

Janet Rankin

Education

1983 S.B., Brown University, Materials Engineering

1989 Ph.D., Massachusetts Institute of Technology, Materials Science

Research and Professional Experience

- 2010-present: Senior Associate Director, Teaching and Learning Lab, Massachusetts Institute of Technology
- 2006-2010: Associate Director, Teaching and Learning Lab, Massachusetts Institute of Technology
- 2012-2014: Visiting Associate Professor, School of Engineering, Brown University
- 2000-2012: Associate Professor (Research), School of Engineering, Brown University
- 1999-2006: Associate Director for Physical and Life Sciences, Harriet W. Sheridan Center for Teaching and Learning, Brown University
- 1991-2000: Assistant Professor (Research), Brown University
- 1991-1992: Bunting Fellow, Harvard University
- 1989-1991: Research Staff, Solid State Division, Oak Ridge National Laboratory

Dr. Rankin's work in the Teaching and Learning Lab (TLL) @ MIT

As part of the TLL team, Dr. Rankin works with faculty and departments to integrate efforts to promote better learning at MIT with departmental needs and constraints. Her interests include: active learning (with and without technology), improving learning in large-classes, interdisciplinary learning and teaching, and working with departments to support the professional development of TAs.

Dr. Rankin received her Sc.B. in Engineering from Brown University in 1983, and her Ph.D. in Materials Science and Engineering from the Massachusetts Institute of Technology in 1989. From 1989 until 1991, she was a staff scientist at Oak Ridge National Lab, in Oak Ridge, Tennessee. Dr. Rankin was a Bunting Fellow at Radcliffe College during the 1991-92 academic year. She received a Visiting Professorship for Women Award from the National Science Foundation which funded her research at Brown during the 1993-1995 academic years. From 1998 to 2000, Dr. Rankin worked in the Dean of the College Office at Brown, as Coordinator of the ExSEL Program (a program to support and encourage the participation of traditionally under-represented minorities in math and science disciplines). From 2001-2006, Dr. Rankin was an Associate Director for the Physical and Life Sciences and the Sheridan Center for Teaching and Learning at Brown University. As a member of the Brown Engineering Faculty (1993 – 2007), she taught a variety of Materials Science courses as well as general engineering courses. Her research has been supported by grants from the National Science Foundation and the U.S. Department of Energy.

Selected Publications

1. D. Shah, J. French, J. Rankin, & L. Breslow, Using Video to Tie Engineering Themes to Foundational Concepts, Proceedings of the ASEE Annual Conference, Atlanta, GA (2013).
2. B.W. Sheldon, S. Mandowara, and J. Rankin, "Grain boundary induced compositional stress in nanocrystalline ceria films", *Solid State Ionics*, **233** 38–46 (2013).
3. A.K. Kothari, K. Jian, J. Rankin, and B.W. Sheldon, "Comparison between carbon nanotube and carbon nanofiber reinforcements in amorphous silicon nitride coatings", *J. Am. Ceram. Soc.* **91**, 2743-2746 (2008).
4. X. Xiao, Y.-T. Cheng, B.W. Sheldon, J. Rankin, "Condensed water on superhydrophobic carbon films", *J. Mater. Res.* **23**, 2174-2178 (2008).
5. M. Imoden, P. Mohanty, A. Gaidarzhy, J. Rankin, and B.W. Sheldon, "Scaling of dissipation in megahertz-range micromechanical diamond oscillators", *Appl. Phys. Lett.* **90**, 173502 (2007).
6. A. Gaidarzhy, M. Imboden, P. Mohanty, J. Rankin, and B.W. Sheldon, "High quality factor gigahertz frequencies in nanomechanical diamond resonators", *Appl. Phys. Lett.* **91**, 203503 (2007).
7. Ram Krishnamurthy, Janet Rankin, and Brian W. Sheldon, "Effect of Oxidation on Crack Deflection in SiC / Al₂O₃ Laminated Ceramic Composites", *J. Am. Ceram. Soc.* **88**, 1362-1365 (2005).
8. B.W. Sheldon, A. Ditkowski, R. Beresford, E. Chason, and J. Rankin, "Intrinsic compressive stress in polycrystalline thin films with negligible grain boundary diffusion", *J. Appl. Phys.* **94**, 948-57 (2003).
9. J. Rankin and B.W. Sheldon, "Surface Roughening and Unstable Neck Formation in Faceted Particles, I: Experimental Results and Mechanisms", *J. Am. Ceram. Soc.* **82**, 1868-72 (1999).
10. R.C. Picu, J. Rankin, and A.F. Schwartzman, "Direct observation of surface sublimation and relaxation in CdTe{111} films by high-resolution transmission electron microscopy", *Phil. Mag. Lett.* **79**, 241 (1999).
11. J. Rankin and B.W. Sheldon, "In Situ TEM Sintering of Nanosized ZrO₂ Particles", *Mater. Sci. & Eng. A* **204**, 48 (1995).

External Collaborators: Prof. A. Ditkowski (Tel Aviv Univ), Dr. Gyula Eres (ORNL), Prof. Julitte Huez (ENSIACET, Toulouse, France), Dr. Abhishek Kothari (Intel), Prof. Raj Mohanty (Boston University), Dr. Alan Schwartzman (MIT), Dr. Constantin Vahlas (CNRS, Toulouse, France), Prof. Barbara Walden (Trinity College)

Doctoral Advisor: Professor Linn Hobbs, MIT

Former Graduate Students / Post-Docs:

Rachel Koritala (staff, Argonne Nat'l Lab), Catalin Picu (faculty, RPI), Deborah Vernon (patent attorney, Proskauer Rose LLP), Tai Hee Eun (post-doc, Korea)