

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Wenjing Wang, assistant professor of chemistry, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of chemistry, with tenure, College of Literature, Science, and the Arts [also being promoted to research associate professor, Life Sciences Institute].

Academic Degrees:

Ph.D. 2012 Michigan State University
B.S. 2006 Xiamen University

Professional Record:

2023-present William R. Roush Assistant Professor of Chemistry, University of Michigan
2018-present Assistant Professor of Chemistry and Research Assistant Professor, Life Sciences Institute, University of Michigan
2016-2018 Post-doctoral Research Fellow, Stanford University
2012-2016 Post-doctoral Research Fellow, Massachusetts Institute of Technology

Summary of Evaluation:

Teaching: Professor Wang is a dedicated teacher of undergraduate and graduate students. She has taught the large-enrollment course required for many STEM majors, Chem 210, every winter term since 2019. She notably uses real-life examples to illustrate the importance of organic chemistry concepts. At the graduate level, she team-taught the introductory chemical biology course ChemBio 501. Consistent with the Department of Chemistry's increased attention to incorporating a holistic model of professional development into the graduate curriculum, Professor Wang innovated in the ChemBio 502 course by encouraging critical thinking through literature-based discussions and by cultivating scientific writing skills. She has also invested heavily in her educational responsibilities as a principal investigator. She has taken multiple training workshops (EMBO Lab Leadership Training 2018; NIH Mentoring Workshop for junior faculty 2019; Culturally Aware Mentoring Workshop 2021; Engaged Mentoring Workshop series 2023), demonstrating her commitment to high-quality mentoring. To-date, she has mentored or recruited twelve doctoral students, three post-doctoral scholars, seventeen undergraduates, and two high school students.

Research: Professor Wang is a recognized expert in the fields of chemical biology and neuroscience. Her lab develops optogenetic and chemogenetic technologies for neuromodulator detection and circuit manipulation in the brain. These tools enable monitoring and manipulating various brain functions with spatiotemporal control to advance neuroscience research and potential therapeutics. Her initial target was development of novel sensors of endogenous opioids with the goal of providing a tool to better elucidate their role in addiction and pain. She has also developed tools that enable activation of selected GPCRs (G-protein-coupled receptors)—the largest class of receptors and the largest family of proteins targeted by approved drugs—in the brain to manipulate circuits. In a third area she has developed target-specific

nanobodies (antibody fragments) against a-synuclein, a protein that is misfolded in Parkinson's disease. Her initial preclinical results show the nanobodies can reduce pathology from this disease. She has won several prestigious awards, including the Rising Star in Measurement Science Award from *ACS Measurement Science Au*; the NIH Director's New Innovator Award; the Camille Dreyfus Teacher-Scholar Award; and the NSF CAREER Award that together provide nearly \$3.5 M in direct funding. She is in an excellent position to continue making outstanding contributions to her disciplines, to the Department of Chemistry, to the Life Sciences Institute, and to the university.

Recent and Significant Publications:

Zhou, G., Wan, W.W., and Wang, W. (2022). Modular peroxidase-based reporters for detecting protease activity and protein interactions with temporal gating. *Journal of the American Chemical Society*, 144(50), 22933-22940.

Shen, J., Geng, L., Li, X., Emery, C. Kroning, K., Shingles, G., Lee, K., Heyden, M., Li, P., and Wang, W. (2022). A general method for chemogenetic control of peptide function. *Nature Methods*, 20(1), 112-122.

Butler, Y.B., Liu, Y., Kumbhar, R., Zhao, P., Gadhave, K., Wang, N., Li, Y., Mao, X., and Wang, W. α -Synucleinfibril-specific nanobody reduces prion-like α -synuclein spreading in mice. *Nature Communications*, 13(1), 4060.

Kroning, K. and Wang, W. (2021). Designing a single protein-chain reporter for opioid detection at cellular resolution. *Angewandte Chemie International Edition*, 133(24), 13358-13365.

Service: Professor Wang has been an excellent citizen—both to her units and to her scientific communities. In the Department of Chemistry, she has served on the graduate student committee and graduate recruiting committee and has coordinated the graduate student seminars in chemical biology. In the Life Sciences Institute, Professor Wang has served as the faculty representative for the Medical School Biomedical Research Core Facilities Advisory Board Committee. She was recently appointed as the co-director of the Pioneer Post-doctoral Fellowship program. For the Neuroscience program, Professor Wang served on the graduate program admissions committee for the last two years and taught in the NGP bootcamp molecular biology week. She has also been a discussion leader at four major conferences.

External Reviewers:

Reviewer (A): “Prof. Wang is a rising star in chemical biology and, specifically, in genetic sensor design...[she] is an enthusiastic scientist and is refreshingly rigorous in the design of her experiments and analysis of results. She has established a strong reputation in protein engineering and generation of optogenetic sensors.”

Reviewer (B): “Overall, Prof. Wang's work is characterized by ingenious protein designs, combining multiple elements carefully stitched together to create novel forms of molecular logic.... I would assess Prof. Wang's protein engineering and tool development work as of the highest quality.”

Reviewer (C): “Dr. Wang's work is high-quality. Her FLARE paper...was of course very high-profile when it came out, and she has been involved in improving and diversifying that system. I

had been unaware of her work on a-SYN, as that falls outside my area of expertise, but now that I read through that, it's very exciting, of course.”

Reviewer (D): “Prof. Wang has established a thriving research program at Michigan. She has published impactful work and been tremendously successful in funding. Her ideas are of interest to the broader community, and she is well poised to continue an impactful career. Moreover, Prof. Wang seems skilled at training the next generation of scientists.”

Reviewer (E): “[Prof.] Wang has developed a research program at the forefront of the field with great depth of scholarship and a tremendous commitment to broad applicability and robust methods, while simultaneously demonstrating herself to be a thoughtful and dedicated mentor and educator.”

Reviewer (F): “Dr. Wang’s scholarship is impressive and well deserving of recognition. Recent awards such as the Camille Dreyfus Teacher-Scholar Award, William R. Roush Assistant Professorship, the Rising Star in Measurement Science from *ACS Measurement Science Au*, and the prestigious NIH Director’s New Innovator Award (DP2) demonstrate her outstanding contributions to science and education.”

Summary of Recommendation:

Professor Wang has established a renowned program in chemical biology and neuroscience. She is a creative, dedicated scholar who excels in teaching and service. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Wenjing Wang be promoted to the rank of associate professor of chemistry, with tenure, College of Literature, Science, and the Arts.



Anne Curzan, Dean
Geneva Smitherman Collegiate Professor of
English Language and Literature, Linguistics,
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College of Literature, Science, and the Arts

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