

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

Approved by the
Regents
May 21, 2015

Brandon T. Ruotolo, 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.

Academic Degrees:

Ph.D.	2004	Texas A&M University
B.S.	1999	Saint Louis University

Professional Record:

2009 – present	Assistant Professor, Department of Chemistry, University of Michigan
2004 – 2009	Waters Research Fellow and Post-doctoral Research Associate, University of Cambridge

Summary of Evaluations:

Teaching – Professor Ruotolo is a dedicated teacher and research mentor who has made substantial contributions to his department's teaching mission. His participation in curriculum development, advising, didactic teaching, and research mentoring has provided outstanding learning experiences for his students who have given him very strong evaluation scores. Professor Ruotolo has made a large impact on the department's curriculum by updating the content of a 400-level course to include new research trends and by replacing an outdated textbook with a series of e-resources. He also served as a member of the Curriculum Committee which recommended adding new majors as well as significantly overhauling the major requirements. These changes led to the number of majors increasing almost three-fold. Professor Ruotolo has been a particularly successful undergraduate research mentor with eight undergraduates in his lab – several of these have gone on to graduate work in science. He also served as undergraduate advisor (2012-2013).

Research – Professor Ruotolo's research has led to major breakthroughs in the use of mass spectrometric methods to analyze protein structure, stability, and topology, resulting in accolades from the scientific community for his creativity, productivity, and leadership. He is ranked among the best of individuals in his peer group and is a leader in mass spectrometry research. He has published or has in press 21 papers in high-quality, high-impact journals, with a total of 70 publications over his career (h-factor of 31). He has given 61 invited talks since arriving at Michigan, including talks at some of the best chemistry departments in the country. Professor Ruotolo's work is well-supported by grants from the National Science Foundation (NSF) and multiple grants from the National Institutes of Health. He has received numerous awards including the 2014 Top 40 Under 40 Power List developed by The Analytical Scientist, the Eli Lilly and Co. Young Investigator Award in Analytical Chemistry, the American Society for Mass Spectrometry Research Award, an NSF CAREER award, and the Ralph E. Powe Junior Faculty Enhancement Award. These awards, funding, and publication rate and quality all point to a creative and productive scientist.

Recent and Significant Publications:

- “Hofmeister salts recover a misfolded multiprotein complex for subsequent structural measurements in the gas phase,” with L. Han, *Angewandte Chemie International Edition*, 52, 2013, pp. 8329-8961.
- “Insights into antiamyloidogenic properties of the green tea extract (-)-epigallocatechin-3-gallate toward metal-associated amyloid-beta,” with S.-J. Hyung, et al., *Proceedings of the National Academy of Sciences, U.S.A.*, 110, 2013, pp. 3743-3748.
- “Characterizing the resolution and accuracy of a second-generation traveling-wave ion mobility separator for biomolecular ions,” with Y. Zhong and S.-J. Hyung, *Analyst*, 136, 2011, pp. 3534-3541.
- “Bound anions differentially stabilize multiprotein complexes in the absence of bulk solvent,” with L. Han and S.-J. Hyung, *Journal of the American Chemical Society*, 133, 2011, pp. 11385-11367.

Service – Professor Ruotolo has been an excellent citizen at the University of Michigan. He has made substantial contributions to the Department of Chemistry in the areas of graduate student recruiting and admissions, undergraduate curriculum, and long-range planning. Additionally, he has been active in initiating and organizing conferences, including the inaugural Michigan Mass Spectrometry Discussion Group Conference in 2011 and the 2014 UM Symposium on Amyloid and Human Disease. Finally, he has been active in developing the structure and resources for an enhanced Mass Spectrometry Facility at Michigan.

External Reviewers:

Reviewer (A)

“Ruotolo is working in the broad field of protein non[-]covalent complexes primarily using Ion Mobility and Mass Spectrometry as his tools of choice. This is a very active and important field at the moment and Brandon, while still very early in his career, has become a major player. ... He has established himself as a world leader in several areas of research... ..his publication record is outstanding and he has shown himself able to obtain outside research funding. ... He is clearly a star on the rise and will be a world leader in his field in the not distant future.”

Reviewer (B)

“Proteomics and biological mass spectrometry has been one of the hottest subjects in science over the past decade. ...Ruotolo is one of the – if not the leading person [of is cohort] in this area, world-wide. It is obvious simply by looking at his list of awards - many of which are given to a small number of people. ... Most significant perhaps is the ASMS Research Award. ...this is its ‘assistant professor’ award. Two or three are given each year. The correlation with great subsequent success is almost perfect.”

Reviewer (C)

“His research is excellent; his funding is excellent; and his service is excellent. ... Considering his peer group in terms of recent recipients of the ASMS Research Award Prof. Ruotolo is definitely in the upper echelon... He has a very bright future ahead of him...”

Reviewer (D)

“Brandon is an expert in biochemical and biophysical applications of mass spectrometry, a relatively new and growing field with considerable promise. ...[he] ranks among the best of the mass spectrometrists [of his cohort]... He is highly published, sufficiently funded, and is educating graduate students. His work is imaginative, and his papers are well written. ... I strongly recommend that he be promoted...”

Reviewer (E)

“His publication record and his record of achievements speak volumes to his expertise and reputation as a top scientist. ...he has established an impressive program in just 5-years at Michigan, and it is poised to grow even more considerably in the future. ... The quality of his papers from Michigan is excellent-to-outstanding across the board, with many of his publications found in the top journals in chemistry, analytical chemistry, and proteomics...”

Reviewer (F)

“...Brandon has made outstanding contributions to both research and teaching and, in consideration against his contemporaries, I would consider he ranks firmly in the top 5%.”

Reviewer (G)

“Brandon’s case for promotion and tenure is based on the very high level of scholarship and accomplishments in mass spectrometry-based structural biology. ... Professor Ruotolo has produced impactful publications throughout his career... He is highly creative and will make high impact contributions in structural biology.”

Reviewer (H)

“His research has both breadth and depth, with a good balance of clearly independent contributions and appropriate collaborations. The research also has an appropriate level of creativity. ...I believe that Brandon’s status as an outstanding contributor to the development of mass spectrometry as a structural biology tool is clear and that his trajectory is very strong.”

Summary of Recommendation:

Professor Ruotolo is a leader in mass spectrometry research. He has been highly successful as a teacher and mentor of undergraduate and graduate students, and has been an outstanding departmental citizen. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Brandon T. Ruotolo be promoted to the rank of associate professor of chemistry, with tenure, College of Literature, Science, and the Arts.



Andrew D. Martin
Dean, and Professor of Political Science
College of Literature, Science, and the Arts

May 2015