

PROMOTION RECOMMENDATION
The University of Michigan-Dearborn
College of Arts, Sciences, and Letters

Yiwei Deng, associate professor of chemistry, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters, is recommended for promotion to professor of chemistry, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.

Academic Degrees:

Ph.D.	1992	Swiss Federal Institute of Technology (ETH), Zürich, Switzerland and Swiss Federal Institute for Water Resources and Pollution Control (EAWAG), Dübendorf, Switzerland
M.S.	1985	Institute of Environmental Chemistry, Chinese Academy of Sciences, Beijing, P.R. China
B.S.	1982	Wuhan University, Wuhan, PR China

Professional Record:

2007 – present	Associate Professor (with tenure), Department of Natural Sciences, University of Michigan-Dearborn
2001 – 2007	Assistant Professor, Department of Natural Sciences, University of Michigan-Dearborn
1994 – 2001	Assistant Professor, Department of Chemistry, Florida International University, Miami, Florida
1992 – 1994	Post-doctoral Researcher, Department of Inorganic Chemistry, Royal Institute of Technology (KTH), Stockholm, Sweden
1985 – 1987	Assistant Researcher, Institute of Environmental Chemistry, Chinese Academy of Sciences, Beijing, P.R. China.

Summary of Evaluation:

Teaching: Professor Deng is rated excellent in teaching. She has been responsible for teaching two upper-level analytical chemistry courses and an upper level/graduate course in environmental chemistry. She also taught the lecture and laboratory sections of general chemistry and introduction to chemistry. Her students uniformly praise her eagerness to help them and answer their questions, the structural presentation of the material—making it easier to learn, and her patience in teaching. Professor Deng developed and implemented a Science Learning Center (SLC) module on “Chemical Nomenclature.” This module helps students master chemical nomenclature for inorganic compounds. The module has also been used as a tool to assess student learning in various chemistry courses. Aside from this module, she has also introduced two new experiments in Chemistry 447 that use Gas Chromatography Mass Spectrometry (GC-MS) and Inductively Coupled Plasma mass spectrometry (ICP-MS). These laboratory exercises integrated her research with the undergraduate laboratory in which the two state-of-the-art analytical instruments were introduced for analysis of trace amount of metal ions and drugs. Professor Deng has mentored a large number of high school, undergraduate, and

graduate students, many of whom have gone on to careers in STEM fields. Several of them are co-authors in her research publications and won research awards.

Research: Professor Deng is rated excellent in research. Professor Deng is an environmental chemist and her research is interdisciplinary, focusing on two major areas: 1) the development of analytical methods for environmental, forensic, pharmaceutical and food applications, and 2) the study of reactions, transformation, and fate of pollutants in aquatic and atmospheric environments at a fundamental level (i.e. pathways, mechanisms and kinetics). Since she was promoted to associate professor in 2007, she has published 11 papers. The majority of her publications are in journals with an impact factor greater than 3.3. The most recent paper she published in *Chemosphere* has an impact factor of 4.4. The number of citations from these 11 papers is over 100, which attest to the quality of her work and the interest from the environmental research community in her research. Her publications report her pioneering work in environmental analytical chemistry, especially in the development of research protocols that can be applied to other disciplines, such as forensic methods that can be used to detect cocaine in banknotes and diagnostic methods to quantify the levels of biomarkers in human fluids and toxic contaminants in rainwater. Most of her publications are collaborative and speak to the breadth of her scientific interests. She has received a total of \$278,000 in external grant support between 2008 and the present, including a \$237, 000 NSF-MRI grant to significantly enhance the instrumentation at UM-Dearborn.

Recent and Significant Publications:

- Cable, E., Deng, Y. (2018). Trace Elements in Atmospheric Wet Precipitation in Detroit Metropolitan Area: Levels and Possible Sources. *Chemosphere*, 210, 1091-1098.
- Deng, Y., Zhang, A., Kandah, J., Akins, S., Jawad, K. (2017) Forensic Analysis in the Instrumental Laboratory: A Nondestructive Ultrasound-enhanced Aqueous Extraction Coupled With GC-MS Analysis of Cocaine on US Banknotes, *Chemical Educator*, 22, 197-200.
- Bazzi, A., Deng, Y., Bazzi, J., Badaoui, A. (2017) A Non-Traditional Approach to Volumetric Analysis: Acid-Base Titrimetry with the Method of Least Squares, *Chemical Educator*, 22, 112-114.
- Deng, Y., Diven, P., Kadiyala, P. (2015) Effect of Irradiation Wavelength on Kinetics of Direct Photodegradation of Estrone, *Journal of Environmental Science and Development*, 6, 187-190.
- Zuo, R., Zhou, S., Zuo, Y., Deng, Y. (2015) Determination of Creatinine, Uric, and Ascorbic Acid in Bovine Milk and Orange Juice by Hydrophilic Interaction, *Food Chemistry*, 182, 242-245.
- Bazzi, A., Bazzi, J., Deng, Y., Ayyash, M. (2014) Flame Atomic Absorption Spectroscopic Determination of Iron in Breakfast Cereals: A Validated Experiment for the Analytical Chemistry Laboratory, *Chemical Educator*, 19, 283-286.
- Nguyen, S., Ala, F., Cardwell, C., Cai, D., McKindles, K.M., Lotvola, A., Hodges, S., Deng, Y., Tiquia, S.M. (2013) Isolation and Screening of Carboxydotoxins Isolated from Composts and Their Potential for Butanol Synthesis, *Environmental Technology*, 13-14, 1995-2007.

Service: Professor Deng is rated excellent in service. She was the chair of the chemistry discipline and has prepared and submitted reports to the American Society for Chemistry to ensure that the Bachelor of Science Degree in Chemistry fulfills the American Chemical Society's strict requirements to be a certified degree. She initiated and co-organized the International Educational and Cultural Exchange Day in the department, an annual event that promotes cultural awareness. Professor Deng served UM-Dearborn as a liaison in a collaborative program with the China University of Geosciences, Huazong University of Science and Technology and Wuhan University of Science and Technology. She was invited as a speaker in scientific meetings and seminars and served as session chair in several international conferences. Professor Deng has been a referee for 14 manuscripts submitted to many peer-reviewed journals during the past 11 years. In the local community, she has served to support the Chemistry Olympiad for high school students and frequently officiated for Chinese language contests.

External Reviewers:

Reviewer A: “[Professor Deng’s] research focuses on the development of analytical methods for environmental, forensic, medical, and food applications as well as for chemical education. Her research has not only led to publications in peer-reviewed journals but also trained many undergrad students... some of those students won research awards. In the past several years, Dr. Deng has co-authored ten papers, demonstrating her research productivity [and] she had been the co-PI of the NSF-MRI grant... I feel strongly that University of Michigan-Dearborn is being well served by this expert in the field of analytical chemistry.”

Reviewer B: “Professor Deng has a strong publication record... a good mix of six research papers and four papers to be used in undergraduate teaching laboratories. Of these ten papers, two of them include student co-authors... One of the strengths of Professor Deng’s research is that she has used a variety of techniques (liquid chromatography, gas chromatography, flame AA, mass spec) on numerous different types of samples... this gives her a large ‘toolbox’ of techniques that can then be applied to any number of new research questions. I feel that [Professor Deng] shows promise for continuing development.”

Reviewer C: “Professor Deng is an outstanding contributor to the Department of Natural Sciences at the University of Michigan-Dearborn in each of the areas of research, instruction, and service... [Professor Deng] has published sixteen peer-reviewed papers since joining University of Michigan-Dearborn. Eleven of these have been published since 2007 when she was promoted to Associate Professor... [Professor Deng] has frequently supervised undergraduates in her research program and seven of her students have been co-authors of referred publications during the past three years.”

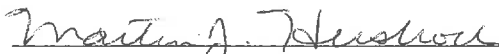
Reviewer D: “The technical merit of Yiwei’s body of work deserves special commendation. Her work...is theoretically informed, clearly presented and involve both conceptual and methodological issues... Dr. Deng has done pioneering work in environmental analytical chemistry, especially in the development of research protocols that can be applied to other disciplines. The range of topics in Dr. Deng’s research portfolio reaffirms her exceptional multidisciplinary range and is an embodiment of unique combination of expertise one needs to advance research in environmental studies, science, and technology... Yiwei is clearly a well-

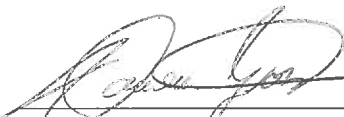
grounded scientist with a flair for innovative research and a natural ability to communicate her results in high profile journals.”

Reviewer E: “Professor Deng has expanded the boundaries of her analytical chemistry research to the areas with social significance and education excellence... It should be noted Yiwei’s commitment to teaching activities, as exemplified in her course load, which may be normal in a teaching institution, but her research productivity has been extraordinary under such heavy teaching load... [Professor Deng] has made significant and enduring research contributions to many topics in analytical chemistry... [Professor Deng’s] four publications in *Chem Educator* demonstrated the naturally integrated research with the undergraduate laboratory, which the state-of-the-art analytical instruments were introduced for the analysis of trace amount of metal ions and drugs, while a non-traditional data analysis was introduced for the data analysis of traditional titrimetry... The uniqueness of her research is her attempt to link her research with the real life challenges and local needs e.g. her research for the trace elements in Detroit, food safety, biofuel production from cellulosic biomass, etc.”

Summary of recommendation:

Professor Deng is rated excellent in teaching, research, and service. She is an exceptional teacher and mentor, and a strong contributor to the instructional commitment in her discipline. She is an innovative scholar and a leader and her service to the chemistry profession is highly valued. We are very pleased to recommend, with strong support of the College of Arts, Sciences, and Letters Executive Committee, Yiwei Deng for promotion to professor of chemistry, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.


Martin J. Hershey, Dean
College of Arts, Sciences, and Letters


Domenico Grasso, Chancellor
University of Michigan-Dearborn

May 2019