**Tahsin Khajah**
**Associate Professor of Mechanical Engineering**

## Education

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|---|---|---|---|
| B.Sc. | Mechanical Engineering | Razi University, Kermanshah, Iran | 2001 |
| M.Sc. | Mechanical Engineering | Sharif University, Tehran, Iran | 2006 |
| Ph.D | Mechanical Engineering | Old Dominion University, VA, USA | 2015 |

**Academic Experience**

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|---|---|
| University of Texas at Tyler, Associate Professor, Mechanical Engineering | 2021 – Present |
| University of Texas at Tyler, Associate Chair, Mechanical Engineering | 2021 - Present |
| University of Texas at Tyler, Graduate Program Coordinator, Mechanical Engineering | 2020 - Present |
| University of Texas at Tyler, Assistant Professor, Mechanical Engineering | 2015 - 2021 |
| Old Dominion University, Instructor, Mechanical Engineering | 2012 - 2015 |
| Old Dominion University, Lecturer, Mechanical Engineering Technology | 2010 - 2012 |

**Non-Academic Experience**

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|---|---|
| Offsite Mechanical Engineer, Creare Company, Hanover, NH | 2011 – 2012 |
| Technical Manager, Payvand Golestan Cement Company, Tehran, Iran | 2009 - 2010 |
| Senior Design Engineer, Iran Industrial Design Company, Tehran, Iran | 2003 - 2009 |

**Grants Funded**

- Novel pseudo-differential methods to drastically increase computational speed and accuracy for biomedical ultrasound imaging and focusing, **funded by NIH** ($481,440), Summer 2024, PI: Tahsin Khajah with Co-I: Sebastian Acosta
- MRI: Track 1 Acquisition of a micro/nanofabrication tool for fabricating three-dimensional devices, enabling clean room-free research, education, and training in East TX, **funded by NSF** ($828,570), Summer 2024, PI:Shawana Tabassum with Co-PIs: Tahsin Khajah, et al.
- A Low-Cost Acoustic Sensor for Bee Identification, **funded by USDA-ARS** ($65,598), Summer 2023, PI:Tahsin Khajah
- Experimental Apparatus for Testing Metamaterials for Reducing Noise in Ducts, Funded by **American Society of Heating, Refrigerating and Air-Conditioning Engineers** ($5,000), PI: Nelson Fumo, CoPI: Tahsin Khajah
- Seismic Performance of Earth Slopes Subjected to Earthquake Mainshock- Aftershock Sequences, **Funded by UT Tyler**, awarded September 1, 2018 ($16,000), Spring 2020, CoPI: Tahsin Khajah with CoPI: Premananda Indic, PI: Gokhan Saygili
- Isogeometric Analysis of Wave Propagation, **Funded by UT Tyler**, awarded September 1, 2017 ($9,500), Summer 2018, PI: Tahsin Khajah

**Awards**

- 2024 **Research Excellence Award**, College of Engineering, UT Tyler
- 2020 **Teaching & Learning Award**, UT Tyler
- 2019 **ASEE-GSW Outstanding Young Faculty Award**
- 2019 **Crystal Quill Award**, Robert Muntz Library, UT Tyler, 2019
- 2019 **ASEE Best Poster Presentation Award**
- 2013 and 2014 **Tiwari Endowed Graduate Scholarship** in Mechanical Engineering Award, Old Dominion University

**Service to the Profession and to the community**

• Assistant Editor - Journal of Energy Reports
• Journal reviewer for numerous journals including Computer Methods in Applied Mechanics and Engineering, International Journal of Computer Mathematics, Journal of computational physics, International Journal of Numerical methods on Engineering, Computational Geosciences

**Recent Refereed Journal Publications:**

- Acosta, S., Khajah, T. & Palacios, B. (2024). A new interpolated pseudodifferential preconditioner for the Helmholtz equation in heterogeneous media. SIAM Journal on Scientific Computing, Accepted.
- Villamizar, V., Khajah, T., & Hale, J. (2024). Highly efficient iterative method for multiple scattering with high order local ABC. Computer Methods in Applied Mechanics and Engineering.
- Khajah, T. (2024). Iterative On Surface Radiation Conditions for fast and reliable single and multiple scattering analyses of arbitrarily shaped obstacles. Computer Methods in Applied Mechanics and Engineering.
- Khajah, T. & Acosta, S. (2024). Method of virtual sources using on-surface radiation conditions for the Helmholtz equation. Engineering Analysis with Boundary Elements
- Khajah, T. & Natarajan, S. (2023). Layup optimization of tow-steered composite laminates for maximum fundamental frequency and flutter speed using differential evolution. Composite Structures, 310,116748
- Antoine X., & Khajah, T. (2022).Standard and Phase Reduced Isogeometric On-Surface Radiation Conditions for acoustic scattering analyses. Computer Methods in Applied Mechanics and Engineering, 392,114700
- Atroshchenko, E., Hurtado, A. C., Anitescu, C., & Khajah, T. (2022). Isogeometric collocation for acoustic problems with higher-order boundary conditions. Journal of Wave Motion, 110, 102861
- Dsouza, S. M., Khajah, T., Antoine, X., Bordas, S. P., & Natarajan, S. (2022). NURBS and Lagrange approximations for time-harmonic acoustic scattering: convergence, accuracy, absorbing boundary conditions. Mathematics and Computer Modeling of Dynamical Systems , 27(1), 263-294
- Khajah, T., Liu, L., Song, C., & Gravenkamp, H. (2021). Shape Optimization of Acoustic Devices using the Scaled Boundary Finite Element Method. Wave Motion, 104, 102732.
- Ummidivarapua, V. K., Vorugantia, H. K., Khajah, T., & Bordas, S. P. A. (2020). Isogeometric shape optimization using Teaching Learning-Based Optimization (TLBO) algorithm. Computer Aided Geometric Design, 80, 101881.
- Videla, J., Anitescu, C., Khajah, T., Bordas, S., & Atroshchenko, E. (2019). h- and p- adaptivity driven by recovery and residual-based error estimators for PHT-splines applied to time-harmonic acoustics. Journal of Computers and Mathematics with Applications, 77(9), 2369–2395.
- Khajah, T., Antoine, X., & Bordas, S. P. (2019). B-spline FEM for time-harmonic acoustic scattering and propagation. Journal of Theoretical and Computational Acoustics, 27(3).
- Khajah, T., & Villamizar, V. (2019). Highly accurate acoustic scattering: Isogeometric Analysis coupled with local high order Farfield Expansion ABC. Computer Methods in Applied Mechanics and Engineering, 349, 477–498. https://doi.org/10.1016/j.cma.2019.03.005