

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Mechanical Engineering
Department of Chemical Engineering
Department of Biomedical Engineering
Macromolecular Science and Engineering Program
College of Literature, Science, and the Arts
Department of Biophysics

**Approved by the
Regents
May 21, 2015**

Angela Violi, associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, associate professor of chemical engineering, without tenure, Department of Chemical Engineering, associate professor of macromolecular science and engineering, without tenure, Macromolecular Science and Engineering Program, College of Engineering, associate professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering and Medical School, and associate professor of biophysics, without tenure, Department of Biophysics, College of Literature, Science, and the Arts, is recommended for promotion to professor of mechanical engineering, with tenure, Department of Mechanical Engineering, professor of chemical engineering, without tenure, Department of Chemical Engineering, professor of macromolecular science and engineering, Macromolecular Science and Engineering Program, without tenure, College of Engineering, professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering and Medical School, and professor of biophysics, without tenure, Department of Biophysics, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D. 1999 University of Naples "Federico II," Chemical Engineering, Naples, Italy
B.S. 1994 University of Naples "Federico II," Chemical Engineering, Naples, Italy

Professional Record:

2013 – present Associate Professor (without tenure), Department of Biophysics, University of Michigan
2010 – present Associate Professor (without tenure), Macromolecular Science and Engineering Program, University of Michigan
2009 – present Associate Professor (with tenure), Department of Mechanical Engineering, Department of Chemical Engineering (without tenure), Department of Biomedical Engineering (without tenure), University of Michigan
2006 – 2009 Assistant Professor Department of Mechanical Engineering, Department of Chemical Engineering, Department of Biomedical Engineering (without tenure), University of Michigan
2005 - 2006 Adjunct Assistant Professor, Department of Mechanical Engineering, University of Michigan
2004 – 2005 Research Assistant Professor, Department of Chemistry, University of Utah, Salt Lake City, UT

- 2002 – 2005 Research Scientist, Center for the Simulation of Accidental Fires and Explosions (C-SAFE) Department of Chemical Engineering, University of Utah, Salt Lake City, UT
- 2000 – 2001 Research Associate, Department of Chemical Engineering, University of Naples “Federico II,” Napoli, Italy

Summary of Evaluation:

Teaching: Professor Violi is an effective teacher and excellent advisor, with a strong record in teaching and student mentoring. She was honored with the 2010 College of Engineering Monroe-Brown Foundation Education Excellence Award for her outstanding performance in education. Professor Violi has taken the initiative to develop a new graduate level class in energy processes for novel fuels. She has taught and revamped ME235 by developing several new elements to improve student learning. Professor Violi’s students are uniformly positive about her teaching, testifying that she has taken a sincere interest in helping students succeed inside and outside the classroom. It is clear from the letters, many of the students are truly grateful to Professor Violi for their educational experience at the University of Michigan. Her graduate students speak glowingly about her effective mentoring along with her technical excellence. Professor Violi has graduated five Ph.D. students since joining Michigan and currently advising five more. She has also co-advised two doctoral students at the University of Utah; one of them graduated in 2005 under her supervision. She has advised seven Michigan masters students and many post-doctoral research fellows with various academic backgrounds.

Research: Professor Violi’s overall research performance is exceptional. She has been studying phenomena that occur in complex reactive systems with a large range of time scales and length scales. Her principal research contributions include the development of computational methods bridging the atomistic and mesoscopic scales, and creating and applying multi-scale methods to a wide range of systems, including in combustion science, nanoscience, environmental science, and biomedical science. She has made original contributions of a fundamental nature and of enduring academic impact, and has also provided advanced solutions to important problems in a variety of applications. Professor Violi has developed and sustained a high-quality research program at the University of Michigan. She has successfully secured significant funding as principal investigator from various agencies such as NSF, ONR, AFOSR and DoE. At the same time, she has been a valuable contributor in collaborative group programs. Her research projects cover topics such as the kinetic mechanisms of fuels, nanoparticles in the environment, tribology of lubricants, and interactions of nanoparticles with biomolecular assemblies. Professor Violi has authored or co-authored 61 refereed journal papers in high quality journals, and 55 refereed conference papers. She has been giving invited lectures at numerous prestigious conferences and institutions worldwide. In addition, she was recognized with the University of Michigan Faculty Recognition Award and Henry Russell Award.

Recent and Significant Publications:

- D. Kim, J.B. Martz, A. Violi, “A surrogate for emulating the physical and chemical properties of conventional jet fuel.” *Combustion and Flame*, 161, 6:1489-1498, 2014.
- J.Y. Lai, P. Elvati, A. Violi, “Stochastic Atomistic Simulation of Polycyclic Aromatic Hydrocarbon Growth in Combustion.” *Physical Chemistry Chemical Physics*, 16 (17), 7969 – 7979, 2014.

- M.A. Ali, V.T. Dillstrom, J.Y. Lai, A. Violi, "Ab Initio Investigation of the Thermal Decomposition of n-Butylcyclohexane." *The Journal of Physical Chemistry A*, 2013.
- M.A. Ali, A. Violi. "Reaction pathways for the thermal decomposition of methyl butanoate." *Journal of Organic Chemistry*, 78(12), pp. 5898-5908, 2013.
- S.A. Skeen, H.A. Michelsen, K.R. Wilson, D.M. Popolan, A. Violi, N. Hansen, "Near-Threshold Photoionization Mass Spectra of Combustion-Generated High-Molecular-Weight Soot Precursors." *Journal of Aerosol Science*, 2013, <http://dx.doi.org/10.1016/j.jaerosci.2012.12.008>.

Service: Professor Violi is an exemplary citizen who has taken on many internal and external service duties. She has been the course leader for an undergraduate core class (ME235) and has served on several important departmental committees, including the department Advisory Committee and the Faculty Search Committee, and chaired the Information Technology Planning Committee. She has also served in various committees at the college and university level. She has fostered diversity by being active in the Society of Women Engineers, Women in Science and Engineering, and the ADVANCE program. She served as a faculty adviser for female graduates and undergraduates through the Undergraduate Research Opportunities Program. Externally, Professor Violi has been active in providing service and leadership to the technical community. She is a member of several professional organizations, and has organized and led many conference sessions for both the American Chemical Society and the American Institute of Chemical Engineering, and at a National Academy of Engineering symposium. Professor Violi served as a colloquium chair for the 33rd and 34th International Symposium on Combustion. She has been an associate editor for *Combustion Science and Technology* since 2010. She also has been a reviewer for many journals and a reviewer and/or invited panelist/moderator/speaker for various agencies, such as NSF, AFOSR and DoE.

External Reviewers:

Reviewer A: "With some of her earlier and more recent work, Prof. Violi has changed the way we look at and think about soot particle inception... Also in the field of surrogates for transportation fuels, Prof. Violi has been leading the way. Her seminal 2002 Comb. Sci. Techn. paper is the first surrogate to represent both chemical and physical properties... this is a paper that everyone in this field knows."

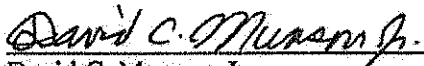
Reviewer B: "When you think of the outstanding people in the field of combustion and chemically reacting flows [in her cohort] who have academic positions at major universities and who have worked in related fields... Angela is definitely in this group as she has made lasting and important contributions to the field of chemical kinetics and soot formation."

Reviewer C: "...Professor Violi has amply demonstrated an impressive record as an exceptional scholar in the combustion community. She is considered to be a pioneer in multiscale simulation and modeling research, especially in terms of a nanoscience perspective."

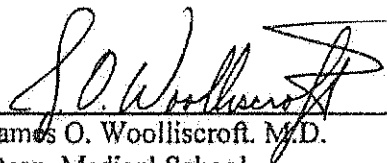
Reviewer D: "With regard to Angela's standing in relation to others in his/her group..., there are two other names... I feel that Angela's work is more original... Angela's work is more diverse."

Reviewer E: "Professor Violi has made seminal contributions to our current understanding of soot chemistry...Prof. Violi has been a leader in the field of soot chemistry for the past decade..."

Summary of Recommendation: Professor Violi is an exceptional researcher with achievements and contributions recognized and highly praised by eminent scholars, an excellent educator and mentor, and an outstanding citizen in service. It is with the support of the College of Engineering Executive Committee that I recommend Angela Violi for promotion to professor of mechanical engineering, with tenure, Department of Mechanical Engineering, professor of chemical engineering, without tenure, Department of Chemical Engineering, professor of macromolecular science and engineering, Macromolecular Science and Engineering Program, without tenure, College of Engineering, professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering and Medical School, and professor of biophysics, without tenure, Program in Biophysics, College of Literature, Science, and the Arts.



David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering



James O. Woolliscroft, M.D.
Dean, Medical School
Lyle C. Roll Professor of Medicine



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

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