

CURRICULUM VITAE

JUDITH A. TODD, FASM, FASME, FAWIS, FSES, C.Eng. (UK)

Professor of Engineering Science and Mechanics

Department of Engineering Science and Mechanics

The Pennsylvania State University

212 Earth-Engineering Sciences Building

University Park, PA 16802-6812

Phone: (814) 865-0583; Fax: (814) 865-9974

jtodd@psu.edu; <http://www.esm.psu.edu>

CITIZENSHIP United States Citizen

EDUCATION

Ph.D. Materials Science, Cambridge University, England, 1977.

M.A. Materials Science, Cambridge University, England, 1977.

B.A. Materials Science, Cambridge University, England, 1972.

EXPERIENCE

2022-present **Professor of Engineering Science and Mechanics**, Department of Engineering Science and Mechanics, The Pennsylvania State University (PSU).

2002-2022 **Department Head, P. B. Breneman Department Head Chair, Professor**, Department of Engineering Science and Mechanics, PSU.

2001-2002 **Associate Dean for Research**, Armour College of Engineering and Science, Illinois Institute of Technology (IIT).

1997-2002 **Professor** of Mechanical and Materials Engineering, Department of Mechanical, Materials and Aerospace Engineering (MMAE), IIT.

1996-2002 **Iron and Steel Society Professor**: *In recognition of a commitment to develop professionally prepared individuals for careers in the international iron and steel industry, and related industries.*

1996-2002 **Faculty Guest Research Appointment**, Energy Technology Division, Argonne National Laboratory, Summer Fellowship 1996, Sabbatical Leave NDE Group, 1998

1995-2001 **Associate Chair**, Metallurgical and Materials Engineering, Dept. MMAE, IIT.

1990-1997 **Associate Professor** of Mechanical and Materials Engineering, Dept. MMAE (1995-97), and Departments of Metallurgical and Materials Engineering, and Mechanical and Aerospace Engineering, (1990-95), IIT.

1982-1990 **Assistant Professor**, Departments of Materials Science and Mechanical Engineering (joint appointment), University of Southern California (USC).

1979-1981 **Research Engineer** and Project Leader of USDOE contract, Department of Materials Science and Mineral Engineering, UC Berkeley (UCB, 01/79 – 12/81).

1978 **Research Associate**, Department of Materials Science, State University of New York at Stony Brook (03/78 – 12/78)

1976-1978 **Post-Doctoral Scientist**, Department of Metallurgy and Materials Science, Imperial College of Science and Technology, London, UK (04/76 – 03/78)

HONORS AND AWARDS

2023 ASME Honorary Membership

2023 Fellow, Society of Engineering Science (SES)

2002-present **Committee for the Sciences and the Arts (CS&A)**, Franklin Institute, Philadelphia
2020-present **Program Chair, CS&A, Franklin Institute**
2017-present **Chair, Civil and Mechanical cluster, CS&A, Franklin Institute**
2021-2022 **President, ASM International – *the materials information society***
2020-2021 **Vice President and President-elect, ASM International**
2017-2023 **Member, Board of Trustees, ASM International**
2009 **Certificate of Appreciation** for service as the President of the American Society of Mechanical Engineers (ASME) Pressure Vessels and Piping Division (PVPD) Senate 2008-2009
2009-2010 **President, Society of Engineering Science**
2008-2009 **Vice President, Society of Engineering Science**
2008 **Resolution, U.S. National Committee on Theoretical and Applied Mechanics** for receiving the 2006 PAESMEM Award
2007 **2006 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM)**, National Science Foundation, presented by President George W. Bush, White House, Nov. 16, 2007 - *for career-long efforts that have advanced the knowledge and understanding of diversity and opportunity*
2007 **ASME Distinguished Service Award**
2007 **ASME Board of Governors Award**
2007 **Achieving Woman Award**, Commission for Women, PSU
2006 **Materials Research Institute Inspiration Award, PSU**
2006 **Certificate of Appreciation**, Conference Chair, 2006 ASME PVP Conference
2005 **Certificate of Appreciation**, Technical Program Chair, 2005 ASME PVP Conference
2005 **Board of Governors Certificate**, Vice President, Manufacturing Technology Group, ASME, 2002-2005
2004 **Certificate of Appreciation**, Organizer, “Manufacturing Industry Track,” 2004 International Mechanical Engineering Congress and Exposition, ASME
2003-2004 **Fellow, Council for Institutional Cooperation (CIC), now the Big Ten Academic Alliance – Academic Leadership Program, PSU**
2002-2005 **Vice President, Manufacturing Technology Group, ASME**
2002 **Certificate of Appreciation**, Associate Editor (1966-2002), Journal of Pressure Vessel Technology, ASME
2002 **Certificate of Appreciation**, Council on Engineering Representative to the Board on Professional Development, ASME
2001 **Fellow, ASME**
2001 **Vice President Elect, Manufacturing Group, ASME**
2001 **Certificate of Appreciation**, Membership Chair (1997-2001), PVP Division, ASME
2001 **Certificate of Appreciation**, Tutorial “Equipment Condition Monitoring,” PVP Division, ASME
2001 **Inaugural Faculty Associate** in Interprofessional Studies, IIT
2000 **Certificate of Appreciation**, Illinois Mathematics and Science Academy, *for commitment through mentoring to developing the potential of Illinois’ future scientists and scholars*
1998 **Julia Beveridge Award** for inspiring young engineers and for service, IIT
1997 **ASME Board on Minorities and Women Award** *for efforts to mentor women and minority students, contributions to ASME, and outstanding technical achievements*
1997 **Fellow, ASM International** (formerly American Society for Metals) *in recognition*

of distinguished contributions to the field of materials science and materials engineering

- 1997** **Certificate of Appreciation**, PVP Division, ASME
- 1996** **Booz-Allen and Hamilton Award** for Teaching and Service, IIT
- 1996** **Fellow**, Association for Women in Science (AWIS) *for having demonstrated exemplary commitment to the achievement of equity for women in science and technology*
- 1996-2002** **Iron and Steel Society Professor**, American Institute of Mining, Metallurgical and Petroleum Engineers
- 1995** **Certificate of Appreciation**, PVP Division, ASME
- 1993** **Certificate of Recognition**, PVP Division, ASME
- 1993** **Certificate of Appreciation**, Forging Industry Educational and Research Foundation
- 1990** **Vanadium Award**, Institute of Materials, Minerals and Mining, United Kingdom
- 1986** Oak Ridge Associated Universities Faculty Research Participation Award
- 1983-84** 1. AIME Engineering Foundation Research Initiation Award
2. NACE Seed Grant Award
- 1978** **Chartered Engineer**, (C. Eng. – professional engineer) Institute of Materials, Minerals and Mining, United Kingdom
- 1972** 1. Science Research Council Fellowship and Overseas Travel Award
2. Mary Ewart Traveling Scholarship, Newnham College, Cambridge University
3. British Universities Student Travel Award
4. British Federation of University Women Award
5. Kathryn Kingswell Memorial Scholarship, Wakefield Girls' High School

EDITORIAL BOARDS

- 1993-present** Key Reader, Metallurgical and Materials Transactions A
- 1996-2002** Associate Technical Editor, ASME Journal of Pressure Vessel Technology
- 1996** The Journal of Machining Science and Technology

PROFESSIONAL AFFILIATIONS

- Fellow:** ASME International
ASM International (formerly American Society for Metals)
Association for Women in Science (AWIS)
- Senior Member:** Society of Women Engineers (SWE)
Society of Manufacturing Engineers (SME)
- Member:** Society of Engineering Science
American Association of University Women (AAUW)
Institution of Metallurgists (MIM), Chartered Engineer Status (C. Eng.)
Iron and Steel Society (AIME)
The Minerals, Metals and Materials Society of the American Institute of Mining, Metallurgical and Petroleum Engineers (TMS-AIME)
Historical Metallurgy Society
National Society of Corrosion Engineers (NACE)
American Society for Testing and Materials (ASTM)
Microbeam Analysis Society (MAS)
American Ceramics Society (ACS)

RESEARCH ACTIVITIES

- Ultrasonic Characterization and Nondestructive Evaluation of Materials
- Laser Sustained Plasma and Laser Materials Interactions
- Development of Advanced Materials
- Mechanical Behavior of Materials
- Ferrous Metallurgy
- Archaeometry

TEACHING EXPERIENCE

PSU: ESC 410/411 B.S. Honors Thesis Research

IIT: MS 201 Materials Science
MMAE 370 Materials Laboratory I
MMAE 271 Engineering Materials and Design
MMAE 484/584* Materials Selection: Decision and Design
MMAE 563 Advanced Mechanical Metallurgy
MMAE 567 Fracture Mechanisms
MMAE 574 Ferrous Transformations
MMAE 577* Lasers in Manufacturing
IPRO Interprofessional Projects

USC: ME/MSE 584* Fracture Mechanics and Mechanisms
ME/MSE 583 Materials Selection
MSE 536L* Analytical Electron Microscopy Laboratory
MSE 535 Analytical Electron Microscopy
CE/MSE 334L Mechanical Behavior of Materials
MSE 110L Materials Science
1982 Scanning Electron Microscopy, Short Course with J. R. Porter and D. B. Wittry

UCB MSE 200B Principles of Materials Science and Engineering - graduate
MSE 298 Current Research in Materials Science and Engineering (with R. Gronsky) - graduate
MSE 130 Materials Engineering - undergraduate

MMAE = Mechanical, Materials and Aerospace Engineering; **MSE** = Materials Science and Engineering; **ME** = Mechanical Engineering; **CE** = Civil Engineering, *New courses introduced.

SUNY AT STONY BROOK, 1978

Director of one-year National Science Foundation Program Retraining Women in Science and Engineering (WISE Program)

SERVICE TO PROFESSIONAL ORGANIZATIONS

1. **Franklin Institute, Philadelphia, PA**
2005-present Committee on Science and the Arts (CS&A), Civil and Mechanical Cluster
2020-present Program Chair, CS&A
2017-2020 Chair, Civil and Mechanical Cluster

2. **ASM International** (formerly American Society for Metals)
 - 2021-2022 President
 - 2020-2021 Vice President and President Elect
 - 2017-2023 Member, Board of Trustees
 - 2009-present Albert Easton White Distinguished Teacher Award Committee
 - 2000-2003 Council of Fellows
 - 1995-1998 Awards Policy Committee
 - 1989-1992 Member, Education Affairs Committee
 - 1985-1989 Member, Materials Science Division Council
 - 1984-1989 Member, West Coast Extension Liaison Committee
 - 1984 **Program Director**, WESTEC Conference, 1000 attendees
 - 1982-2005 Member, Committee on History and Archaeology of Materials

Los Angeles Chapter ASM International (1250 members, \$70,000 annual budget)

 - 1988-1989 Quad Chapter Luncheon Chair
 - 1987-1988 Past Chairperson
 - 1986-1987 Chairperson
 - 1986-1987 Member Organizing Committee for the Second Annual Symposium on Aluminum Lithium Alloys, WESTEC, 3/87.
 - 1985-1986 Vice Chairperson
 - 1984-1985 Treasurer
 - 1983-1984 Program Chair, Roundtable Chair
3. **Society of Engineering Science (SES)**
 - 2009-2010 President, Society of Engineering Science
 - 2008-2009 Vice President, Society of Engineering Science
 - 2006-2008 Secretary, Society of Engineering Science
 - 2005-2010 Member of the Board
 - 2006 Organized 43rd SES Conference, Aug 13-16, 2006, Penn State University, PA.
4. **U. S. National Committee on Theoretical and Applied Mechanics**
 - 2008-2012 Ex-Official Member of the Committee
 - 2010 Congress Chair for the U. S. National Congress of Theoretical and Applied Mechanics, Penn State University, June 27 – July 2, 2010 (820 attendees)
5. **American Society of Mechanical Engineers (ASME)**
 - 2011-2017 **ASME Thomas A. Edison Patent Award Committee**

Board on Research and Technology Development (BRTD)

 - 2010-2013 Member, BRTD
 - 2011-2013 Member, Strategic Planning Subcommittee
 - 2012-2013 Member, Steering Committee, BRTD Initiative “Infrastructure Assessment and Management of Complex Systems using Risk, Predictive and Early Warning Technologies”
 - 2006-2009 **ASME Fellow Selection Committee**

1989-present **Pressure Vessels and Piping Division (PVPD)**
2009-present Senator, Pressure Vessels and Piping Division
2012 Session Organizer for PVP 2012
2008-2009 President, PVPD Senate
Chair, Organizer, Student Paper Symposium and 17th PVPD Student Paper Competition, 2009 ASME PVP Conference, Prague, Czech Republic, July 26-30, 2009.
2008-2010 Honors Committee, PVPD
2007-2008 Historian, PVPD Senate
2006-2007 Division Chair, PVPD
2005-2006 Conference Chair, 2006 PVP Conference, Vancouver, BC, Canada (750 attendees)
2004-2005 Technical Program Chair, 2005 PVP Conference, Denver, CO
2001-2005 Publications Chair
2001-2007 Division Chair (2006). Executive Committee, ASME PVP Division
2001 Presented tutorial “Sensor Validation and Fault Detection” at PVP 2001
1997-2001 Membership Chair, ASME PVP Division
1997-2001 Honors Committee, ASME PVP Division
1993-1997 Chair, Materials and Fabrication (M&F) Committee, ASME PVP Division
1989-1993 Technical Program Representative, M&F Committee, PVP Division (organized ~25 technical sessions, 100+ papers annually)

Society Level Committees (related to ASME Reorganization)

2004-2005 Project Management Review Team (Presidential Invitation) 04/04-03/05
2004-2005 Project Management Task Force (04/04 – 03/05)
2004-2005 Strategic Management Project Team (06/04 – 03/05)
2004-2005 Program Prioritization Process Team (11/04 – 03/05)
2004-2005 Knowledge and Community Groups Sector (02/04 – 06/05)
2004-2005 Knowledge and Community Governing Board Operations (06/04 – 03/05)
2004-2005 Technical Communities Alignment Team Working Group (06/04 – 03/05)
2004-2005 Policy Review Focus Area Team (06/04 – 03/05)
2004-2005 Technical Executives Conferences for Leadership Training (03/04, 03/05)
2004-2005 Financial Operations Committee (01/05 – 03/05)

Vice President for the Manufacturing Technology Group (2002-2005)

- Led and initiated strategic planning activities with five divisions (Manufacturing, Materials Handling, Plant Engineering and Maintenance, Process Industries and Textile Engineering)
- Developed two successful ASME Dedicated Service Awards
- Increased membership of the Merchant Medal Committee and award nominations
- Enhanced Manufacturing Engineering Division participation in National Manufacturing Week, with significant financial return to the division
- Initiated a dialogue with President Vachon, the ASME Managing Director, the VP for Government Relations, and the ASME Industrial Advisory Board to increase the role of manufacturing in the new ASME structure. Attended a White House briefing as VP for the ASME Manufacturing Technology Group.

- As VP, provided a letter of support for H. R. 3598, the Manufacturing Technology Competitiveness Act of 2004, sponsored by the Environment, Technology and Standards Subcommittee Chairman, Vernon Ehlers, to improve the competitiveness of U. S. manufacturers by providing grants to develop new manufacturing technologies. The Bill passed.
- Submitted performance evaluations for the Manager of Manufacturing Programs
- Mentored an ASME Minority Leadership Program Intern
- Organized Manufacturing Tracks at the ASME IMECE Congress, 2004 and 2005
- Supported the planning and development of the first Manufacturing Technology Group Conference held in August, 2006.

Council on Engineering (2001-2005) (comprised 1 Sr. VP, 11 VP, 8 Committee Chairs)

- 2002-2005 Vice Chair, Council on Engineering
- 2002-2005 Chair, Committee on Administration
- 2002-2005 Vice President, Manufacturing Technology Group
- 2001-2002 Vice President Elect, Manufacturing Technology Group
- 2001-2004 Council of Engineering representative, Board on Professional Development

6. American Association for the Advancement of Science (AAAS)

- 2009 *Building Science, Engineering and Technology Leadership - A PAESMEM/AAAS Workshop for Women in Industry, Academia and Government: Panelist, Oct 2, 2009*

7. Iron and Steel Society (ISS now AIST)

- 2001-2003 Chair, Benjamin Fairless Award Committee
- 1997-2003 ISS Education Committee
- 1997-2003 ISS University Relations Committee
- 1997-2003 ISS Student Chapter Council Advisor
- 1997-2003 Mechanical Working and Steel Processing Division Executive Committee
- 1997-2003 Process Technology Division Steering Committee
- 1995-2002 Iron and Steel Society Professor

8. American Society for Testing and Materials (ASTM)

- 1982-present Voting member of Committees:
A1 - Steel, stainless steel and related alloys Subcommittees 0.11 and 0.29
E08 - Fracture and Fatigue

9. The Minerals, Metals and Materials Society of the American Institute of Mining, Metallurgical and Petroleum Engineers (TMS-AIME)

- 1998-2000 Chair, Rossiter W. Raymond Memorial Award Committee
- 1996-2000 Rossiter W. Raymond Memorial Award Committee
- 1990-1993 Member of TMS/ASM Distinguished Lectureship in Materials and Society Selection Committee
- 1983-1987 Member of the Hardy Medal Selection Committee
- 1983-1987 Member of the Matthewson Medal Selection Committee

10. **National Research Council**
 1998 Member – National Materials Advisory Board Panel for Review of AFOSR Materials Research Proposals
11. **Materials Properties Council, Inc.**
 1979-1989 Member Subcommittee 1 - Materials for Boilers and Pressure Vessels
 Member of Task Groups on:
 I - Engineering Properties of Boiler and Pressure Vessel Materials
 II - Pressure Vessel Service with Hydrogen at High Temperatures and Pressures

SELECTED REVIEW ACTIVITIES

- 2003 NSF Committee of Visitors charged with reviewing the Design and Manufacture Academic Programs of the Division of Design, Manufacture and Industrial Innovation of the Engineering Directorate of the National Science Foundation.
- 2000, 2004 Review Panel, NSF Materials Research Science and Engineering Center, Center for Thermal Spray Research, Stony Brook University, NY.

SELECTED WORKSHOPS (participant/organizer)

- 12/01/11 **Invited Participant**, NSF Propagating Effective Mentoring Workshop for recipients of the Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring, December 1-2, 2011, Arlington, Virginia
- 04/01/10 **Invited Participant**, Mentoring and Networking Workshop for Junior Women Faculty in the Big 10, Big 10 Women’s Workshop 2010, Pfister Hotel, Milwaukee, WI, April 1-3, 2010
- 10/01/09 **Invited Mentor**, Building Science, Engineering and Technology (STEM) Leadership, “A networking and mentoring workshop for Professional Women in their first 10 years”, PAESMEM-AAAS Leadership Workshop for Women, October 1-2, 2009, AAAS, 1200 New York Ave., NW, Washington, DC 20005
- 04/16/09 **Organizer**, Strategies and Tactics for Recruiting to Improve Diversity and Excellence (STRIDE), Penn State Academic Leadership Forum and Faculty Workshop led by J. Wayne Jones and Katherine Spindler, University of Michigan, Penn State University