

Joseph J. Beaman, Jr.
Professor Department of Mechanical Engineering
Ernest F. Gloyna Regents Chair in Engineering
The University of Texas at Austin

Professor Joseph J. Beaman joined The University of Texas at Austin faculty in 1979 after receiving his Sc.D. from the Massachusetts Institute of Technology, in the area of nonlinear control in the Mechanical Engineering Department. His career work has been in both manufacturing and control, and he is licensed as a Professional Engineer in the State of Texas. His specific manufacturing research interest is in Solid Freeform Fabrication (3D Printing), a manufacturing technology that produces freeform solid objects directly from a computer model of the object without part-specific tooling or knowledge. Dr. Beaman coined this term in 1987. Professor Beaman initiated research in the area in 1985 and was the first academic researcher in the field. One of the most successful 3D Printing approaches, Selective Laser Sintering, was a process that was developed in his laboratory. Professor Beaman has been both an inventor and a mentor to inventors during the development of this technology. In particular, he has worked with graduate students, faculty, and industrial concerns on the fundamental technology that span materials, laser scanning techniques, thermal control, mold making techniques, direct metal fabrication, and biomedical applications. He was one of the founders of DTM Corporation (now merged with 3D Systems), which markets Selective Laser Sintering. During the period 1990-1992, Professor Beaman was in charge of Advanced Development for DTM. During his tenure at DTM, the company designed, developed and marketed its first commercial systems.

Dr. Beaman is an academic whose technical work has had a significant and growing impact on society. His work has played an important role in engendering a whole new industry in the US and abroad. Solid Freeform Fabrication and Selective Laser Sintering equipment is now widespread. Rapid prototyping with this equipment is commonplace, and represents a significant shortening of the design cycle. Rapid manufacturing is now emerging and offers the potential to radically compress the manufacturing cycle for complex parts. Benefits are greatly reduced cost, time, and the capability to achieve, in one operation, shapes that would otherwise require multiple operations or shapes impossible to manufacture with standard techniques. Applications cross a broad spectrum from medical to automotive.

Dr. Beaman also has had an active career in dynamic systems and control having received numerous best paper awards in the field. He served as Division Chair of the Dynamic Systems & Control Division of the American Society of Mechanical Engineers (ASME) and is presently the technical editor of the Journal of Dynamic Systems and Control Journal of ASME. Dr. Beaman is a Fellow of the ASME. Dr. Beaman holds the Earnest F. Gloyna Regents Chair in Engineering in the Cockrell School of Engineering at The University of Texas at Austin, and was formerly Chair of the Department of Mechanical Engineering from 2001 to 2012. He is a Distinguished Mechanical Engineer from the Department of Mechanical Engineering in 2011, Elected Society of Manufacturing Board of Directors in 2012, Nominated and Appointed US Army Science Board 2012, elected National Academy of Engineers in 2013, FAME award in Additive Manufacturing in 2014, and elected National Academy of Inventors in 2015.

Joseph J. Beaman, Jr.
November 2013
THE UNIVERSITY OF TEXAS AT AUSTIN
Cockrell School of Engineering
Resume

FULL NAME: Joseph J. Beaman, Jr. **TITLE:** Professor
ENDOWED POSITION: Earnest F. Gloyna Regents Chair in Engineering **DEPARTMENT:** Mechanical Engineering

EDUCATION:

Sc.D., Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1979
M.S., Mechanical Engineering, The University of Texas at Austin, Austin, TX, 1975
B.S., Mechanical Engineering, The University of Texas at Austin, Austin, TX, 1972

PROFESSIONAL REGISTRATION:

TX, 50385

CURRENT AND PREVIOUS ACADEMIC POSITIONS:

2001 - present, The University of Texas at Austin, Earnest F. Gloyna Regents Chair in Engineering
2001 - 2012, The University of Texas at Austin, Chair, Department of Mechanical Engineering
2001 - 2002, The University of Texas at Austin, Ernest Cockrell, Jr., Memorial Chair in Engineering
1991 - 2001, The University of Texas at Austin, Andersen Consulting Endowed Professorship
1990 - 1991, The University of Texas at Austin, Temple Foundation Endowed Faculty Fellowship
1989 - present, The University of Texas at Austin, Professor
1985 - 1989, The University of Texas at Austin, Associate Professor
1979 - 1985, The University of Texas at Austin, Assistant Professor
1979 - 1979, MIT, Visiting Assistant Professor
1976 - 1978, MIT, Instructor
1972 - 1974, The University of Texas at Austin, Teaching Assistant

OTHER PROFESSIONAL EXPERIENCE:

7/1975 - 8/1975, IBM Austin, Senior Associate Engineer, Analysis & Design
1974 - 6/1975, IBM Austin, Associate Engineer, Analysis & Design
1990 - 1992, DTM Corporation, CTO, Product Development

HONORS AND AWARDS:

Tau Beta Pi (1966)
BS with High Honors, University of Texas at Austin (1968)
Phi Kappa Phi (1968)
MIT Fellowship, Cambridge, MA (1976)
Best Paper Award, Journal of Dynamic Systems Measurement and Control, University of Texas at Austin (1983)
DuPont Young Faculty Award, University of Texas at Austin (1983)
Engineering Foundation Award, University of Texas at Austin (1984)
NSF Presidential Young Investigator Award, University of Texas at Austin (1984)
Myron L. Begeman Faculty Fellow, University of Texas at Austin (1987)
Halliburton Foundation Award of Excellence, University of Texas at Austin (1989)
Engineering Foundation Endowed Faculty Fellowship in Engineering, Number 5, University of Texas at Austin (1990)
Andersen Consulting Endowed Professorship in Manufacturing Systems Engineering, University of Texas at Austin (1992)
Awarded Certificate for valued services as Chairman, Dynamic Systems & Control Division, ASME, Austin, Texas (1993-1994)
Fellow, American Society of Mechanical Engineers (1996-present)

Listed in Who's Who in Science and Engineering (1996-2004)
Literati Club Outstanding Paper Award, Rapid Prototyping Journal, West Yorkshire, England (October 1996)
Listed in Who's Who in Finance and Industry (1997-2004)
Member, Advisory Board of the Rapid Prototyping Association, Society of Manufacturing Engineers (January 1998-December 1999)
Best Paper Award, American Vacuum Society, Santa Fe, NM (2001)
Listed in Who's Who Among America's Teachers (2001-2003)
Joe J. King Professional Engineering Achievement Award, College of Engineering (2002)
Women in Engineering Advocate Award, The University of Texas at Austin - Women in Engineering Program (2008)
Distinguished Mechanical Engineer, Department of Mechanical Engineering, The University of Texas at Austin (2011)
Elected Society of Manufacturing Board of Directors, SME (2012-2014)
Nominated and Appointed US Army Science Board, US Army (2012)
Elected National Academy of Engineers (2013)
Freeform and Additive Manufacturing Excellence Award, SFF Conference, (2014)
Elected Fellow of the National Academy of Inventors, (2015)

OTHER PROFESSIONAL HIGHLIGHTS:

Invited participant on Japanese Technology Evaluation Center Panel Report on Rapid Prototyping in Japan and Europe (1996)
Reviewer for Journal of Manufacturing Science and Engineering, and Transactions of the American Society of Mechanical Engineers (January 1997-January 2000)
Listed in Naval Research Reviews, Profiles in Science, Office of Naval Research, Three/1998, Volume I, page 4 (January 1999)
Moderator for Session on Process Development and Research at the Rapid Prototyping and Manufacturing 1999 Conference and Exposition, Chicago, IL (April 21, 1999)
Selected for Final Site Visit for NSF Engineering Research Center Proposal submitted with Southern Methodist University and Rice University (February 2000)
Chair of World Technology Evaluation Center Panel on Additive/Subtractive Manufacturing.
NSF Council of Visitors for the Design and Manufacture Academic Programs of the Division of Design, Manufacture and Industrial Innovation of the Engineering Directorate of the National Science Foundation.
Served as invited External Reviewer for the Academic Assessment Process, Department of Mechanical Engineering, School of Engineering at the University of Connecticut. Invited by Karla Fox, Associate Vice Chancellor for University Affairs (Spring 2003)
Invited Chair of Expert Review Panel for the IMCRC at Loughborough University. Purpose was an in-depth review of the IMCRC by the Innovative Manufacturing and Construction Research Centre. (2007)
Invited Member, Global Summit on the Future of Mechanical Engineering, Washington, DC (2008)
Chair Evaluation Committee, EPSRC Center in Additive Manufacturing, Nottingham, UK, (2014)

MEMBERSHIPS IN PROFESSIONAL AND HONORARY SOCIETIES:

ASME International, American Society of Mechanical Engineers
SME, Society of Manufacturing Engineers
SME/RPA, Rapid Prototyping Association
ASEE, American Society for Engineering Education
ASM International, The Materials Information Society
SCS, Society for Computer Simulation
AAAS, American Association for the Advancement of Science
MRS, Materials Research Society
TMS, The Minerals, Metals & Materials Society

PROFESSIONAL SOCIETY AND MAJOR GOVERNMENTAL COMMITTEES:

ASME International, Dynamic Systems and Control Division Executive Committee, (1979-present)
Rapid Prototyping Association of Society of Manufacturing Engineers, (1998-present)

Rapid Prototyping Association of Society of Manufacturing Engineers, Advisory Board, (1998-2001)
RPA/SME, Rapid Prototyping Association of Society of Manufacturing Engineers, Executive Committee, (2000-2001)
ASME International, Mechanical Engineering Department Heads Committee, (2001-2011)
ASEE, American Society for Engineering Education, Department Heads Committee, (2002-2011)
National Science Foundation, Committee of Visitors for the Design and Manufacture Academic Programs of the Division of Design, Manufacture and Industrial Innovation of the Engineering Directorate of NSF, (2003)
World Technology Evaluation Center, WTEC Panel on Additive/Subtractive Manufacturing, (2003-2011)
Specialty Metals Processing Consortium, SMPC Technical Committee, (2005-present)
St. Andrew's School, Austin TX, Board of Trustees, (2007-present)
ASME International, Systems and Design Technical Group Leader, (2008-2011)
ASME International, TCOB Committee on Technology Policy, (2008-2011)
ASME International, Emerging Technology Committee, (2009-2012)
South Dakota School of Mines and Technology, Board of Regents External Review Committee, (October 2009)
ASME International, Leonardo da Vinci Award Committee, (2010-2012)
ASME International, Mechanical Engineering Department Heads Executive Committee, (2010-2012)
United States Army, Army Science Board, (January 2012-present)
Technical Editor for ASME Journal of Dynamic Systems Measurement and Control (2013 – present)

CONFERENCES ORGANIZED/CHAired:

A. Symposia and Conference Organizer

Local Organizer and Conference Host, Liquid Metals Processing Conference, Austin (Fall 2013)
Co-organizer, Solid Freeform Fabrication Symposium, Austin, TX (1989-present)
NSF/ASME Workshop on Research Needs for Control in Mechanical Systems, Seattle (June 1986)
Program Chair, Dynamic Systems Control Division, ASME (1984)

B. Session Chairman

Session Chair, ASME Dynamic Systems and Control Conference, Ann Arbor, MI (October 2008)
Session Chair, NSF Workshop Redefining Mechanical Engineering with Adnan Akay, Carnegie Mellon University (January 25-27, 2002)
Session Chair, Issues in Structured Physical Modeling, ACC (1987)

UNIVERSITY COMMITTEES:

The University of Texas at Austin, Budget Council, (1989-present)
The University of Texas at Austin, Manufacturing Systems Program Executive Committee, (1989-2005)
The University of Texas at Austin, College of Engineering representative to the Faculty Council, (1998-2000)
The University of Texas at Austin, Research Policy Committee of Faculty Council, (1999-2000)
The University of Texas at Austin, Advisory Panel, Center for Electromechanics, (2007-2012)
The University of Texas at Austin, Review Committee for the Institute for Electrochemistry, (2010)
The University of Texas at Austin, Rio Grande Valley Manufacturing Initiative, (March 2010-present)

SCHOOL COMMITTEES:

Cockrell School of Engineering, Faculty Salary Review Committee, (1989-2011)
College of Engineering, Promotion & Tenure Review Committee, (1997-1999)
College of Engineering, Strategic Plan, (1999-2000)
Cockrell School of Engineering, Reactor Oversight Committee, (2005-present)
Cockrell School of Engineering, IT Committee, (2006-2011)
Cockrell School of Engineering, Strategic Planning, (2008-2011)
The University of Texas at Austin, SBES Computational Cardiovascular Engineering Subcommittee, (2009-2011)

DEPARTMENT COMMITTEES:

Mechanical Engineering, Qualifying Exams for Mechanical Systems and Design, (1996-1999)

Mechanical Engineering, Strategic Planning Committee, (1998-present)
Department of Mechanical Engineering, Faculty Recruiting, (2000-2001)
Department of Mechanical Engineering, Assisted organization of University-wide initiative with Ford Motor Company resulting in 6 initiatives for the ME Department and responsible for managing grant funds totaling \$3,450,000, (Spring 2001)

PUBLICATIONS:

A. Refereed Archival Journals

1. Diller, T.T., M. Yaun, D.L. Bourell, J. Beaman, "Thermal model and measurements of polymer laser sintering", *Rapid Prototyping Journal*, 21#1, (2015), pp. 2-13.
2. Fish, S., J.C. Booth, S.T. Kubiak, W.W. Wroe, A.D. Bryant, D.R. Moser, J.J. Beaman, "Design and Subsystem Development, of a High Temperature Selective Laser Sintering Machine for Enhanced Process Monitoring and Control," *Additive Manufacturing*, Elsevier, December 2014.
3. F. Lopez, L. Zhang, A. Mok, J. Beaman. "Particle filtering on GPU architectures for manufacturing applications," (*submitted to Computers in Industry*)
4. Devaraj, V., F. Lopez, J. Beaman and S. Prudhomme. "Model-based control of a continuous coating line for Proton Exchange Membrane Fuel Cell Electrode Assembly," (submitted to *International Journal of Chemical Engineering*).
5. Beaman, J., F. Lopez, R. Williamson. "Modeling of the Vacuum Arc Remelting Process for Estimation and Control of the Liquid Pool Profile", *ASME Journal of Dynamic Systems, Measurements and Control*, May 2014, Vol. 136.
6. Yaun, M., T.J. Diller, D. Bourell, J. Beaman, "Thermal Conductivity of Polyamide 12 Powder for Use in Laser Sintering", *Rapid Prototyping Journal*, Vol. 19, No. 6, 2013, pp. 437-445.
7. Williamson, R.L., Beaman, J.J., "Modern Control Theory Applied to Remelting of Superalloys," *Materials Science Forum*, Vol. 706-709, 2012, pp. 2484-2489, (2012)
8. Silverman, T.J. Meyers, J.P. and Beaman, J.J., "Dynamic Thermal, Transport and Mechanical Model of Fuel Cell Membrane Swelling," *Fuel Cells*, Vol. 11, 2011, No. 6, pp. 875-887
9. Ahn, S., Beaman, J.J., Williamson, R.L., Melgaard, D.L. , "Electroslag remelting process using unscented Kalman filter," *Journal Of Dynamic Systems, Measurement, And Control*, Vol. 132, 2010, No. January 2010, pp. 011011-2 (9 pages)
10. Silverman, T.J., Meyers, J.P., Beaman, J.J., "Modeling Water Transport and Swelling in Polymer Electrolyte Membranes," *Journal Of The Electrochemical Society*, Vol. 157, 2010, No. 10, pp. B1376-B1381
11. Silverman, T.J., Meyers, J.P. and Beaman, J.J. , "Modeling Water Transport and Swelling in Polymer Electrolyte Membranes," *Journal of The Electrochemical Society*, Vol. 157, 2010, No. 10, pp. B1376-B1381
12. Stevinson, B., Bourell, D.L., Beaman, J.J., "Over-infiltration mechanisms in selective laser sintered Si/SiC preforms," *Rapid Prototyping Journal*, Vol. 14, 2008, No. 3, pp. 149-154
13. Stevinson, B., Bourell, D.L., Beaman, J.J., "Dimensional stability during post-processing of selective laser sintered ceramic preforms," *Virtual And Physical Prototyping*, Vol. 1, January 2007, No. 4, pp. 209-216
14. Evans, R.S., Bourell, D.L., Beaman, J.J., Campbell, M.I., "Rapid Manufacturing of Silicon Carbide Composites," *Rapid Prototyping Journal*, Vol. 11, 2005, No. 1, pp. 37-40
15. King, C.W., Campbell, M.I., Beaman, J.J., Sreenivasan, S.V., "Synthesis of Multistable Equilibrium Linkage Systems Using an Optimization Approach," *Structural And Multidisciplinary Optimization*, Vol. ISSN 1615-147X, 2005, pp.1615-1488
16. King, C.W., Campbell, M.I., Beaman, J.J., Sreenivasan, S.V., "Synthesis of Multistable Equilibrium Linkage System Using an Optimization Approach," *Structural And Multidisciplinary Optimization*, Vol. 158, 2004, pp. 1-26
17. King, C.W., Beaman, J.J., Sreenivasan, S.V., Campbell, M.I., "Multi-Stable Equilibrium System Design Methodology and Demonstration," *Journal Of Mechanical Design*, Vol. 126, 2004, No. 6, pp. 1036-1046
18. Williamson, R.L., Beaman, J.J., "A Demonstration of Melt Rate Control During VAR of "Cracked" Electrodes," *Journal of Materials Science*, Vol. 39, 2004, No. 24, pp. 7161-7168

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.