

PROMOTION RECOMMENDATION
University of Michigan
College of Engineering
Department of Chemical Engineering
Division of Integrative Systems and Design

Suljo Linic, associate professor of chemical engineering, with tenure, Department of Chemical Engineering, and associate professor of integrative systems and design, without tenure, Division of Integrative Systems and Design, College of Engineering, is recommended for promotion to professor of chemical engineering, with tenure, Department of Chemical Engineering, and professor of integrative systems and design, without tenure, Division of Integrative Systems and Design, College of Engineering.

Academic Degrees:

Ph.D.	2003	University of Delaware, Chemical Engineering, Newark, DE
B.S.	1998	West Chester University, Physics, West Chester, PA

Professional Record:

2013 – present	Associate Professor (without tenure), Division of Integrative Systems and Design, University of Michigan
2010 - present	Associate Professor (with tenure) Department of Chemical Engineering, University of Michigan
2010 – present	Director of Energy Systems Engineering, Division of Integrative Systems and Design, University of Michigan
2004 - 2010	Assistant Professor, Department of Chemical Engineering, University of Michigan
2003 – 2004	Post-Doctoral Fellow, Berlin Theory Department, Fritz-Haber Institute der Max Planck Gesellschaft

Summary of Evaluation:

Teaching: Professor Linic has taught consistently well at all levels. His most recent undergraduate teaching was in ChE 344, a core undergraduate class on Chemical Reaction Engineering, where his Q2 scores were approximately 4.2 and 4.1 in 2010 and 2011, respectively. In his earlier teaching of the core undergraduate fluids course, his Q2 scores were among the best in the department for core undergraduate courses, near 4.7, and he has no blemishes in his teaching record. Much of his teaching in recent years has been in specialty interdisciplinary courses in the energy area, such as courses on fuel cells, energy storage, catalysis, and related topics. He has introduced three new courses in these areas. While his courses are challenging, students of his courses praise his teaching, and his commitment to helping students learn. His Ph.D. students uniformly regard him as a superb mentor, and they have won an unusually high number of awards for their presentations. Three of his Ph.D. students are now assistant professors.

Research: Professor Linic's research focuses on the rational design of efficient and selective heterogeneous catalytic materials. He has emerged as the leader of a group that has successfully combined the use of computational tools with the controlled synthesis of solid-state materials. By any measure his research has been of significant and lasting impact. Since joining our faculty, he has published over 30 papers including a number in very high impact journals (e.g., *Science*, *Nature Materials* and *Nature Chemistry*), graduated seven Ph.D. students with three in tenure-track faculty positions, secured nearly \$6 million to support his research including a significant number of NSF grants. He has given more than 70 invited talks including seminars at the highest ranked Chemical Engineering

departments, and received a number of prestigious awards including the Nanoscale Science and Engineering Forum Young Investigator Award in 2011 and the NSF Career Award in 2005. One of his most significant contributions is demonstration of the significant enhancements that plasmonic, metallic nanostructures can induce during catalytic, photocatalytic and electrocatalytic reactions. With this result he has established, after less than 10 years on the faculty, a new direction for the field of catalysis. This alone places him among the most influential people in the area.

Recent and Significant Publications:

- M. Andiappan, J. Zhang, S. Linic, "Tuning selectivity in propylene epoxidation by plasmon mediated photo-switching of Cu oxidation state," *Science*, 339, 1590, 2013.
- P. Christopher, H. Xin, M. Andiappan, S. Linic*, "Singular characteristics and unique chemical bond activation mechanisms of photocatalytic reactions on plasmonic nanostructures," *Nature Materials*, 11, 1044–1050, 2012.
- A. Holewinski, S. Linic, "Elementary Mechanisms in Electrocatalysis: Revisiting the ORR Tafel Slope," *Journal of Electrochemical Society*, 159, H864, 2012.
- P. Christopher, H. Xin, S. Linic, "Visible light enhanced catalytic oxidation reactions on plasmonic silver nanostructures," *Nature Chemistry*, 3, 467, 2011.
- D. B. Ingram, S. Linic, "Water splitting on composite plasmonic-metal/semiconductor photo-electrodes: Evidence for selective plasmon induced formation of charge carriers near the semiconductor surface," *Journal of the American Chemical Society*, 133, 5202, 2011.

Service: Professor Linic's service record is above reproach. In his years at Michigan, he has proven himself to be a good citizen, actively influencing his professional community within the university and beyond. He has improved the quality of incoming graduate students through his recruiting efforts, and has stimulated the undergraduate student chapter of the American Institute for Chemical Engineers (AIChE) as their faculty advisor. He has also taken part in several committees charged with determining the long-term vision of the department and college, including the department advisory committee, faculty search committees and strategic planning committees. Recently, he took on the directorship of the Energy Systems Engineering MS program, a distance learning program targeted at engineers already working in the field. He is also extremely visible in the larger catalysis community. He held several executive positions for the Michigan Catalysis Society (treasurer, vice president, president), and chaired the program committee for the catalysis division of AIChE. He has participated in special task forces and review committees for national organizations.

External Reviewers:

Reviewer A: "Suljo Linic has built a school around him and his first students have faculty positions in other prestigious institutions. He is highly innovative and he has a strong publication record. Among his age cohorts, I consider him to be at the top in the world in the area of surface reactivity and heterogeneous catalysis."

Reviewer B: "Professor Suljo Linic is a star in fundamental heterogeneous catalysis research both as an experimentalist and theoretician. He has been very successful as an educator and very active in service. He is very likely to increase in research stature and recognition in the future to such an extent that he will be getting offers from other universities for prestigious positions."

Reviewer C: "Associate Professor Sulio Linic has demonstrated the highest level of accomplishments and contributions in teaching, research and service and is already becoming a national/international leader in catalysis and should be granted promotion to Professor with tenure. The University of Michigan is extremely fortunate to have such an impressive [junior] faculty member that will continue to have such a positive impact on the Department of Chemical Engineering and U of M during his career."

Reviewer D: "In my opinion his ground breaking work in the fundamental understanding and application of plasmonic materials has been one of the most elegant and creative research in the field of catalysis in the past decade. His group has published a series of pioneer papers on this topic in high impact journals. These results will undoubtedly establish a new frontier in catalysis."

Reviewer E: "Professor Linic has succeeded in combining experimental work with modeling seamlessly. He has managed to keep the quality remarkably high for his experimental work as well as his modeling work. His work on plasmonic metallic nanostructures is especially note-worthy."

Summary of Recommendation: Professor Linic is a very prominent and very productive chemical engineer who has made significant contributions to the field of catalyst analysis and design. He is an excellent teacher and mentor; and he is a leader who contributes both in external and internal service. It is with the support of the College of Engineering Executive Committee that I recommend Suljo Linic for promotion to professor of chemical engineering, with tenure, Department of Chemical Engineering, and professor of integrative systems and design, without tenure, Division of Integrative Systems and Design, College of Engineering.



David C. Munson, Jr.

Robert J. Vlasic Dean of Engineering
College of Engineering

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