

PROMOTION RECOMMENDATION
The University of Michigan
School of Natural Resources and Environment

Ming Xu, assistant professor of natural resources and environment, School of Natural Resources and Environment, and assistant professor of civil and environmental engineering, College of Engineering, is recommended for promotion to associate professor of natural resources and environment, with tenure, School of Natural Resources and Environment, and associate professor of civil and environmental engineering, without tenure, College of Engineering.

Academic Degrees:

Ph.D.	2009	Arizona State University, Civil and Environmental Engineering, Tempe, AZ
M.S.	2006	Tsinghua University, Environmental Science and Engineering, Beijing, China,
B.S.	2003	Tsinghua University, Environmental Engineering, Beijing, China

Professional Record:

2012 – present	Co-Director, Graduate Certificate Program in Industrial Ecology, School of Natural Resources and Environment, University of Michigan
2011 – present	Assistant Professor, Department of Civil and Environmental Engineering, College of Engineering, University of Michigan
2010 – present	Assistant Professor, School of Natural Resources and Environment, University of Michigan
2009 - 2010	Post-doctoral Fellow, Brook Byers Institute for Sustainable Systems, Georgia Institute of Technology

Summary of Evaluation:

Teaching: Professor Xu is a dedicated teacher and mentor who has worked closely with the Center for Learning and Teaching (CRLT) to create an effective learning environment in his classrooms. His teaching portfolio spans graduate courses that draw students from across campus, as well as from Civil and Environmental Engineering, Public Health, and Urban Planning, and undergraduate teaching in the Program in the Environment. In addition, his efforts to develop an accelerated master's degree program between the School of Natural Resources and Environment (SNRE) and Tsinghua University in Beijing, China led the Rackham Graduate School to ask that he expand this to a prototype that might be adopted by other units and with other universities. This program is designed to recruit and retain highly motivated and exceptionally qualified undergraduate students into programs at the University of Michigan.

Professor Xu is recognized as a devoted mentor, with an impressive record of advising and mentoring students. He has chaired or served on several doctoral committees, both at Michigan and at other universities. He also has chaired many thesis, practicum, and master's committees, and advised a number of master's projects, SNRE's capstone team experience for graduate students, as well as working with numerous individual students. He has hosted a large number of visiting scholars, who then return to their home countries with exposure to courses and research

in their respective fields as a result of being advised by Professor Xu.

Research: Professor Xu is an environmental scientist and engineer who studies how human activities drive environmental pressures through the life cycle of products from their raw material extraction to disposal. His empirical research and fundamental life cycle assessment modeling and methods development work contribute to both the environmental engineering and industrial ecology fields.

Professor Xu has advanced the state of the art in environmental assessment and modeling of emerging technologies by integrating computational and data-driven approaches with life cycle assessment (LCA) through agent-based modeling and the development of “big data” mining techniques. This innovative work has improved the ability to simulate complex mobility networks of vehicles, fueling and charging infrastructure, and passengers with applications for enhancing sustainability of vehicle electrification, riding sharing and other future transportation technologies. Professor Xu was honored in 2015 with the Robert A. Laudise Medal from the International Society for Industrial Ecology (ISIE) in 2015.

A productive scholar, Professor Xu has published in the top journals in his field. In addition to an exceptional number of peer-reviewed journal articles since he joined Michigan, he is author of many refereed conference papers, conference presentations, and editorials. Professor Xu has raised nearly \$800,000 in research support from funders such as the National Science Foundation and the Department of Energy, as well as nearly \$100,000 in internal grants.

Recent and Significant Publications:

- Xu, M, Cai, H; Liang, S., “Big Data and Industrial Ecology”, *Journal of Industrial Ecology*, 2015, 19(2), 2015-210.
- Liang, S., Y. Feng and M. Xu, “Structure of the Global Virtual Carbon Network revealing important sectors and communities,” *Journal of Industrial Ecology*, 2015, 19(2), 307-320.
- Ji, L., Niu, D.-X., Xu, M., Huang, G.-H., “An optimization model for regional micro-grid system management based on hybrid inexact stochastic-fuzzy chance-constrained programming,” *International Journal of Electrical Power & Energy Systems*, 2015, 64, 1025-1039.
- Cai, H., Xu, M., “Greenhouse gas implications of fleet electrification based on Big Data informed individual travel patterns,” *Environmental Science & Technology*, 2013, 47(16), 9035-9043.
- Xu, M., Allenby, B., Chen, W.-Q., “Energy and air emissions embodied in China-U.S. trade: eastbound assessment using adjusted bilateral trade data,” *Environmental Science & Technology*, 2009, 43(9), 3378-3384.

Service: Professor Xu has a record of outstanding service to the school, the university, and his profession. He presently serves on the provost’s Committee on Environment and Sustainability Programs, and has served on numerous committees for SNRE. He is affiliated with several institutes and centers at the university. He is an editor-in-chief of the journal *Resources, Conservation and Recycling*; has served as a guest editor for a special issue of *The Journal of Industrial Ecology*; serves in leadership roles with the International Society for Industrial Ecology and the Chinese Society for Industrial Ecology, and has served on committees for

international conferences and symposia around the world.

External Reviewers:

Reviewer A: “[Professor Xu’s recent work is] at the cutting edge of research, and his choice of topics to focus on in his research reflects a desire to stay at the cutting edge. The impact of his work, as compared to his contemporaries and based on citation metrics, is among the highest.”

Reviewer B: “In relation to others at a comparable stage of their career, I think [Professor Xu] has solidified his position as one of the ... ‘high achievers’ in the field of Industrial Ecology.”

Reviewer C: “Receipt of [the Laudise] award is a very robust indication that Dr. Xu is at the forefront of ... his peer group in the field of Industrial Ecology worldwide.”

Reviewer D: “[Professor Xu] has proven aptitude in performing independent original and team-based research, and most importantly in communicating his work to others in written and oral settings. I expect him to be a leader in this field that continues to be critical for our society.”

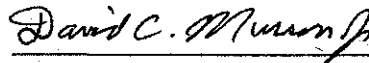
Reviewer E: “It is researchers like [Professor Xu] that make me optimistic about understanding our systems well enough to make effective policies and regulations.”

Reviewer F: “I believe [Professor Xu] is one of a cadre of recent industrial ecology graduates who will assume leadership in the field.”

Summary of Recommendation: Professor Xu is a highly regarded researcher whose work is helping to define the future of the field of industrial ecology. He publishes in the top journals in his field and successfully competes for funding in a challenging funding environment. He is a dedicated advisor, mentor, and teacher who is committed to consistently improving his classroom performance. His service is exceptional. It is with the support of the Executive Committees of the School of Natural Resources and Environment and the College of Engineering that we recommend Ming Xu for promotion to associate professor of natural resources and environment, with tenure, School of Natural Resources and Environment, and associate professor of civil and environmental engineering, without tenure, College of Engineering.



Daniel G. Brown
Professor and Interim Dean
School of Natural Resources and Environment



David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

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