

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Approved by the Regents
May 20, 2010

Sara A. Pozzi, associate professor of nuclear engineering and radiological sciences, without tenure, Department of Nuclear Engineering and Radiological Sciences, College of Engineering, is recommended for the granting of tenure to be held with her title of associate professor of nuclear engineering, Department of Nuclear Engineering and Radiological Sciences, College of Engineering.

Academic Degrees:

Ph.D.	2001	Polytechnic of Milan, Science and Technology of Nuclear Plants, Milan, Italy
M.S.	1997	Polytechnic of Milan, Nuclear Engineering, Milan, Italy

Professional Record:

2007 – present	Associate Professor (without tenure), Department of Nuclear Engineering and Radiological Sciences, University of Michigan
2007	Senior Research Staff, Oak Ridge National Laboratory, Oak Ridge, TN
2004 – 2006	Research Staff, Oak Ridge National Laboratory, Oak Ridge, TN
2002 – 2004	Postdoctoral Research Associate, Oak Ridge National Laboratory, Oak Ridge, TN
2001 – 2002	Postdoctoral Researcher, Polytechnic of Milan, Italy

Summary of Evaluation:

Teaching: Since joining Michigan, Professor Pozzi created two new graduate courses on nuclear nonproliferation and nuclear safeguards, to which students have responded very positively. Both courses were well-attended and both had to be restricted because of limited laboratory space. Professor Pozzi's student evaluations have been excellent. She has a strong interest in students and her success with them is evidenced by the graduate and undergraduate students who work for her outside of the classroom and who attest to her organization skills, her interest in their intellectual development, and her ability to motivate them with her research. Professor Pozzi graduated (as co-chair) two Ph.D. students prior to coming to Michigan. Currently, she has four Michigan Ph.D. students. Since joining Michigan, she has included six M.S. and seven undergraduate NERS students in her research projects. Several of these projects have led to talks at national conferences, at which the students have presented and published their work.

Research: Professor Pozzi's research has direct applications in nuclear nonproliferation and safeguards. This work is timely and likely to have a long-term impact. It represents a field in nuclear science that, prior to 9/11, had received little attention, but is now understood to be rich in possibilities for developing fundamentally new methods to detect and characterize nuclear material. Since 9/11, this field has grown in importance, both as a significant element of homeland security and as a source of funding opportunities. As a measure of the impact of Professor Pozzi's work, her MCNP-PoliMi code is currently used in over 50 universities and research laboratories across the world. Her applications of this code to problems involving radiation detection using neutron-photon correlations, and her presentations of this work in high-profile conferences and journal articles, have brought her international recognition as one of the leaders in this research area. Since coming to Michigan, Professor Pozzi has established an exceptionally impressive record of funding to support her research.

Recent and Significant Publications:

- S.A. Pozzi, S.D. Clarke, M. Flaska, and P. Peerani, "Pulse Height Distributions of Neutron and Gamma Rays from Plutonium-Oxide Samples," *Nuclear Instruments and Methods in Physics Section A*, 608, 2, pp. 310-315, 2009.
- S.D. Clarke, S.A. Pozzi, E. Padovani, and T.J. Downar, "Sensitivity of Photoneutron Production to Perturbations in Cross-Section Data," *Nuclear Science and Engineering*, 160, 3, 370-377, 2009.
- S.A. Pozzi, M. Flaska, A. Enqvist, and I. Pázsit, "Monte Carlo and Analytical Models of Neutron Detection with Organic Scintillators," *Nuclear Instruments and Methods in Physics Research A*, 582, pp. 629-637, 2007.
- M. Flaska, and S.A. Pozzi, "Identification of Neutron Sources with the Liquid Scintillator BC-501A Using a Digital PSD Method," *Nuclear Instruments and Methods in Physics Section A*, 577, pp. 654-663, 2007.
- S. Avdic, S.A. Pozzi, and V. Protopopescu, "Detector Response Unfolding Using Artificial Neural Networks", *Nuclear Instruments and Methods in Physics Research Section A*, 565, pp. 742-752, 2006.
- S.A. Pozzi, and I. Pázsit, "The Statistics of the Number of Neutron Collisions Prior to Absorption," *Nuclear Science and Engineering*, 153, pp. 60-68, 2006.
- S.A. Pozzi, and I. Pázsit, "Neutron Slowing Down in a Detector with Absorption," *Nuclear Science and Engineering*, 154, pp. 1-7, 2006.
- S.A. Pozzi, E. Padovani, and M. Marseguerra, "MCNP-PoliMi: A Monte Carlo Code for Correlation Measurements," *Nuclear Instruments and Methods in Physics Research Section A*, 513/3, pp. 550-558, 2003.

Service: Professor Pozzi has been active in service to the university and to professional societies. At Michigan, she has been a member of three departmental committees and helped found the student chapter of the Institute of Nuclear Materials Management (INMM), which now has over 30 members. Professionally, during the past five years she has been head or chair of three committees – and a member of four other committees – of the INMM, IEEE Nuclear and Plasma Sciences Society, and the American Nuclear Society.

During the past five years she has organized sessions or been session chair at fifteen national or international conferences. Professor Pozzi is especially eloquent about her positive feelings towards women and other minorities in science. During the past two years, she has given three invited seminars (one at UM, two in Europe) on the role of women in nuclear engineering and science.

External Reviewers:

Reviewer A: "Since her joining the faculty of your department Dr. Pozzi has published 11 articles in archival journals and 39 papers in conference proceedings, plus eight publications in progress. This level of intellectual productivity at an annual average of more than five journal articles and almost twenty conference proceedings papers is simply astounding. Her total number of 179 publications, including 33 journal articles in reputable technical journals, at this middle-stage of her career is comparable with that of many senior academicians."

Reviewer B: "Her work addresses applications that are of importance for both homeland security and material interrogation for nonproliferation and safeguards applications. She has received significant research funding during her time at the University of Michigan and has developed a research group that looks very strong...she is a bright new star on the block...she stands out among her peer group and is definitely one of the top five young faculty members in the country presently in the field of nuclear engineering, not just in her area of expertise."

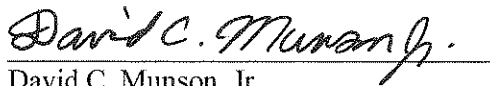
Reviewer C: "...as years passed, Professor Pozzi took on increasing levels of responsibility. She not only presented a number of her own papers, but she brought students along whom she had mentored. They were usually signed up for the student paper contest and in at least one case, her student won...I think it's significant that she has also embraced opportunities to promote women in science...she continues to build a strong and respected reputation for herself and the university."

Reviewer D: "I cannot name too many people in my field who have produced more than 100 papers in less than 9 years...she also produced a 'quantum jump' in the field of nuclear materials detection and surveillance with her internationally used PoliMi Monte-Carlo code."

Reviewer E: "She has carved out a niche in nuclear nonproliferation and safeguards research, a subject that is increasingly becoming a respected and established academic discipline and in which I would rank Professor Pozzi as one of the leading university researchers in the country...she has already amassed \$4.8 million in research funding...it is clear that Professor Pozzi takes her didactic responsibilities very seriously, in the classroom as well as in student mentoring in general...she is also active in mentoring a large number of undergraduates in research, a very laudable service to department but also ensuring a pipeline of potentially highly capable students for her graduate program..."

Reviewer F: "Professor Pozzi's original research led to the development of novel analysis capabilities for nuclear materials identification...she is the coauthor of the MCNP-PoliMi code, the only Monte Carlo code...is now being used in the U.S. and worldwide in over 50 leading research institutions...Professor Pozzi appears to be *the* top researcher in the area of nuclear safeguards and nonproliferation. I am not aware of anyone else in this field who, eight years after their PhD, was able to establish an outstanding international reputation and a stellar record of achievement...Professor Pozzi will shape the solution to future global energy needs."

Summary of Recommendation: Professor Pozzi has rapidly established an excellent record in teaching, research, and service. Students have positively responded to her courses, and to her personally. Her research, with its applications to nuclear nonproliferation and nuclear safeguards, has received major financial support and is positioned to have a strong international impact. Professor Pozzi is nationally and internationally recognized as a leader in her field. It is with the support of the College of Engineering Executive Committee that I recommend Sara A. Pozzi for the granting of tenure to be held with her title of associate professor of nuclear engineering and radiological sciences, Department of Nuclear Engineering and Radiological Sciences, College of Engineering.


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

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