Approved by the Regents
May 16, 2024

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

Xiaogan Liang, associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering, is recommended for promotion to professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering.

Academic Degrees:

Ph.D.	2008	Princeton University, Electrical Engineering, Princeton, NJ
M.A.	2004	Princeton University, Electrical Engineering, Princeton, NJ
M.S.	2002	Chinese Academy of Sciences, Condensed Matter Physics, Beijing, China
B.S.	1999	Peking University, Physics, Beijing, China

Professional Record:

2018 – present	Associate Professor (with tenure), Department of Mechanical Engineering, University of Michigan
2012 – 2018	Assistant Professor, Department of Mechanical Engineering, University of Michigan
2010 – 2011	Career-Track Staff Scientist, The Molecular Foundary, Lawrence Berkeley National Laboratory, Berkeley, CA
2008 – 2010	Post-Doctoral Fellow, Materials Science, The Molecular Foundary, Lawerence Berkeley National Laboratory, Berkeley, CA

Summary of Evaluation:

Teaching: Professor Liang is a highly esteemed faculty member with extensive contributions to teaching, including various undergraduate and graduate courses in fields like fluid mechanics, nanomanufacturing, thermodynamics, and introduction to engineering. His outstanding teaching evaluations, consistently high course scores, and prestigious teaching awards, such as the Monroe-Brown Foundation Education Excellence Award and the 1938E Award, reflect his impact on students. His innovative approaches to course content have significantly enhanced student learning and engagement, underscoring his invaluable contribution to the educational programs within the college. Professor Liang has graduated five Ph.D. students with another two in progress. He has also served as a thesis committee member of several other Ph.D. students. He is active in advising masters and undergraduate students. Undergraduate student letters were all positive, expressing the amount of time Professor Liang spends helping them. His graduate letters were also positive, highlighting his commitment and compassion in student mentoring and supervision.

Research: Professor Liang has spearheaded an exceptional research initiative at the University of Michigan, focusing on the advancement of nanofabrication technologies, particularly in the realm of nanoimprint and nanoprint processes for the transformation of emerging two-dimensional materials into practical device structures. With a significant publication record in

renowned journals like *ACS Nano*, *Nano Letters*, *Small*, *and Nature Materials*, Professor Liang's influential contributions have garnered a substantial citation count of 7,868 and an h-index of 33 (per Google Scholar), solidifying his impact and visibility in the academic community. His notable achievements include the development of the Rubbing-Induced Site-Selective Growth (RISS) method, a groundbreaking solution for the controlled fabrication of 2D devices on diverse substrates, earning him an NSF CAREER award and invitations to speak at prestigious institutions and international conferences. His research has been supported by funding from the NSF and industry. Additionally, Professor Liang has actively fostered a positive environment for diversity, equity, and inclusion within his laboratory, by promoting the involvement of underrepresented students in research endeavors.

Recent and Significant Publications:

Mingze Chen, Seung Jun Ki, and Xiaogan Liang, "Bi2Se3-Based Memristive Devices for Neuromorphic Processing of Analogue Video Signals," *ACS Applied Electronic Materials*, 2023.

Younggeun Park , Byunghoon Ryu, Seung Jun Ki , Mingze Chen, Xiaogan Liang and Katsuo Kurabayashi, "Bioinspired Plasmo-Virus for Point-of-Care SARS-CoV-2 Detection," *Nano Letters*, 2023; 23(1): 98-106.

Ding, X, Chen, M, Liang, X and Que, L, "Soft Contact Lens with Embedded Moir Patterns-Based Intraocular Pressure Sensors," *Journal of Microelectromechanical Systems*, 2022; 31(6): 971-976.

Chen, M, Ding, X, Que, L and Liang, X, "Fabrication of microstructures on curved hydrogel substrates," *Journal of Vacuum Science and Technology B*, 2022; 40(5): 052804.

Park, Younggeun, Ryu, Byunghoon, Ki, Seung, Liang, Xiaogan and Kurabayashi, Katsuo "Near-Infrared Multilayer MoS2 Photoconductivity Enabled Ultrasensitive Homogeneous Plasmonic Colorimetric Biosensing," *Advanced Materials Interfaces*, 2021; 8(24): 2170145.

Service: Professor Liang is engaged and involved in various committees and activities. Within the department, he has contributed to graduate admissions, honors and awards, and seminar committees. Additionally, at the college level, he has been a part of the LNF Council and has recently taken on the role of CoE Curriculum Committee chair. Professor Liang has also demonstrated active engagement in his professional community, serving as the chair of the Nanofabrication Technical Committee in the IEEE Nanotechnology Council, as well as organizing and chairing various conferences and competitions. Notably, he has also shown dedication to diversity, equity, and inclusion in his role as the CoE Curriculum Committee chair, striving to create an equitable and inclusive learning environment for students from diverse backgrounds.

External Reviewers:

Reviewer A: "Professor Liang has consistently demonstrated exceptional achievements and contributions throughout his career. His early pioneering contributions to nanoimprint lithography technology and applications laid the foundation for further advancements and applications in the field."

Reviewer B: "In addition to a prolific research group and modernizing the introductory engineering courses such as Engineering 100 – Introduction to Engineering and Multidisciplinary Design Program at University of Michigan, Dr. Liang should be commended for his distinguished educational effort such as K-12 Basic Robotics Camp, as exemplified by the 2016 1938E Award and 2019 Monroe-Brown Foundation Education Excellence Award."

Reviewer C: "…Xiaogan Liang is a highly accomplished researcher and educator in the field of 2D nanoelectronic materials and devices. He has achieved excellence in all aspects of academic life, and it appears inevitable that he will remain a deeply respected member of the scientific community for the foreseeable future."

Reviewer D: "As a mid-career scholar, Xiaogan has become a leading researcher in the fields of nanomanufacturing of low-dimensional nanomaterials and devices, nanoelectronics, optoelectronics, biosensing technology, and microsystem integration."

Reviewer E: "In short, I want to say Dr. Liang is one of the most active and passionate researchers with a high international authority in the related field. Compared with a peer group in the world, I want to list Dr. Liang as a top ranked researcher."

Summary of Recommendation: Professor Liang's profound impact and dedication to advancing knowledge and cultivating a supportive academic environment make him a truly commendable figure within the academic community. His proactive engagement in various committees, coupled with his efforts to promote diversity exemplify his unwavering commitment to fostering excellence and equity in education and research. It is with the support of the College of Engineering Executive Committee that I recommend Xiaogan Liang for promotion to 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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