

Kosar Mozaffari | Curriculum Vitæ

Department of Mechanical Engineering, Room W232, University of Houston
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Education

University of Houston

PhD in Mechanical Engineering, US

GPA: 4.0/4.0

Courses: Methods of Applied Mathematics I & II, Continuum Mechanics I & II, Applied Nonlinear Optimization, Computational Modeling, Finite Element Methods, Homogenization Theory for Heterogeneous Materials, Advanced Materials for Energy Storage.

University of Houston

MSc in Mechanical Engineering, US

GPA: 4.0/4.0

Sharif University of Technology

BSc in Civil Engineering, Iran

GPA: 17.18/20

Houston, Texas

Jun 2018 – Present

Houston, Texas

Jun 2018 – Dec 2020

Tehran

Sep 2011 – May 2015

Academic Experiences

UNIVERSITY OF HOUSTON

Research Assistant, US

Projects:

- Enhancing the effective ionic conductivity of soft solid heterogeneous electrolytes.
- Multiscale modeling and design of electro-responsive polymers.

UNIVERSITY OF HOUSTON

Teaching Assistant, US

- Introduction to Finite Elements for Mechanical Engineers (Spring 2021) (Instructor: Dr. J. R. Rao)
- Solid Mechanics (Fall 2018, Spring 2019, Spring 2020, Summer 2020) (Instructor: Dr. Y. Kulkarni)
- Thermodynamics (Fall 2019, Fall 2021) (Instructor: Dr. H. Love)
- Mechanics II (Summer 2019, Summer 2021) (Instructor: Dr. Y. Kulkarni)

SHARIF UNIVERSITY OF TECHNOLOGY

Research Assistant, Iran

- Study of the effect of singularities near a circular nano-inhomogeneity considering surface/interface elasticity.

Houston, Texas

Jun 2018 – Present

Houston, Texas

Aug 2018 – Present

Tehran

Sep 2015 – Apr 2017

Honors and Awards

Jul 2021: Selected as CEE Rising Star, Massachusetts Institute of Technology, Cambridge, Massachusetts, US

May 2021: Recipient of Andrea Prosperetti Research Computing Student Award, University of Houston, Houston, Texas, US

Apr 2019 & Sep 2020: Recipient of ABS Scholarship Award, University of Houston, Houston, Texas, US

May 2019: Future Faculty Program Certificate, University of Houston, Houston, Texas, US

Apr 2019: Recipient of Outstanding Teaching Assistant Award, University of Houston, Houston, Texas, US

Feb 2018: Recipient of Presidential Fellowship, University of Houston, Houston, Texas, US

Feb 2018: Recipient of Houston Endowment Fellowship, University of Houston, Houston, Texas, US
Sep 2015 - Apr 2017: Member of Iran's National Elites Foundation, Tehran, Iran
Apr 2015: Merit-based M.Sc Admission Offer, Sharif University of Technology, Tehran, Iran
Sep 2011: Ranked top 0.1 percent in the Iranian Nationwide University Entrance Exam, Iran
Sep 2004 - Apr 2011: Qualified as a member of National Organization for Developing Exceptional Talents (NODET), Tehran, Iran

Publications

[J6] **Mozaffari, K.**, Liu, L., & Sharma, P. (2021). "Theory of soft solid electrolytes: overall properties of composite electrolytes, effect of deformation and microstructural design for enhanced ionic conductivity.", *Journal of the Mechanics and Physics of Solids*, Accepted for publication.

[J5] Torbati, M., **Mozaffari, K.**, Liu, L., & Sharma, P. (2021). "The coupling of mechanical deformation and electromagnetic fields in biological cells.", *Reviews of Modern Physics*, In review.

[J4] Grasinger, M.*, **Mozaffari, K.***, & Sharma, P. (2021). "Flexoelectricity in soft elastomers and the molecular mechanisms underpinning the design and emergence of giant flexoelectricity.", *Proceedings of the National Academy of Sciences*, 118(21).

[J3] **Mozaffari, K.**, Ahmadpoor, F., & Sharma, P. (2021). "Flexoelectricity and the Entropic Force between Fluctuating Fluid Membranes.", *Mathematics and Mechanics of Solids*, 10812865211005830.

[J2] Darbaniyan, F., **Mozaffari, K.**, Liu, L., & Sharma, P. (2021). "Soft matter mechanics and the mechanisms underpinning the infrared vision of snakes.", *Matter*, 4(1), 241-252.

[J1] Apte, A., **Mozaffari, K.**, Samghabadi, F. S., Hachtel, J. A., Chang, L., Susarla, S., ... & Sharma, P. (2020). "2D Electrets of Ultrathin MoO₂ with Apparent Piezoelectricity.", *Advanced Materials*, 32(24), 2000006.

[B1] **Mozaffari, K.**, Yang, S., & Sharma, P. (2019). "Surface Energy and Nanoscale Mechanics." *Handbook of Materials Modeling, Volume 2, Applications: Current and Emerging Materials*, edited by W. Andreoni and S. Yip, Springer Nature Switzerland, 1949-1974.

* stands for equal contribution.

Academic Services

Reviewer: Journal of the Mechanics and Physics of Solids, Journal of Applied Mechanics

Skills

Programming: Python, MATLAB, Mathematica, C++, PyTorch

Software: COMSOL, FEniCS, Paraview, L^AT_EX