

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

Fei Wen, assistant professor of chemical engineering, Department of Chemical Engineering, College of Engineering, is recommended for promotion to associate professor of chemical engineering, with tenure, Department of Chemical Engineering, College of Engineering.

Academic Degrees:

- Ph.D. 2010 University of Illinois at Urbana-Champaign, Chemical & Biomolecular Engineering, Champaign, IL
M.S. 2006 University of Illinois at Urbana-Champaign, Chemical & Biomolecular Engineering, Champaign, IL
B.S. 2003 Tsinghua University, Chemical Engineering, Beijing, China

Professional Record:

- 2018 – present Co-Director of Immune Monitoring Shared Resource, Rogel Cancer Center, University of Michigan
2012 – present Assistant Professor, Department of Chemical Engineering, University of Michigan
2010 – present Post-doctoral Fellow, Department of Microbiology & Immunology, Stanford University, Stanford, CA

Summary of Evaluation:

Teaching: Professor Wen has documented an excellent record in both classroom teaching and as a research mentor. She has demonstrated innovation in new course development, curriculum improvement, and pedagogy, for which she received the 2016 Provost's Teaching Innovation Prize. In the past six years, Professor Wen has taught two core undergraduate courses and a new elective undergraduate/graduate course that she developed (ChE 496/696: Industrial and Therapeutic Biomolecular Engineering). She has advised six Ph.D. students (including one who has graduated) and five M.S. students, and served as a member of seven other Ph.D. thesis committees. She has mentored 14 undergraduate students working in her laboratory (with one student as a co-author of a paper, published in *ACS Synthetic Biology*, 7, 1629-1639, 2018). Professor Wen is an effective and innovative classroom teacher, with a strong record in teaching both large lecture classes and smaller lab courses required in chemical engineering.

Research: Professor Wen has established a strong, impactful, and well-funded interdisciplinary research program at Michigan. She has successfully combined her Ph.D. research on protein engineering with her post-doctoral work in immunology to attack important problems in bio catalysis and immunology. Her research focuses on engineering protein assemblies consisting of multiple proteins to act in a synergistic manner for bio-catalysis and immunotherapy. Her work is highly significant and impactful. She has used her expertise in protein engineering to focus on

very important problems in immunotherapy, vaccine manufacture, and bio-catalysis. With recent funds surpassing \$2.5M she has raised single-handedly from the Taubman Institute, Rogel Cancer Center, and others, Professor Wen is now leading a multimillion dollar investment to expand the CyTOF core facility, which she established in 2016 with an NIH grant, to enable immune profiling of *100 markers* on a single cell, establishing a one-of-a-kind research capability for campus that will drive forward UM research in immune profiling and precision health. Professor Wen is a recognized leader at UM, now serving as the co-director of the Immune Monitoring Shared Resource at the Rogel Cancer Center. Professor Wen has published 19 papers with her students in leading journals (including several UM collaborators), published two book chapters, and has two provisional patents on immunotherapy technology she has developed at UM. She is on a very strong trajectory and is well positioned for continued productivity and increasing national and international impact.

Recent and Significant Publications:

- M. Smith, J. H. Gao, C. Roth, D. Mutukuri, L. Lee, R. Ziff, J. Lee, F. Wen, "Elucidating structure-performance relationships in whole-cell cooperative enzyme catalysis: role of multi-enzyme assembly efficiency, enzyme density and enzyme proximity in cellulose hydrolysis," *Nature Catalysis*, 2018.
- L.F. Bugada, M. R. Smith, F. Wen, "Engineering Spatially Organized Multi-enzyme Assemblies for Complex Chemical Transformation," *ACS Catalysis*, 8: 7898-7906, 2018.
- M. R. Smith, S. V. Tolbert, F. Wen, "Protein-scaffold Directed Nanoscale Assembly of T Cell Ligands: Artificial Antigen Presentation with Defined Valency, Density and Ratio," *ACS Synthetic Biology*, 7(6): 1629-39, 2018.
- M. Huang, W. Huang, F. Wen, R. G. Larson, "Efficient Estimation of Binding Free Energies between Peptides and an MHC Class II Molecule Using Course-Grained Molecular Dynamics Simulations with a Weighted Histogram Analysis Method," *Journal of Computational Chemistry*, 38(23): 2007-19, 2017.
- F. Wen, E. Khera, "Student-created YouTube Videos to Foster Active Learning in Mass and Heat Transfer," *Chemical Engineering Education*, 50(3): 186-192, 2016.

Service: Professor Wen has an array of service activities at the department and college level, and externally within her discipline. She has served on Department Faculty Search Committee (five times), Graduate Programs Committee, and a Departmental Excellence in Research Award Selection Committee. Professor Wen was elected by her colleagues to the ChE's Executive and Advisory Committee for a three-year term. She led a team of 20 faculty members across 10 departments from four schools and colleges to establish the CyTOF Core Facility in August 2016, to fill a critical technology gap at the university. As the sole leading PI of that large group of faculty, she successfully secured the highly competitive NIH funding for the facility. Since October 2018, Professor Wen has been serving as the co-director of the Immune Monitoring Share Resource at UM. She has also served externally in the chemical engineering profession. Professor Wen has organized seven sessions with themes in protein engineering and immuno-bioengineering as either a chair or a co-chair at the annual meetings of American Institute of Chemical Engineers (AIChE) and the Bioengineering and Translational Medicine Conference. She also serves regularly on various NIH and NSF review panels to evaluate proposals in the aforementioned research areas.

External Reviewers:

Reviewer A: “Prof. Fei Wen has demonstrated her ability to identify important problems and to tailor the tools of biomolecular engineering to address them. I expect Fei to continue to develop new exciting research for a long time.”

Reviewer B: “Prof. Wen has achieved all the facets expected of tenured faculty: she has raised substantial funding, successfully recruited students to drive her research, and has launched a coherent research program with multiple vibrant themes. Altogether, I recommend Prof. Wen be promoted to a tenured position at the University of Michigan.”

Reviewer C: “...her impact on the institution in terms of an ability to lead a group of faculty to secure an NIH S10 grant and launch a CyTOF core facility is a sign of leadership that is rare among junior faculty. This success combined with her teaching record and commitment to outreach broadly make her a valuable colleague. ... I would certainly vote in favor of promotion and be strongly in favor of such a decision if she were at my institution.”

Reviewer D: “Her outstanding quality of scholarship, teaching and service definitely meets the requirements for tenure and promotion at [my institution]. I expect even more impressive achievements in her future endeavors. It is my pleasure to give her my highest recommendation.”

Reviewer E: “Dr. Wen’s success in research funding is also evidence that she has been successful in tackling a broad range of topics. Winning NIH funding at the RO1 level and an unsolicited NSF CBET award speaks highly to her ability to maintain an active and sustainable research group.”

Summary of Recommendation: Professor Wen has established a strong research program. She has documented an excellent record in both classroom teaching and as a research mentor. She has made strong contributions in service. It is with the support of the College of Engineering Executive Committee that I recommend Fei Wen for promotion to associate professor of chemical engineering, with tenure, Department of Chemical Engineering, College of Engineering.



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

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