

Jonathan A. Dantzig

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Research Interests:

Materials processing, especially solidification and casting processes. Mathematical modeling of solidification processes in metals and biological systems, and microstructure formation. Specialties include finite element methods, heat transfer and fluid dynamics.

Education:

Ph.D., Mechanics and Materials Science, The Johns Hopkins University, 1977

M.S.E., Mechanics, The Johns Hopkins University, 1975

B.S.E., Mechanics, The Johns Hopkins University, 1972

Employment:

Invited Professor, École Polytechnique Fédérale de Lausanne, 2005-present

Visiting Researcher, National Institute for Standards and Technology, 2004

Department of Mechanical Science and Engineering
University of Illinois at Urbana-Champaign

- Professor Emeritus and Research Professor, 2008 - present
- W. Grafton and Lillian B. Wilkins Professor of Mechanical Engineering, 2003 - 2008
- Professor, 1996 - 2008
- Division Head, Design and Materials, 1993 - 1996
- Associate Professor, 1987 - 1996
- Assistant Professor, 1982 - 1987
- Courses taught:

ME231: Introduction to Materials Behavior and Processing

ME261: Instrumentation and Control
ME280: Senior Capstone Design
ME345: Introduction to Finite Element Analysis
ME351: Introduction to Materials Processing (New)
ME389: Introduction to Solidification Processing
ME452: Advanced Solidification Processing
ME497: Advanced Modeling of Materials Processing (New)

Visiting Research Scientist, NCSA, 1990-91

Olin Metals Research Laboratories
New Haven, CT

- Senior Research Scientist, 1980 - 1982
- Research Scientist, 1978 - 1980

University of New Haven
New Haven, CT

- Adjunct Assistant Professor, 1978-1982

Honors and Awards:

Distinguished Educator Award: TMS, 2009

W. A. Agnew/C. N. Goodall Award from Railway Division of IMechE for “Heat Transfer Modeling of Rail Thermite Welds” and “Weld Defect Formation in Rail Thermite Welds,” *J. Rail and Rapid Transit, Proceedings Part F*, 2006

Keynote speaker: Modeling of Casting, Welding and Advanced Solidification Processes-XI, Opio, France, 2006

College of Engineering Award for Teaching Excellence: UIUC, 2005

Bruce Chalmers Award: TMS, 2005. Citation: “For his many landmark contributions to the development and application of rigorous tools for computational modeling of solidification processes.”

W. Grafton and Lillian B. Wilkins Professor of Mechanical Engineering, UIUC, 2003

Invited speaker: Gordon Conference on Gravitational Effects in Physico-Chemical Systems, 2001

Keynote Speaker: EuroMat, Munich, 1999

Invited Speaker: Cutting Edge of Computer Simulation of Solidification and Processes, Osaka University, 1999

Invited Speaker: Computer Simulation of Microstructures, TMS Fall Meeting, Cincinnati, 1999

Fellow, ASM International, 1998

Best Poster, 8th Engineering Foundation Conference on Modeling of Casting and Advanced Solidification, 1998

Keynote Speaker: SolFIDAP, Berlin, 1998

Invited Speaker: Los Alamos National Laboratory Summer Workshop, Los Alamos, 1996

Keynote Speaker: Gordon Conference on Physical Metallurgy, New Hampshire, 1996

Invited Speaker: Institute for Mechanics and Materials, Brown University, 1995

Invited US participant in 2nd US-Japan Seminar on Solidification Processing of Advanced Materials, New Hampshire, 1994

Keynote Speaker: "Modeling of Casting, Welding and Advanced Solidification Processes-VI," Palm Coast, FL, March 1993

Invited presentation: "Optimization of Solidification Processes" at NATO Workshop on Interaction of Convection with Interfaces, Chamonix, France, March 1992

Best Paper, 5th Engineering Foundation Conference on Modeling of Casting and Advanced Solidification, 1990

Invited US participant in 1st US-Japan Seminar on Solidification Processing of Advanced Materials, Oiso, Japan, 1990

Member, NASA Metals and Alloys Discipline Working Group, 1984 - 1998

Union Oil Young Faculty Award, 1985-88

Arnold O. Beckman Award, University Research Board, UIUC, 1982

Sigma Xi, 1982

Phi Beta Kappa, 1972

Tau Beta Pi, 1971

Professional Society Activities

Instructor for “Solidification,” a one-week short course sponsored annually by ESI (formerly CALCOM) 1997, 1999-present. This course has been taught since 1999 in Les Diablerets, Switzerland. The typical audience each year consists of 25-30 engineers from 15 different countries all over the world.

Member of Scientific Committee, Modeling of Casting, Welding and Advanced Solidification Processes - XI, 2005

Panel Member, Bridging Design and Manufacturing, National Research Council, 2003-2004

Member of Steering Committee, Processing and Properties of Semi-Solid Materials - 5, 1998

Member of Organizing Committee, Modeling of Casting, Welding and Advanced Solidification Processes - VIII, Engineering Foundation, 1998

Co-Chairman of symposium, Modeling. Characterization and Control of Microstructure, TMS-AIME, 1997

Member of Organizing Committee, Modeling of Casting, Welding and Advanced Solidification Processes - VII, Engineering Foundation, 1996

Co-Chairman of symposium, Nature and Properties of Semi-Solid Materials, TMS-AIME, 1992

Conference Chairman, Modeling of Casting and Welding Processes - II, Engineering Foundation, 1983

Member, ASM International, 1972-Present

Member, TMS-AIME, 1977-Present

- Member, Information Technology Committee
- Member, Solidification Committee (Chair, 1988-89)
- Member, SCAMP Committee

Journal Editorships and Reviewerships

Key Reader, *Metallurgical and Materials Transactions - A* (Chairman of Board of Review, 1995-1996)

Key Reader, *Metallurgical and Materials Transactions - B*

Editorial Board, *Modeling and Simulation in Materials Science and Engineering*

Reviewer, *Journal of Computational Physics*

Reviewer, *ASME Journal of Fluids Engineering*

Reviewer, *International Journal of Numerical Methods in Engineering*

Reviewer, *International Journal of Numerical Methods for Fluids*

Reviewer, *Journal of Engineering for Industry*

Reviewer, *Materials Science and Engineering*

Reviewer, *Physica D*

Reviewer, *Physical Review E*

Reviewer, National Science Foundation

Reviewer, NASA