

PROMOTION RECOMMENDATION

The University of Michigan
College of Engineering
Department of Chemical Engineering

Timothy F. Scott, assistant professor of chemical engineering, Department of Chemical Engineering, and assistant professor of macromolecular science and engineering, Macromolecular Science and Engineering Program, College of Engineering, is recommended for promotion to associate professor of chemical engineering, with tenure, Department of Chemical Engineering, and associate professor of macromolecular science and engineering, without tenure, Macromolecular Science and Engineering Program, College of Engineering.

Academic Degrees:

Ph.D. 2006 Monash University, Materials Engineering, Clayton, Australia
B.S. 2002 University of Melbourne, Chemistry, Parkville, Australia

Professional Record:

2011 – present Assistant Professor, Department of Chemical Engineering, College of Engineering, University of Michigan
2011 – present Assistant Professor, Macromolecular Science and Engineering Program, College of Engineering, University of Michigan
2010 – 2011 Visiting Research Assistant, Department of Chemical and Biological Engineering, University of Colorado, Boulder, CO
2008 – 2010 Research Assistant Professor, Center for Bioengineering, Department of Mechanical Engineering, University of Colorado, Boulder, CO
2006 – 2008 Post-Doctoral Research Associate, Department of Chemical and Biological Engineering, University of Colorado, Boulder, CO

Summary of Evaluation:

Teaching: Professor Scott has consistently received among the very highest teaching scores of any member of our department. His evaluations are strong regardless of whether he was teaching his own graduate elective course or a required undergraduate course with large enrollment. In teaching the “dreaded” sophomore level core course on thermodynamics, the committee noted that both Professor Scott and the course received the highest evaluation scores in 20 years. All of the student and post-doctoral fellow letters received on Professor Scott’s behalf are enthusiastically positive about his teaching, commitment, mentoring, and personal interactions with students, both in his classes and in his research group. Professor Scott is a phenomenal and highly regarded teacher and mentor.

Research: Professor Scott has developed an excellent and well-funded research program at Michigan. Through his research, he has impacted the field of chemical engineering and more generally polymer science and engineering through substantial contributions in two distinct areas. In the first area, Professor Scott invented novel catalytic approaches that trigger the

assembly of molecular ladders through reversible covalent bond formation, giving a new and clever way to control structure in macromolecular systems. In the second area, he engineered a novel method to achieve oxygen-mediated thiol-ene polymerization that induces rapid solidification upon exposure to atmospheric oxygen. His idea is finding immediate use in applications ranging from self-healing biomaterials to self-repair of hull breaches in spacecraft.

Professor Scott's grantsmanship, publication rate, and group size are all at high levels for his field and career stage. He has produced 12 publications in good journals with his own students and postdocs. He has already graduated three Ph.D. students from his group with another eight Ph.D. students in the pipeline. These numbers reflect both the energy and excitement surrounding his research as well as his appeal to incoming Ph.D. students.

Recent and Significant Publications:

R.K. Cersonsky, L.L. Foster, T.Y. Ahn, R.J. Hall, H.L. van der Laan, T.F. Scott, "Augmenting Primary and Secondary Education with Polymer Science and Engineering," *Journal of Chemical Education*, 07/2017.

Dowon Ahn, Scott R. Zavada, Timothy F. Scott, "Rapid, photo-mediated healing of hexaarylbiimidazole-based covalently cross-linked gels," *Chemistry of Materials*, 2017; 29(16): 7023–7031.

T. Wei, J. C. Furgal, J. H. Jung, T. F. Scott, "Long, self-assembled molecular ladders by cooperative dynamic covalent reactions," *Polymer Chemistry*, 2017; 8(3): 520-527, (featured as front cover image).

T. Wei, J.C. Furgal, T.F. Scott, "In situ deprotection and dynamic covalent assembly using a dual role catalyst," *Chemical Communications*, 2017; 53(27): 3874-3877.

S. R. Zavada, J. C. Furgal, N. D. Wood, T. F. Scott, "Oxygen-mediated polymerization initiated by oltipraz-derived thiones," *Journal of Polymer Science Part A: Polymer Chemistry*, 2017; 55(8): 1373-1382.

Service: Professor Scott has participated in important service activities within his department and the college at the level. Within his primary department, Professor Scott served on the communications committee and awards committee, and for several years chaired the safety committee and the seminar committee. He also served on the College Safety Committee and is now the co-chair of the college's Faculty Committee on Discipline. Professor Scott has served with distinction as the faculty advisor to the University of Michigan's American Chemical Society (ACS) POLY/PMSE student chapter since 2013. Under his guidance, the students developed an outreach program, "Explore Polymer Science," for south Michigan and Detroit-area middle and high schools, in which he and several UM students visited 22 schools, with approximately half of them in Detroit public schools. Professor Scott serves on the editorial board of an international journal in his field of research, and reviews proposals and papers for important federal programs and key journals, respectively. He was on the organizing committee for two of the Macro Program's annual symposiums, first as a member and then as chair. He regularly chairs sessions at professional conferences, and organized a successful conference on Polymer Networks.

External Reviewers:

Reviewer A: "... my impression is that Prof. Scott has made a great start and has laid groundwork for an impressive career in the polymer materials field. Based upon the accomplishments I have seen, Prof. Scott would most likely be granted tenure in my Department..."

Reviewer B: "First and foremost, the research is done with rigor and scholarship. I believe his papers will stand the test of time, as quality contributions that advance the use of dynamic covalent chemistry for materials innovation . . . From Tim's prospectus, these collaborative activities appear to inspire new directions (e.g., anti-fragile biomaterials) and this bodes well for an impactful future."

Reviewer C: "I feel that the newest work is especially innovative and will lead to research discoveries with great impact. His teaching of thermodynamics is noteworthy as is his teaching a range of courses . . . I feel that he would be tenured if the decision were being made at [my institution]."

Reviewer D: "... I believe that Tim's record is a strong one and certainly warrants promotion to tenure. I also strongly believe that, especially given his level of funding, Tim's career is on a strong positive gradient and I fully expect to see even greater productivity over the next 5-10 years from his group."

Reviewer E: "...Professor Scott's work as Assistant Professor has been of consistently high technical quality on problems of significant impact. The quality of Professor Scott's funding is excellent with multiple lead PI and co-PI grants from the National Science Foundation and Department of Energy. Similarly, Professor Scott's dedication to teaching and educational outreach are laudable."

Summary of Recommendation: Professor Scott has built an active, well-funded, and growing research program. He is among our most talented teachers with outstanding lecturing skills. He is a good citizen of the department, college, university and within his scientific community. It is with the support of the College of Engineering Executive Committee that I recommend Timothy F. Scott for promotion to associate professor of chemical engineering, with tenure, Department of Chemical Engineering, and associate professor of macromolecular science and engineering, without tenure, Macromolecular Science and Engineering Program, College of Engineering.



Alec D. Gallimore, Ph.D.
Robert J. Vlasic Dean of Engineering
College of Engineering

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