Approved by the Regents
May 19, 2016

PROMOTION RECOMMENDATION
The University of Michigan-Flint
College of Arts and Sciences
Department of Chemistry and Biochemistry

Jie Song, associate professor of chemistry, with tenure, Department of Chemistry and Biochemistry, College of Arts and Sciences, is recommended for promotion to professor of chemistry, with tenure, Department of Chemistry and Biochemistry, College of Arts and Sciences.

Academic Degrees:

Ph.D.	2002	University of North Dakota, Grand Forks, North Dakota
M.S.	1996	Chinese Academy of Forestry, Beijing, People's Republic of China
B.E.	1993	Nanjing Forestry University, Nanjing, People's Republic of China

Professional Record:

2010-Present	Associate Professor of Chemistry, with tenure, University of Michigan-Flint
2004-2010	Assistant Professor of Chemistry, University of Michigan-Flint
2004	Lecturer, Iowa State University, Ames, Iowa
2002-2004	Post-doctoral Associate, Ames Laboratory, Ames, Iowa
2001-2002	Graduate Teaching Assistant, University of North Dakota, Grand Forks, North Dakota
1997-2001	Graduate Research Assistant, University of North Dakota, Grand Forks, North Dakota
1993-1997	Research Assistant, Chinese Academy of Forestry, Beijing, People's Republic of China

Summary of Evaluation:

Teaching – Professor Song has established a strong student-centered instructional method, and he has integrated extensive mentorship of student research into his teaching. His coursework spans students who are non-majors, those who are taking introductory chemistry as a prerequisite for other programs, as well as chemistry majors. Professor Song is well known as a rigorous instructor, but also as someone who is always available to help students who struggle with course materials. His syllabi have clear learning objectives and he continues to innovate his courses regularly through pedagogical workshop and conference attendance. Student course evaluations as well as peer evaluations attest to the fact that Professor Song is highly competent, engaging, and able to integrate a variety of teaching and learning techniques into his classroom pedagogy and that he is firmly committed to student success.

Research – Professor Song is a highly productive researcher who has succeeded in producing a significant volume of high-quality publications, 14 peer-reviewed articles, since his promotion to associate professor in 2010. He has two main research areas in which he collaborates extensively: the integrated experimental and computational study of insect repellents, and the study of the pyrolysis and utilization of biomass. His research is praised by his peers who note the quality of the publishing

venues and the integration of students with the research process. The consistent quality and trajectory of Professor Song's scholarship is outstanding.

Recent and Significant Scholarly Activity:

Peer Reviewed Publications

Gao, H., Song, J., Chen, S., Shang, S. and Song, Z. "Fluorescent Properties and in Vitro Studies of New Dehydroabietic Acid-Based Diarylamines Fluorescence Probes," *Natural Product Research*, under review.

Li, Jian, Gao, Y., Shang, S., Rao, X., Song, J. and Wang, Z. (2014). "Synthesis and Quantitative Structure-Activity Relationship (QSAR) Studies of Novel Rosin-Based Diamide Insecticides." *Royal Society of Chemistry Advances*, 4, 58190-58198.

Xu, X., Liao, S., Song, J., Wang, P., Fan, G., Jiang, Z. and Wang, Z. (2014). "Calculation of the Trimolcular Association Between Terpenoid Repellents and Attractants (in Chinese)." *Acta Entomologica Sinica*, 57, 1025-1031.

Liao, S., Song, J., Fan, G., Han, Z., Wang, P., Wang, Z., Chen, S. and Chen, J. (2014). "Computational Research on Amide Repellent-*L*-lactic Acid Association and its Influence on Their Repellency (in Chinese)." *Computers and Applied Chemistry*, 31, 595-600.

Liao, S., Song, J., Wang, Z., Chen, J., Fan, G., Song, Z., Shang, S., Chen, S. and Wang, P. (2014). "Molecular Interactions Between Terpenoid Mosquito Repellents and Human-Secreted Attractants." *Bioorganic & Medicinal Chemistry Letters*, 24, 773-779.

Gao, H., Song, J., Zhang, X., Shang, S. and Song, Z. (2013). "Synthesis and Properties of New Luminscent Hole Transporting Materials of Triarylamine with Dehydroabietic Acid Methyl Ester Moieties." *Tetrahedron*, 69, 8405-8411.

Liu, H., Cui, S., Shang, S., Wang, D. and Song, J. (2013). "Properties of Rosin-Based Waterborne Polyurethans/Cellulose Nanocrystal Composites." *Carbohydrate Polymers*, 96, 510-515.

Gao, H., Song, J., Shang, S. and Song, Z. (2013). "Two Dehydroabietic Acid-Based Arylamines: Synthesis, Crystal Structure and Fluorescent Properties (In Chinese)." *Chinese Journal of Structural Chemistry*, 32, 396-402.

Song, J., Wang, Z., Findlater, A.,* Han, Z., Jiang, Z., Chen, J., Zheng, W., Hyde, S. and Shang, S. (2013). "Mosquito Repellent: A Combined DFT and QSAR Study." *Bioorganic & Medicinal Chemistry Letters*, 23, 1245-1248.

Song, J., Wang, Z., Han, Z., Chen, J., Jiang, Z., Zheng, W., Song, Z. and Shang, S. (2012). "QSAR Study of Bedbug Repellents Against Cimex Lectularius." *Chemistry and Industry of Forest Products*, 32, 1-8.

Liao, S., Song, J., Wang, Z., Chen, J., Chen, S., Fan, G., Jiang, Z. and Han, Z. (2012). "Quantitative Calculation of the Influence of the Molecular Association Between Terpenoid Repellents and CO2 on Their Repellency against Mosquitoes (in Chinese)." *Acta Entomologica Sinica*, 55, 1054-1061.

Li, J., Song, J., Shang, S., Rao, X. and Gao, Y. (2012). "Synthesis and Antibacterial Activity of Schiff Bases from Acrylpimaric Acid." *Natural Product Research*, 1, 1-9.

Gao, Y., Song, J., Shang, S., Wang, D. and Li, J. (2012). "Synthesis and Antibacterial Activity of Oxime Esters from Dihydrocumic Acid." *BioResource Journal*, 7, 4150-4160.

Li, J., Rao, X., Shang, S., Gao, Y. and Song, J. (2012). "Synthesis and Antibacterial Activity of Amide Derivatives from Acrylpimaric Acid." *BioResource Journal*, 7, 1961-1971.

Liu, H., Song, J., Shang, S., Song, Z. and Wang, D. (2012). "Cellulose Nanocrystals/Silver Nanoparticles Composites as Bi-functional Nanofillers Within Waterborne Polyurethane."

ACS Applied Materials & Interfaces, 4, 2413-2419.

Conference Presentations

Shah, A.,* Corey, D.,* Seitz, A.* and Song, J. "A MRCI Study of Ground and Low-Lying Excited States of Si2H." Poster Presentation. International Chemical Congress of Pacific Basin Societies (Pacifichem 2015), Honolulu, Hawaii, December, 2015 (accepted).

Aebersold, L.,* Henry, J.,* Leja, B.,* Wang, D., Seitz, A.* and Song, J. "Study of the Effect of Model Size and Solvation on the Formation of Levoglucosan." Poster Presentation. International Chemical Congress of Pacific Basin Societies (Pacifichem 2015), Honolulu, Hawaii, December, 2015 (accepted).

Seitz, A.* and Song, J. "Structures of Some Low-lying Excited States of Si2H." Poster Presentation. 247th National Meeting of American Chemical Society, Dallas, Texas, April, 2014.

Henry, J.,* Leja, B.,* Wang, D., Seitz, A.* and Song, J. "Revisit of the Reaction Mechanism to Form Levoglucosan." Poster Presentation. 247th National Meeting of American Chemical Society, Dallas, Texas, April, 2014.

Wang, D., Wang, Y., Shang, S., Song, Z. and Song, J. "Synthesis and Adsorption Properties of Cellulose-based Adsorbent." Poster Presentation. 247th National Meeting of American Chemical Society, Dallas, Texas, April, 2014.

Wang, D., Liu, H., Shang, S., Song, Z. and Song, J. "Preparation and Characterization of Composites of Carboxylated Cellulose Nanocrystals and Iron Oxide Nanoparticles." Poster Presentation. 247th National Meeting of American Chemical Society, Dallas, Texas, April, 2014.

Chen, S., Wang, Z., Fang, K., Song, J. and Fan, G. "Conversion of Bamboo into Fermentable Sugars Using Dilute Sulfuric Acid Pretreatment and Enzymatic Hydrolysis." Poster Presentation. 247th National Meeting of American Chemical Society, Dallas, Texas, April, 2014.

Chen, S., Zhou, Y., Fan, G., Wang, Z. and Song, J. "Antifungal Activity of Citral Derivatives on Plant Pathogen." Poster Presentation. 247th National Meeting of American Chemical Society, Dallas, Texas, April, 2014.

Henry, J.,* Seitz, A.* and Song, J. "A Hybrid QM/MM Approach to Study the Pyrolysis of Biomass." Poster Presentation. 245th National Meeting of American Chemical Society, New Orleans, Louisiana, April, 2013.

Seitz, A.,* Henry, J.* and Song, J. "A Revisit of β-cellobiose Conformers." Poster Presentation. 245th National Meeting of American Chemical Society, New Orleans, Louisiana, April, 2013.

Liao, S., Wang, Z., Song, J., Chen, J., Chen, S. and Wang, P. "How Molecular Interactions Between Terpenoid Mosquito Repellents and Attractants May Affect Repellency?" Poster Presentation. 245th National Meeting of American Chemical Society, New Orleans, Louisiana, April, 2013.

Service – Professor Song's service has been extensive and impactful. He has demonstrated both breadth and depth in the key areas of professional, university, and college activities, while participating in progressively higher levels of service expectation. Since promotion in 2010, he has served multiple years on scholarship selection committees, and in the faculty mentoring program. Further, he has been elected or appointed to more influential committees including the Senate Assembly Committee in the Economic Status of the Faculty in Ann Arbor, as well as the Chancellor's Advisory Committee for Budget and Strategic Planning, and for the past three years, on the College Executive Committee. Professionally, Professor Song's service is extensive, ranging from serving as an AP Chemistry Exam

grader, to chairing sessions at conferences, to providing over 45 ad hoc reviews to more than 30 scholarly journals since his last promotion. Overall, Professor Song is a good citizen of the academic community and a valued colleague within the college, university, and his profession.

External Reviewers:

Reviewer (A): "A few of Dr. Song's papers… …have been published in well-respected journals such as ACS *Applied Materials and Interfaces*, *RSC Advances*, and *Tetrahedron*… … I find his publication record to be solid and worthy of a full professorship at most PUIs [primarily undergraduate institutions]."

Reviewer (B): "…he is very productive scientist… … His publication record is extraordinary… … He is clearly a recognized expert in his field… …he has established productive collaborations with many research groups."

Reviewer (C): "He has demonstrated consistent, high quality and voluminous work while at UMF and has an extensive network of fruitful collaborations with many other researchers… … He is a participating member of the American Chemical Society and serves on national committees (examination) there."

Reviewer (D): "Prof. Song is the corresponding author… …of 2 most important ones published in *BMCL* (2013 and 2014), who is considered as one of the leading journals in this field… … Since 2010, he has had 20 poster/oral presentations at national and international conferences and most of them have undergraduate students as coauthors. It is amazing and implies Prof. Song has worked closely with them, which is one of the primary jobs at undergraduate institutions."

Reviewer (E): "Since 2010, he has coauthored 17 peer-reviewed research papers and one review… … Dr. Song has two main research lines… …one is the integrated experimental and computational study of insect repellents, and the other is the study of the pyrolysis and utilization of biomass… …I will briefly comment on and evaluate the quality of his major works along these two research lines… … Dr. Song utilizes his expertise in computational chemistry and performs quantum mechanical computations… … The accomplishment so far can be exemplified by two outstanding papers in the journal of *Bioorganic & Medicinal Chemist Letters* in 2013 and 2014… … All four of the papers I commented in the above were published in good journals with good citations."

Reviewer (F): "Since his promotion to associate professor in 2010, Dr. Song has published 14 articles… … Dr. Song's work is prolific in view of his teaching responsibilities and his commitment to undergraduate research is certainly a significant contribution to your institution."

Reviewer (G): "Dr. Song performs analysis of quantitative structure-activity relationship between the experimental observations and these intrinsic properties of compounds. The analysis, which he practices, is of the highest quality… …the application of quantum-chemical methods [in *Tetrahedron*] provides direct information on electronic structure features that are related to light emission properties… … The work in *Tetrahedron*… …was a flawless demonstration of the power of computational chemistry in materials design… … A large fraction of these presentations includes the work performed with his students… … The methods range from MRCI to QM/MM to Oniom, which are all highly sophisticated, top-of-the-line tools of quantum chemistry. That Dr. Song can school undergraduates in these non-black-box methods is truly admirable… … This is potentially headline-

grabbing research of great value to the society… … This is an astonishing productivity for a faculty member…"

Reviewer (H): "Dr. Song appears to be remarkably productive recently with his number of publications upon which he a co-author, particularly considering his teaching load… …Dr. Song's productivity is higher than I have seen at many undergraduate institutions. 15 [sic] papers over a three-year period is excellent… …he does have papers in a few nice quality international journals… …there were a few papers in *Tetrahedron* and *RSC Advances*."

Summary of Recommendation:

Professor Song has established a strong student-centered instructional method, and he integrated extensive mentorship of student research into his teaching. His student evaluations reveal an organized instructor with an effective delivery who cares deeply about his students' success. Professor Song is a highly productive researcher who has succeeded in producing a significant volume of high-quality publications. His research is praised by his peers who note the quality of the publishing venues and the integration of students with the research process. In terms of service, he has demonstrated both breadth and depth in the key areas of professional, university, college, and community activities, while participating in progressively higher levels of service expectation. With enthusiasm and great pride, I recommend that Jie Song be promoted to the rank of professor of chemistry, with tenure, Department of Chemistry and Biochemistry, College of Arts and Sciences.

Recommended by:

Susan Gano-Phillips

Susan Gano-Phillips, Dean
College of Arts and Sciences

Recommendation endorsed by:

Douglas G. Knerr, Provost and
Vice Chancellor for Academic Affairs

Susan E. Borrego

Susan E. Borrego, Chancellor
University of Michigan-Flint

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