Approved by the Regents
May 16, 2024

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Mechanical Engineering

Serife Tol, assistant professor of mechanical engineering, Department of Mechanical Engineering, College of Engineering, is recommended for promotion to associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering.

Academic Degrees:

Ph.D.	2017	Georgia Institute of Technology, Mechanical Engineering, Cambridge, MA
M.S.	2012	Middle East Technical University, Mechanical Engineering, Ankara, TR
B.S.	2009	Middle East Technical University, Mechanical Engineering, Ankara, TR

Professional Record:

2018 – present	Assistant Professor, Department of Mechanical Engineering, University of Michigan
2017 – 2018	Visiting Scholar, Civil and Materials Engineering, University of Illinois at Chicago, Chicago, IL, United States of America

Summary of Evaluation:

Teaching: Professor Tol is a highly effective instructor and advisor known for her ability to teach complex topics and encourage critical thinking among students. She has taught a good mix of undergraduate and graduate courses and has been performing well in classroom instruction, as evidenced by her teaching evaluation scores and student comments. Her Q1/Q2 scores for ME240 have been above 4.0 and ME541 and ME645 at 4.0/4.93. She has received excellent teaching evaluations and praise from students for her engaging classes and practical teaching methods. Notably, she has taken proactive steps to improve her teaching, including seeking feedback from the Center for Research on Learning and Teaching (CRLT) and increasing her availability for students during remote teaching periods. She has successfully mentored several undergraduate and graduate students. She has advised four Ph.D. students, graduating one in Fall 2023, and has advised two post-doctoral scholars. In addition, she has served on several other Ph.D. committees and is active in advising undergraduate students. Her commitment to excellence in teaching has been recognized by the College of Engineering 2023 John F. Ulrich Education Excellence award. Letters from student reviewers were uniformly strong and positive.

Research: Professor Tol, a renowned researcher specializing in mechanical wave dynamics and metamaterials, has significantly contributed to various fields during her tenure at the University of Michigan. Her accomplishments include the development of advanced metasurfaces for elastic field manipulation, the creation of conformal metamaterial lenses for structural defect evaluation, and the integration of dissipative metamaterials into large space structures. With over $5.2M in total research funding (candidate share $2.2M), she has shown exceptional leadership as the lead PI on two multi-investigator projects. Her scholarly impact is highlighted by over 20 peer-reviewed journal articles, with 14 published at UM, showcasing her ability to

conduct innovative interdisciplinary research. Professor Tol's ability to explore new research areas, such as her notable contributions in coupling metamaterials and mechanical topological systems, is commendable. She is an emerging and innovative researcher in the fields of smart structures, mechanics, and acoustics. With a strong track record of scholarly publications and recognition through awards, Professor Tol's contributions to the field have been highly acclaimed by her peers.

Recent and Significant Publications:

Zhenkun Lin and Serife Tol, "Electroelastic metasurface with resonant piezoelectric shunts for tunable wavefront control," *Journal of Physics D: Applied Physics*, 56 (16)(164001), 2023.

Hrishikesh Danawe and Serife Tol, "Broadband Subwavelength Imaging of Flexural Elastic Waves via Flat Phononic Crystal Lenses," *Scientific Reports*, 13(7310), 2023.

Hrishikesh Danawe and Serife Tol, "Harnessing negative refraction and evanescent waves toward super-resolution Lamb wave imaging," *Applied Physics Letters*, 123(052203), 2023.

Gorkem Okudan, Hrishikesh Danawe, Serife Tol, and Didem Ozevin, "Controlling the thickness dependence of torsional wave mode in pipe-like structures with the gradient-index phononic crystal lens," *Ultrasonics*, 124(106728), 2022.

Hrishikesh Danawe and Serife Tol, "Experimental Realization of Negative Refraction and Subwavelength Imaging for Flexural Waves in Phononic Crystal Plates," *Journal of Sound and Vibration*, 518(116552), 2022.

Service: Professor Tol has a strong record of service. She is a member of the ASME Technical Committee on Vibration and Sound-DED Division and the Energy Harvesting Technical Committee-SMASIS Division. She has chaired various sessions at the ASME SMASIS, IMECE, IDETC-CIE, as well as the SPIER Smart Structures/NDE Conferences. In addition to these commitments, she has served on NSF panels and as a reviewer for journals. At the department level, Professor Tol is involved in multiple committees and co-chairs the Departmental Seminar Committee. Professor Tol is an exemplary faculty member who is actively engaged in the community.

External Reviewers:

Reviewer A: "Dr. Tol has imposed her mark and fingerprints on the fields of reconfigurable metamaterials and energy harvesting. I can say without any hesitation, Dr. Tol, at this stage of her career, has become one of the leading authorities in these areas both nationally and internationally."

Reviewer B: "…Prof. Tol is one of the emerging young researchers in our field, and one of the most innovative in the interdisciplinary area spanning the fields of smart structures, mechanics and acoustics."

Reviewer C: "Everything I know of Dr. Tol suggests that she is a rising star in academia, and has already made significant impact in vibrations/wave propagation, smart materials, and the emerging fields of metamaterials, phononic crystals, and metasurfaces."

Reviewer D: “Dr. Tol has also been demonstrating ambitious strides towards newer and, perhaps, more contemporary topics, including topological phononics and Willis metamaterials. In the first topic in particular, she has already produced quite a remarkable result—discovering a unique class of topological materials based on the twisted Kagome configuration with novel spectral features and types of topological modes.”

Reviewer E: “Serife is an outstanding engineer with a bright future. She is working at a very high level, exceeding, in my opinion, the requirements for someone being considered for promotion to Assoc. Professor and tenure at [my institution]. Her career is on an upward trajectory, and I believe that she will continue to be an asset to your department in the years to come.”

Summary of Recommendation: Professor Tol is a rising star in her field who has made significant contributions to research and student outcomes. She is highly regarded among her colleagues and constantly strives for excellence in all aspects of her work. It is with the support of the College of Engineering Executive Committee that I recommend Serife Tol for promotion to associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering.

Steven L. Ceccio, Ph.D.
Interim Dean of Engineering
Vincent T. and Gloria M. Gorguze Professor
of Engineering
College of Engineering

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