass Transfer

TEACHING

FS 2022 ME 361 Dynamics, Enrollment of 81, Rating of 3.6/4.0 (higher is better)
FS 2023 ME 921 Nonlinear Elasticity, Enrollment of 15, Rating of 4.6/5.0
SS 2024 ME 361 Dynamics, Enrollment of 63, Rating of 3.2/5.0
FS 2024 ME 921 Nonlinear Elasticity, Enrollment of 6
SS 2025 ME 490 Introduction to Composite Materials, Enrollment of 21, Rating of 3.6/5.0
FS 2025 ME 361 Dynamics, Enrollment of 110, Rating of 3.5/5.0
SS 2026 ME 426 Introduction to Composite Materials, Enrollment of 29

POSTDOCS & STUDENTS SUPERVISED

Current

2023-present Zhaohan Yu, Postdoc associate, MSU
2024-present Jie Ma, Postdoc associate, MSU
2026-present Taehun Chung, Postdoc associate, MSU
2026-present Jiabin Liu, Postdoc associate, MSU
2023-present Tsz Hung Wong, Postdoc associate, MSU

2026-present Santosh Chhetri, PhD student, MSU

Postdoctoral Scholars & Doctoral Students Supervised

2022-2026 Jiabin Liu, PhD student, MSU
2022-2026 Chuwei Ye, PhD student, MSU
2023-2026 Tsz Hung Wong, PhD student, MSU

Alumni

2022-2026 Chuwei Ye, PhD student, MSU
2025-2026 Taha Najam, PhD student, MSU
2024-2026 Ruihao Lu, Undergraduate student, MSU
2025-2026 Xianyang Bao, Postdoc associate, MSU
2025-2026 Eleazar Asase, Undergraduate student, MSU
2024-2026 Ziwu Zheng, Undergraduate student, MSU
2026-2026 Stella Zhao, Undergraduate student, MSU
2026-2026 Alex Foufopoulos, Undergraduate student, MSU
2026-2026 Nathaniel Susatyo, Undergraduate student, MSU
2026-2026 Nicholas Barket, Undergraduate student, MSU
2025-2025 Zhibo Zhang, Undergraduate student, MSU
2025-2025 Mounika Yallamandhala, Part-time Research Associate, MSU
2025-2025 Zander Sherburne, Part-time Research Associate, MSU
2025-2025 Eric Rymkiewics, Undergraduate student, MSU
2025-2025 Reed Drouare, Undergraduate student, MSU
2025-2025 Mingjian Lai, Undergraduate student, MSU
2024-2026 Will Linson, Undergraduate student, MSU
2024-2025 Parth Singh, Undergraduate student, MSU
2023-2025 Nayan Mallya, Undergraduate student, MSU
2023-2024 Sujal Soni, Undergraduate student, MSU
2023-2024 Camryn Anway, Undergraduate student, MSU
2023-2023 Aditya Swarnkar, Undergraduate student, MSU
2023-2023 Clara Liao, Undergraduate student, UMich
2023-2023 Nicole Hanshaw, Undergraduate student, MSU
2023-2023 Aditya Tarle, Undergraduate student, MSU
2023-2023 Sean Blanchard, Undergraduate student, MSU

INVITED PRESENTATIONS

08/2026 WCCM-ECCOMAS 2026, Munich, Germany
Invited Talk on “Topological Mechanics of Entangled Networks”

04/2026 23rd Annual Neurotech Conference – SBMT 2026, Los Angeles, CA
Invited Talk on “Network-Topology Design of Extreme Soft Materials for Merging Human-Machine Interface”

04/2026 Department of Aerospace & Mechanical Engineering at University of Southern California, Los Angeles, CA
Invited Talk on "Network-Topology Design of Extreme Soft Materials for Merging Human-Machine Interface"

03/2026 TMS 2026 Annual Meeting, California, CA
Invited talk on "Network-Topology Design of Extreme Soft Materials for Merging Human-Machine Interface"

01/2026 School of Polymer Science and Polymer Engineering at the University of Akron, Akron, OH
Invited Talk on "Network-Topology Design of Extreme Soft Materials for Merging Human-Machine Interface"

09/2025 6th International Conference on Flexible Electronics, Jiaxing, China
Keynote talk on "Electrical Tissue Adhesive for In-situ Intraoral Detection"

07/2025 19th Pacific Polymer Conference, Kitakyushu-city, Fukuoka, Japan
Invited talk on "Mechano-Diffusion of Particles in Hydrogels"

01/2025 Mechanical and Aerospace Engineering (MAE) Colloquium at Cornell University, Ithaca, NY
Invited talk on "Extreme Soft Materials by Polymer-network Design"

01/2025 Corporate Technology Webinar, Virtual
Invited talk on "Extreme Soft Materials by Polymer-network Design"

12/2024 Symposium on Frontiers in Nano, Heat, Energy, and Water in honor of Prof. Gang Chen's 60th birthday, Cambridge, MA
Invited talk on "Extreme Soft Materials by Polymer-network Design"

10/2024 MSU Robotics and Control Seminar, East Lansing, MI
Invited talk on "Extreme Soft Materials by Polymer-network Design"

08/2024 2024 SES Annual Technical Meeting, EML 10th Anniversary Symposium, Hangzhou, China
Invited talk on "Extreme Soft Materials by Polymer-network Design"

08/2024 2024 SES Annual Technical Meeting, Bio-Inspired Soft Composites: Structures, Mechanics, and Applications, Hangzhou, China
Invited talk on "Strain-programmable Particle Diffusion in Stretchable Polymeric Medium"

08/2024 2024 ICCES, Singapore
Invited talk on "Printable Superabsorbent Paste for In Situ Adhesives Towards Underwater Robotic Repair"

03/2024 TMS 2024 Annual Meeting, Orlando, FL
Invited talk on "Mucus-mimicking Selective-permeable Hydrogels"

02/2024 Department of Mechanical Engineering at University of Michigan – Ann Arbor, Ann Arbor, MI

Invited Talk on "Extreme Soft Materials by Polymer-Network Design"

08/2023 ACS Fall 2023, San Francisco, CA
Invited talk on "Strain-programmable Particle Transport in Soft Materials"

05/2023 School of Aerospace Engineering, Tsinghua University, virtual
Invited talk on "Extreme Soft Materials by Polymer-network Design"

04/2023 Tsien Excellence in Engineering Program, Tsinghua University, Virtual
Invited talk on "Extreme Soft Materials by Polymer-network Design"

11/2022 Dow Chemical, Midland, MI
Invited talk on "Extreme Soft Materials by Design"

09/2022 KLA Instruments, webinar
Invited talk on "Design of Hydrogels for Fatigue-resistant Hydrogel Coatings"

04/2022 Complex Fluids and Soft Matter, webinar
Invited talk on "Extreme Soft Materials by Polymer-network Design"

PUBLICATIONS

First/co-first/corresponding author in referred journals including *Science*, *Science Advances*, *PNAS*, *Nature Nanotechnology*, *Nature Communications*, *Advanced Materials*, *Matter*, and *JMPS*
Google scholar, H-index=41 and i10-index=65 (updated 09/12/2026).

* Denotes equal contribution, # Denotes corresponding author.

Underline: Postdoc or Graduate Student or Undergraduate Student Advisee

Publications at UW-Madison

76. J. Ma*, X. Dai, J. Yeo, X. Liu, **S. Lin#**, Mechano-Diffusion of Anisotropic Particles in Deformed Polymer Networks, In Submission (2026)
75. J. Huang*#, J. Liu*, **S. Lin*#**, Topological Mechanics of Entangled Networks, Under review, **Nature Physics** (2026)
74. D. Zheng*, Z. Yu*, C. Smith, E. Tsai, W. Zhang#, **S. Lin#**, C. Ke#, Mechanically Reconfigurable Polyrotaxane Networks, Accepted, **Nature Materials** (2026)
73. C. Ye*, T. Wong*, Y. Zheng, R. Lu, J. Ma, **S. Lin#**, Ultrasound-Mediated Nanoparticle Selectivity in Stretchable Hydrogels, **Experimental Mechanics** (2026)
72. J. Ma*, T. Wong*, Z. Yu, X. Dai, C. Ye, J. Yeo, **S. Lin#**, Mechano-Diffusion of Particles in Hydrogels, **Extreme Mechanics Letter**, 86, 102496 (2026)

Publications at MSU

71. T. Wong*, J. Ma*, Z. Sherburne, **S. Lin#**, Diffusion and Release of Molecules in Swelling Polymer Networks, **Extreme Mechanics Letter**, 84, 102466 (2026)
70. T. Wong*, W. Liu*, J. Li, J. Ma, Y. Cheng, R. Lu, K. J. Koster, J. D. Cirillo, X. Liu, H. Sasaki, C. Wu#, **S. Lin#**, Tissue-adhesive Hydrogel-MXene Biosensor for In Situ Intraoral TNF-α Detection, **Science Advances**, 12, 3 (2026)
69. Z. Yu*, D. Xu*, Z. Usmanova*, C. Ye, A. Swarnkar, E. Scott, X. Zuo, S. Huang, S. Rao, S. V. Boriskina#, R. Bai#, **S. Lin#**, An Elastocaloric Polymer with Ultra-High Solid-State Cooling

via Defect Engineering, **Advanced Science**, e18106 (2025)

68. J. Liu*, **S. Lin#**, Capturing Water from Air in an Economical and Stable Way, **Nature Water**, 3, 640-641 (2025)
67. A. Zannat, A. Lopez, Y. Cheng, J. Ma, M. Delemeester, **S. Lin**, K. Jayaraman, X. Liu#, **Journal of Materials Chemistry B**, 13, 10485 (2025)
66. C. Ye*, C. Wei*, T. Wong*, J. Liu*, X. Liu, Z. Song, C. Wu#, Z. Li#, **S. Lin#**, Mechano-diffusion of Particles in Stretchable Hydrogels, **Soft Matter**, 21, 2230-2241 (2025)
    This work was selected as Inside Front Cover of Soft Matter.
65. Z. Yu*, **S. Lin#**, Hot and Cold Hydrogel with Still Water, **Science**, 387, 6737 (2025)
64. T. Venkatadri *, C. Ye*, T. Cohen#, **S. Lin#**, Impact of Torsion on Elastic Instabilities in Confined Layers, **Journal of the Mechanics and Physics of Solids**, 198, 106064 (2025)
63. S. Huang, R. Xiao, **S. Lin**, Z. Wu, C. Lin, G. Jang, E. Hong, S. Gupta, F. Lu, B. Chen, X. Liu, A. Sahasrabudhe, Z. Zhang, Z. He, A. Crosby, K. Sumaria, T. Liu, Q. Wang#, S. Rao#, Anisotropic Hydrogel Microelectrodes for Intraspinal Neural Recordings in Vivo, **Nature Communications**, 16, 1127 (2025)
62. J. Li, J. Liu, C. Wei, X. Liu, **S. Lin**, C. Wu#, Hydrogel-Gated MXene-Graphene Field-Effect Transistor for Selective Detection and Screening of SARS-CoV-2 and *E. coli* Bacteria, **ACS Applied Materials & Interfaces**, 17, 2 (2025)
61. J. Liu, P. Singh, T. Wong, **S. Lin#**, Pressure-sensitive In-situ Underwater Adhesives, **Communications Physics**, 8, 6 (2025)
60. J. Liu, Z. Yu, S. Blanchard, W. Li, Y. She, **S. Lin#**, Fatigue-resistant Photoelastic Soft Materials for Perceptive Soft Robots, **Advanced Materials**, 2407925 (2024)
    This work was selected as Inside Back Cover of Advanced Materials. This work has ranked within the top 100% of most-viewed papers published by Advanced Materials in 2024.
59. T. Wong, J. Liu, Y. Cheng, Y. Xie, C. Anway, R. Lu, C. Ye, Z. Yu, Y. Wang, X. Liu#, **S. Lin#**, Electrical Tissue Adhesive for Strain-insensitive In-situ Biosensing, **Advanced Intelligent System**, 2400697 (2024)
58. T. Wong, X. Zhao, **S. Lin#**, Extreme Mechanics of Hydrogels Toward In-situ Hydrogel Bioelectronics, **Mechanics of Flexible and Stretchable Electronics**, 1-36 (2024)
57. A. Y. Siavoshani, Z. Fan. M. Yang, S. Liu, M. Wang, J. Liu, W. Xu, J. Wang, **S. Lin**, S. Wang*, How do stretch rate, temperature, and solvent exchange affect elastic network rupture? **Soft Matter**, 20, 7657-7667 (2024)
56. C. Ye, **S. Lin#**, A Mechano-diffusion Characterization Platform for Probing Strain-programmable Nanoparticle Diffusion in Hydrogels, **MRS Communications**, 14, 919-926 (2024)
55. C. Hartquist*, B. Li*, J. H. Zhang*, Z. Yu, G. Lv, J. Shin, S V. Boriskina, G. Chen#, X. Zhao#, **S. Lin#**, Reversible Two-way Tuning of Thermal Conductivity in an End-linked Star-shaped Thermoset, **Nature Communications**, 15, 5590 (2024)
54. J. Liu, **S. Lin#**, Strain-engineered Particle Diffusion in Uniaxially Stretched Polymer Networks,

Journal of the Mechanics and Physics of Solids, 191, 105732 (2024)

53. S. Huang, X. Liu, **S. Lin**, C. Glynn, K. Felix, A. Sahasrabudhe, C. Maley, J. Xu, W. Chen, E. Hong, A. J. Crosby, Q. Wang*, S. Rao*, Control of Polymer's Amorphous-Crystalline Transition Enables Miniaturization and Multifunctional Integration for Hydrogel Bioelectronics, **Nature Communications**, 15, 1 (2024)
52. C. Hartquist*, **S. Lin***, J. H. Zhang, S. Wang, M. Rubinstein#, X. Zhao#, An Elastomer with Ultrahigh Strain-induced Crystallization, **Science Advances**, 9, eadj0411 (2023)
51. X. Liu#*, S. Rao#*, W. Chen, K. Felix, J. Ni, A. Sahasrabudhe, **S. Lin**, Q. Wang, Y. Liu, Z. He, J. Xu, S. Huang, E. Hong, T. Yau, P. Anikeeva#, X. Zhao#, Fatigue-resistant hydrogel optical fiber enables peripheral nerve optogenetics during locomotion, **Nature Method**, 1801 (2023).
50. R. Yang*, Z. Gu*o, Z. Yu, F. Du, V. G. N. Thyagaraja, L. Lin, R. Y. Dylan, P. Xu, J. N. Armstrong, **S. Lin**, C. Zhou#, J. Liu#, 3D-Printed Conducting Polymer Hydrogel-based DC Generator for Self-powered Electromechanical Sensing, **Nano Energy**, 117, 108857 (2023)
49. X. Liu*, L. Zhang*, B. E. Fil, C. D. Diaz-Marin, Y. Zhong, X. Li, **S. Lin**#, E. Wang#, Unusual temperature dependence of water sorption in semicrystalline hydrogels, **Advanced Materials**, 35, 2211763 (2023)
48. C. Ye, W. Li, Z. Li#, G. Maguluri, J. Grimble, J. Bonatt, J. Miske, N. Lftimia, **S. Lin**, M. Grimm, Smart Steering Sleeve (S^3): A Non-Intrusive and Integrative Sensing Platform for Driver Physiological Monitoring, **Sensor**, 22, 7296 (2022)

Prior to Independent Faculty Career (selected key publications)

1. **S. Lin**, C. D. Londono, D. Zheng, X. Zhao#, An extreme toughening mechanism for soft materials, **Soft Matter**, 18, 5742-5749 (2022).
   This work was selected as Front Cover of Soft Matter.
2. **S. Lin**, X. Zhao#, Nanostructured artificial-muscle fibres, **Nature Nanotechnology**, 17, 677-678 (2022).
3. D. Zheng*, **S. Lin***, J. Ni, X. Zhao#, Fracture and fatigue of entangled and unentangled polymer networks, **Extreme Mechanics Letter**, 51, 101608 (2021).
4. **S. Lin**#*, Y. Yang*, J. Ni*, T. Yoichiro, X. Liu, B. Lu, Y. Tu, J. Zhou, X. Zhao#, G. Chen#, Stretchable anti-fogging tape for diverse transparent materials, **Advanced Functional Materials**, 2103551 (2021).
5. **S. Lin**, J. Ni, D. Zheng, X. Zhao#, Fracture and fatigue of ideal polymer networks, **Extreme Mechanics Letter**, 48, 101399 (2021).
6. J. Ni*, **S. Lin***, Z. Qin*, D. Veysset, X. Liu, Y. Sun, A. J. Hsieh, R. Radovitzky, K. A. Nelson, X. Zhao#, Strong fatigue-resistant nanofibrous hydrogels inspired by lobster underbelly, **Matter,** 4, 6 (2021).
   This work is highlighted by MIT news and Nature Research Highlights.
7. X. Zhao#, X. Chen*, H Yuk*, **S Lin***, X. Liu, G. Parada, Soft materials by design: unconventional polymer networks give extreme properties, **Chemical Reviews**, 121, 8 (2021).

8. L. Chen*, G. Zeng*, D. Guo, J. Liu, X. Zhang#, **S. Lin**#, K. Zhang#, Soft elastic hydrogel couplants for ultrasonography, **Materials Science and Engineering: C**, 119, 111609 (2021).
9. **S. Lin**, X. Zhao, Fracture of polymer networks with topological defects. **Physical Review E**, 102, 052503 (2020).
10. J. Liu*, **S. Lin***, X. Liu*, Z. Qin*, Y. Yang, J. Zang#, X. Zhao#, Fatigue-resistant hydrogel adhesions, **Nature Communications**, 11, 1071 (2020).
    This work is recognized as ESI Highly Cited Paper and 2020 Top 50 Chemistry and Materials Science Articles.
11. **S. Lin***, X. Liu*, J. Liu*, H. Yuk, H.-C. Loh, G. A. Parada, C. Settens, J. Song, A. Masic, G. H. McKinley, X. Zhao#, Anti-fatigue-fracture hydrogels, **Science Advances**, 5, eaau8528 (2019).
    This work is highlighted by PHYS.ORG and recognized as ESI Highly Cited Paper.
12. **S. Lin***, J. Liu*, X. Liu, X. Zhao#, Muscle-like fatigue-resistant hydrogels by mechanical training, **Proceedings of the National Academy of Sciences**, 116, 10244-10249 (2019).
    This work is highlighted by MIT News.
13. X. Liu*, C. Steiger*, **S. Lin***, G. A. Parada, J. Liu, H. F. Chan, H. Yuk, N. V. Phan, J. Collins, S. Tamang, G. Traverso, X. Zhao#, Ingestible hydrogel device, **Nature Communications**, 10, 493 (2019).
    This work is highlighted by MIT News, BBC News, The Washington Post.
14. **S. Lin**, Y. Mao, H. Yuk, X. Zhao#, Material-stiffening suppresses elastic fingering and fringe instabilities, **International Journal of Solids and Structures**, 139-140, 96-104 (2018).
15. **S. Lin***, Y. Mao*, R. Radovitzky, X. Zhao#, Instabilities in confined elastic layers under tension: Fringe, fingering and cavitation, **Journal of the Mechanics Physics of Solids**, 106, 229-256 (2017).
16. **S. Lin***, T. Cohen*, T. Zhang*, H. Yuk, R. Abeyaratne, X. Zhao#, Fringe instability in constrained soft elastic layers, **Soft Matter**, 12, 8899-8906 (2016).
17. **S. Lin***, H. Yuk*, T. Zhang*, G. A. Parada, H. Koo, C. Yu, X. Zhao#, Stretchable hydrogel electronics and devices, **Advanced Materials**, 28, 4497-4505 (2016).
    This work is recognized as ESI Highly Cited Paper.
18. T. Zhang*, **S. Lin***, H. Yuk, X. Zhao#, Predicting fracture energies and crack-tip fields of soft tough materials, **Extreme Mechanics Letters**, 4, 1-8 (2015).
19. **S. Lin***, Y. Zhou*, X. Zhao#, Designing extremely resilient and tough hydrogels via delayed dissipation, **Extreme Mechanics Letters**, 1, 70-75 (2014).
20. **S. Lin**, C. Cao, Q. Wang, M. Gonzalez, J. E. Dolbow, X. Zhao#, Design of stiff, tough and stretchy hydrogel composites via nanoscale hybrid crosslinking and macroscale fiber reinforcement, **Soft Matter**, 10, 7519-7527 (2014).

Prior to Independent Faculty Career (other publications)

1. Z. S. Kean, J. L. Hawk, **S. Lin**, X. Zhao, R. P. Sijbesma, S. L. Craig, Increasing the Maximum Achievable Strain of a Covalent Polymer Gel Through the Addition of Mechanically Invisible Cross-Links, **Advanced Materials** 26, 6013-6018 (2014).
2. S. Hong[*], D. Sycks[*], H. F. Chan[*], **S. Lin**, G. P. Lopez, F. Guilak, K. W. Leong, X. Zhao[#], 3D printing of highly stretchable and tough hydrogels into complex, cellularized structures, **Advanced Materials** 27, 4035-4040 (2015).
   This work is recognized as ESI Highly Cited Paper.
3. H. Yuk, T. Zhang, **S. Lin**, G. A. Parada, X. Zhao[#], Tough bonding of hydrogels to diverse non-porous surfaces, **Nature Materials** 15, 190 (2016).
   This work is recognzied as ESI Highly Cited Paper.
4. Y. Mao, **S. Lin**, X. Zhao, L. Anand[#], A large deformation viscoelastic model for double-network hydrogels, **Journal of the Mechanics and Physics of Solids** 100, 103-130 (2017).
5. X. Liu[*], T.-C. Tang[*], E. Tham[*], H. Yuk[*], **S. Lin**, T. K. Lu, X. Zhao, Stretchable living materials and devices with hydrogel–elastomer hybrids hosting programmed cells, **Proceedings of the National Academy of Sciences** 114, 2200-2205 (2017).
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