Theodore Martin Besmann

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Pennsylvania State University	Nuclear Engineering	Ph.D., 1976
Iowa State University	Nuclear Engineering	M.S., 1971
New York University	Chemical Engineering	B.E., 1970

Appointments

2014 to present	**Professor and SmartState Chair for Transformational Nuclear Technologies in the General Atomics Center** Nuclear Engineering Program, Mechanical Engineering Department University of South Carolina
2022 to present	**Joint Faculty Appointment to Oak Ridge National Laboratory**
2011-2014	**Joint Faculty Nuclear Engineering**, University of Tennessee-ORNL at rank of Full Professor
1985 to 2014	**Head, Surface Processing and Mechanics Group**, Materials Science and Technology Division, Oak Ridge National Laboratory.
1975 to 1985	**Development Staff,** Chemical Technology Division, Oak Ridge National Laboratory.

PUBLICATIONS SUMMARY:

- Over 200 refereed journal or proceedings papers and six book chapters. Review articles in *Science*, *Bulletin of the American Ceramic Society*, and the *MRS Bulletin* (2).
- Six patents
- Associate Editor of the *Journal of the American Ceramic Society*
- Editorial Advisory Board member for the journal *Chemical Vapor Deposition* (defunct).
- Editor of the three proceedings: *Chemical Vapor Deposition of Refractory Metals and Ceramics*, Materials Research Society, 1990; *Chemical Vapor Deposition of Refractory Metals and Ceramics II*, Materials Research Society, 1992; *Chemical Vapor Deposition XIII*, Electrochemical Society, 1996.
- Coauthor of the book, *A Desirable Energy Future*, Franklin Institute Press, 1982.

SOCIETY/CONFERENCE POSITIONS:

- Chair 2002 Gordon Research Conference on "High Temperature Materials, Processes, and Diagnostics"
- Chair, Materials Research Society Government Affairs Committee, 2001-2003
- Member of Council (1997-99), Materials Research Society
- NIST/ACerS Phase Equilibria Committee (1997-2000)
- Vice President for Corporate Relations (1995-98), American Ceramic Society
- Chair, Fall 1994 Meeting of the Materials Research Society
- Chair, 13th International Conference on Chemical Vapor Deposition, 1996
- Organizing Committee, "High Temperature Ceramic Matrix Composites" International Meetings
- Nuclear Division Chair, American Ceramic Society
- Twice Symposium Chair, Materials Research Society

AWARDS/APPOINTMENTS:

- Member of the Scientific Advisory Board for the DOE *Center for Molten Salts in Extreme Environments* (2023-present)
- 2021 Distinguished Scientist Award, Citizens for Nuclear Technology Awareness
- Deputy Director, DOE Office of Science *Center for Hierarchical Waste Form Materials* (2016-present)
- Member of the Science Council for the DOE *Consortium for Advanced Simulation of Light Water Reactors (CASL)* (2016-2021)
- Contributor to *Technology and Applied R&D Needs for Molten Salt Chemistry: Inovative Approaches to Accelerate Molten Salt Reactor Development and Deployment,* Report for the US Department of Energy, Office of Nuclear Energy Molten Salt Chemistry Workshop, Oak Ridge National Laboratory (2017)
- *D.T. Rankin Award* 2016 for exemplary service to the Nuclear & Environmental Technology Division of The American Ceramic Society
- Contributor to *Basic Research Needs for Environmental Management: Report of the Office of Science Workshop on Environmental Management*, Office of Science, Department of Energy, Washington, DC (2016)
- Visiting Faculty, Department of Nuclear Engineering, Imperial College, London, UK (May-June 2016)
- Visiting Scientist, Commissariat à l'Énergie Atomique et aux Énergies Alternatives (Atomic Energy and Alternative Energies Commission) or CEA, Cadarache, France, April-June 2014
- Chair of the OECD Nuclear Energy Agency *Expert Group on Multi-scale Modelling of Fuels and Structural Materials* (2014-2023)
- Vice-chair and U.S. representative to the OECD Nuclear Energy Agency program on *Thermodynamics of Advanced Fuels-International Database* (2012-present)
- ORNL/UT-Battelle Distinguished Engineer Award, 2010
- Fellow of the American Nuclear Society, 2010
- *Mishima Award* 2010 of the American Nuclear Society for Research in Nuclear Fuels and Materials

- Past Member of the *International Commission on Glass Technical Committee on Nuclear and Hazardous Waste Vitrification*
- Contributor to DOE Basic Energy Sciences Report *Basic Research Needs for Advanced Nuclear Energy Systems*, 2006
- Science Advisor, US-Israel Binational Science Foundation, 2006-2010
- Former member of the *Technical Committee on Nuclear Waste Immobilization*, Intl. Comm. On Glass
- *Spriggs Phase Equilibria Award,* American Ceramic Society 2004
- Federal Laboratory Consortium 2002 *Excellence in Technology Transfer* Award
- 2002 U. S. Dept. of Energy *National Laboratory Fuel Cell R&D* Award
- Martin Marietta Energy Systems Technical Achievement Award, 1993
- Fellow of the American Ceramic Society, 1990
- R&D-100 Award for "Fiber-Reinforced Ceramic Composite Fabrication," 1987
- Significant Accomplishment Award, Materials Science and Technology Division, American Nuclear Society, 1985
- American Nuclear Society Young Member Engineering Achievement Award, 1985
- U.S. Department of Energy *Award for Research in Materials Chemistry of Significant Implication for Energy Technology*, 1983
- Best Paper Award, Nuclear Division, American Ceramic Society, 1983
- U.S. Participant for United Nations International Atomic Energy Agency 1979 Conference on the Thermodynamics of Nuclear Materials.
- Recipient of U.S. Atomic Energy Commission Traineeship, 1970

PATENTS

- 20,220,198,649A1 Experimental set-up for studying temperature gradient driven cracking
- 8,631,770; 8,631,770 Mitigating the effect of siloxanes on internal combustion engines using landfill gases
- 6,809,304 High efficiency, oxidation resistant radio frequency susceptor
- 6,171,720 Bipolar plate/diffuser for a proton exchange membrane fuel cell I
- 6,037,073 Bipolar plate/diffuser for a proton exchange membrane fuel cell II
- 5,843,533 CVD method of forming self-lubricating composites
- 5,709,936 Composite coating for low friction and wear applications and method thereof
- 4,929,328 Titanium diboride ceramic fiber composites for Hall-Heroult cells