Approved by the Regents May 15, 2014

PROMOTION RECOMMENDATION
University of Michigan
College of Engineering
Department of Materials Science and Engineering

Emmanuelle A. Marquis, assistant professor of materials science and engineering, Department of Materials Science and Engineering, College of Engineering, is recommended for promotion to associate professor of materials science and engineering, with tenure, Department of Materials Science and Engineering, College of Engineering.

Academic Degrees:

Ph.D.	2002	Materials Science and Engineering, Northwestern University, Evanston, IL
M.S.	1998	Materials Science and Engineering, Ecole des Mines de Paris, France
Licence es Maths	1996	Université Pierre et Marie Curie, Paris, France

Professional Record:

2011 – present	Dow Corning Assistant Professor, Department of Materials Science and Engineering, University of Michigan
2008 – 2010	Royal Society Dorothy Hodgkin Research Fellow, Department of Materials, University of Oxford, Oxford, UK
2007 - 2008	3D Atom Probe Research Manager, Department of Materials, University of Oxford, Oxford, UK
2004 - 2007	Staff Member, Materials Physics Department, Sandia National Laboratories Livermore, CA
2002 - 2004	Post-Doctoral Appointee, Materials Physics Department, Sandia National Laboratories, Livermore, CA

Summary of Evaluation:

Teaching: Professor Marquis is an excellent instructor and mentor and is well respected by her students at Michigan. Her Q1/Q2 evaluations are very high, and for those courses in which she is the sole instructor, all of her evaluations are above 4.0. The letters received from students show uniform respect for her and describe her as "firm but fair" both in the classroom and in managing her research group. All students commented on her ability to set high standards, while maintaining an open atmosphere conducive to collaboration between the students. She is an internationally recognized expert in atom probe tomography and has taught a large number of short courses and workshops at Michigan, nationally, and abroad. She was recently recognized with the College of Engineering, Jon R. and Beverly S. Holt Award for Excellence in Teaching.

Research: Professor Marquis' areas of expertise include the atomic-scale characterization of materials, radiation effects in structural materials and studying oxidation of metallic materials and precipitation in alloys primarily using atom-probe tomography (APT). She has over 55 publications in high quality archival journals, accumulating an h-index of 19 (Web of knowledge 10/13/2013). She has raised over $1M to fund her research, and is a sought after collaborator. She was the PI of two past grants at Michigan, and is currently the PI of two grants, including one from NSF, in addition to being the co-PI of eight. Professor Marquis has already been recognized through numerous awards for her research. Most recently she received the K.F.J. Heinrich Award from the Microanalysis Society. She is well on her way to becoming one the foremost leaders in her field.

Recent and Significant Publications:

Effect of grain boundary orientation on radiation-induced segregation in a Fe–15.2 at.% Cr alloy, R Hu, GDW Smith, EA Marquis, *Acta Materialia* 61(9) 3490-3498 (2013)

The formation and evolution of oxide particles in oxide-dispersion strengthened ferritic steels during processing, CA Williams, P Unifantowicz, N Baluc, GDW Smith, EA Marquis, *Acta Materialia* 61(6) 2219-2235 (2013)

Quantifying the composition of yttrium and oxygen rich nanoparticles in oxide dispersion strengthened steels, CA Williams, GDW Smith, EA Marquis, *Ultramicroscopy* 125 10-17 (2013)

The effect of Ti on the coarsening behavior of oxide nanoclusters in oxide-dispersion-strengthened steels after annealing at 1200°C, CA Williams, GDW Smith, EA Marquis, *Scripta Materialia* 67(1) 108-111 (2012)

Highly monodispersed core-shell particles created by solid-state reactions, V Radmilovic, C Ophus, EA Marquis, MD Rossell, A Tolley, A Gautam, M Asta, U Dahmen, *Nature Materials* 10(9) 710-715 (2011)

Hydrogen Production for Portable Fuel Cells from Formic Acid Decomposition over Ag Core-Pd Shell Nano-catalyst at Room Temperature, K Tedsree, T Li, S Jones, CWA Chan, KMK Yu, P Bagot, EA Marquis, GDW Smith, SCE Tsang, *Nature Nanotechnology* 6 302-307 (2011)

Probing the improbable: imaging carbon in alumina, EA Marquis, NA Yahya, DJ Larson MK Miller, RI Todd, *Materials Today* 13 42 (2010)

Service: Professor Marquis has clearly demonstrated her leadership in the Materials Science and Engineering community. She is involved in professional societies, and most notably, is the president-elect for the Microscopy Society of America Atom-Probe Focused Interest Group and has served as the treasurer of the International Field Emission Society and chaired the Committee on "Standards for Atom Probe Tomography." She has also served internally in her department's Department Chair Search Committee, Graduate Committee, Future Facilities Committee, and the College of Engineering's Lurie Nanofabrication Review Committee.

External Reviewers:

Reviewer A: "Professor Marquis's [sic] research can be counted on to be careful, insightful, scholarly and high impact. With her careful attention to detail and selection of interesting scientific problems, she has made outstanding contributions to the understanding of materials that are important for nuclear and high temperature structural systems."

Reviewer B: "As a result of her considerable abilities, Professor Marquis has held an enviable series of professional appointments that have allowed her to develop and apply a formidable set of research skills grounded in materials characterization."

Reviewer C: "Professor Marquis is one of a handful of international leaders in the field of atom probe tomography, and is highly visible in that community. However, particularly impressive is that Emmanuelle interacts with the broader communities making contributions in each of them."

Reviewer D: "Her talk on the subject [of atom probe tomography] was by far the best of several I had heard, and have heard since. She did what no one in my experience seems to have dared to do before, which was to present a clear view of the current limitations of the technique as well as its achievements and potential."

Reviewer E: "Marquis' research activities show a substantial breadth both in terms of subject areas and methodology. The quality of her article output is of a very high international standard displaying originality both in approach and ideas."

Summary of Recommendation: Professor Marquis is a very prominent and very productive materials scientist who has made significant contributions to the fields of materials characterization using atom probe tomography, and in structural materials. She is an excellent teacher and mentor; and she 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 Emmanuelle A. Marquis for promotion to associate professor of materials science and engineering, with tenure, Department of Materials Science and Engineering, College of Engineering

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

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