RUEL A. (TONY) OVERFELT
Professor of Mechanical Engineering
Materials Engineering Program
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Education

A.S.	Volunteer State Community College	1976	(Pre-engineering)
B.S.	Tennessee Technological University	1978	(Engineering Science)
M.S.	Vanderbilt University	1981	(Materials Science and Engineering)
Ph.D.	Vanderbilt University	1984	(Materials Science and Engineering)

University Experience

Vanderbilt University, Graduate Research Assistant, 1978-1981
Vanderbilt University, Research Assistant Professor, 1986-1991
Acting Director - NASA Center for the Space Processing of Engineering Materials, April 1990 - May 1991
Co-Director - NASA Center for the Space Processing of Engineering Materials, May 1991 - August 1991
Auburn University, Senior Research Fellow, August 1991-September 1997
Auburn University, Associate Professor of Mechanical Engineering, Sept. 97 – July 01
Auburn University, Director, NASA Solidification Design Center, 1997-2005
Auburn University, Professor of Mechanical Engineering, 2001 – present
Auburn University, Philpott-WestPoint Stevens Distinguished Professor of Mechanical Engineering, 2002 – 2005
Auburn University, Exec. Director, Air Transportation Center of Excellence on Airliner Cabin Environment Research, 2008 – 2015
Auburn University, William and Elizabeth Reed Distinguished Professor of Mechanical Engineering, 2011 – 2016
Auburn University, Director, Center for Industrialized Additive Manufacturing, 2016 – present

Industrial Experience

General Dynamics Corp, Fort Worth, TX,
Process Control Metallurgist, 1979-1980
General Electric Company, Electric Motor Business Group, Fort Wayne, IN
Metallurgical Engineer, 1981-1986
GE Edison Engineering Program Graduate
Graduate of the GE Advanced Course in Engineering: "A, B, and C" Courses (Appliance Park, Louisville, KY)

Teaching Experience

Vanderbilt University, 1980, Developed and taught ES 141: "Statics and Dynamics for Electrical Engineers"
Auburn University, Developed and taught MTL 663: "Solidification Processing" during spring quarters 1995, 1998, and 2000.
Auburn University, Developed and taught MTL 672 “Materials Failure Analysis” during winter quarter 1996.
Auburn University, Developed and taught MTL 537 “Manufacturing Processes and Materials” during winter quarters 1998-00.
Auburn University, Developed and taught MTL 220 “Materials and Properties - Intro. To Materials Engineering” during fall quarters 1998-1999.
Auburn University, Developed and taught MTL 436 “Engineering Materials Science – Ferrous Metallurgy” during spring quarter 1999.
Auburn University, Developed and taught MATL 7310: "Solidification Processing" during 2000 and 2008.
Auburn University, Developed and taught MATL 5500 “Transport Phenomena in Materials Processing” during spring 1996, 2001-2014.
Auburn University, Developed and taught MATL 7050 “Structure and Properties of Solids” during 1996-98, 2001-02.
Auburn University, Developed and taught MATL 5750 “Microstructure and Mechanics of Skeletal Tissues” (new course) during 2007.
Auburn University, Developed and taught MATL 3100 “Engineering Materials Metals” during 2000-2013.
Auburn University, Developed and taught MATL 3101 “Metallography Laboratory” during 2000-2013.
Auburn University, Developed and taught ENGR 1110 “Introduction to Engineering” during 2012-2013.
Auburn University, Developed and taught MECH5970 “Additive Manufacturing of Metals” during 2016, 2017.

Graduate Students Completed

Major Advisor: John Teubert, M.S. in Materials Science and Engineering, Vanderbilt University, 1989.
Major Advisor: Rong-Jiunn Su, Ph.D. in Materials Engineering, Auburn University, 1997 (I was the *defacto* advisor for Dr. Su, particularly after Professor Wartan Jemian retired).
Major Professor: Xiangdong Xuan, M.S. in Materials Engineering, 2000, Auburn University.
Major Professor: Michael Lewandowski, Ph.D. in Materials Engineering, 2000, Auburn University.
Major Professor: Ying Liu, M.S. in Materials Engineering, 2001, Auburn University.

Major Professor: Lichun Li, Ph.D. in Materials Engineering, 2002
Auburn University.
Major Professor: Sorin Teodorescu, Ph.D. in Materials Engineering, 2002
Auburn University.
Major Professor: Harry Whitesell, Ph.D. in Materials Engineering, 2002
Auburn University.
Major Professor: Amit Surywanshi, M.S. in Mechanical Engineering, 2003
Auburn University.
Major Professor: Johnathon Capps, M.S. in Mechanical Engineering, 2005,
Auburn University.
Major Professor: Baojian Guo, M.S. in Materials Engineering, 2006
Auburn University.
Major Professor: Rui Shao, M.S. in Materials Engineering, 2007
Auburn University.
Major Professor: Kyle Murphree, M.S. in Materials Engineering, 2008
Auburn University.
Major Professor: Kevin Ronan, M.S. in Materials Engineering, 2010
Auburn University.
Major Professor: Shih-feng Chou, Ph.D. in Materials Engineering, 2011
Auburn University.
Major Professor: John Andress, M.S. in Materials Engineering, 2012,
Auburn University.
Major Professor: Amanda Neer, M.S. in Materials Engineering, 2012,
Auburn University.
Major Professor: Chang Kyu Kang, Ph.D. in Materials Engineering, 2013,
Auburn University.
Major Professor: Amy Baldwin, M.S. in Materials Engineering, 2014,
Auburn University.
Major Professor: Matthew Roberts, M.S. in Materials Engineering, 2014,
Auburn University.
Major Professor: Mobahassarhassan Sk, Ph.D. in Materials Engineering, 2014,
Auburn University.
Major Professor: Bethany Brooks, M.S. in Materials Engineering, 2014,
Auburn University.

Graduate Student Committees

Graduate Committee Member: Collin Anderson, M.S. in Materials Science and Engineering, Vanderbilt University, 1987.
Graduate Committee Member: Clark Rushing, M.S. in Mechanical Engineering, Vanderbilt University, 1991.
Graduate Committee Member: David Fly, M.Mf.E. in Manufacturing Systems Engineering, Auburn University, 1994.
Outside Reader: Allamprabher N. Gubbi, Ph.D. in Materials Engineering, Auburn University, 1994.
Outside Reader: Chin-An Wang, Ph.D. in Materials Engineering, Auburn

University, 1994.
Graduate Committee Member: Shashikiran Reddy, M.S. in Industrial Engineering, Auburn University, 1996.
Graduate Committee Member: Dexter Hardy, M.S. in Materials Engineering, Auburn University, 1998.
Graduate Committee Member: Ram Krishnamurthy, M.S. in Industrial Engineering, Auburn University, 1998.
Graduate Committee Member: Sean Reynolds, M.S. in Materials Engineering, Auburn University, 1998.
Graduate Committee Member: Andy Hodge, M.S. in Materials Engineering, Auburn University, 1998.
Graduate Committee Member: Qing Zhang, M.S. in Materials Engineering, Auburn University, 1998.
Graduate Committee Member: Zhigang Xiao, Ph.D. in Materials Engineering, Auburn University, 1999.
Graduate Committee Member: Bogdan Ciorcirlan, Ph.D. in Mechanical Engineering, Auburn University, 2000.
Outside Reader: Steve L. Hunter, Ph.D. in Industrial and Systems Engineering, 2000, Auburn University.
Graduate Committee Member: Weiming He, M.S. in Materials Engineering, Auburn University, 2000.
Graduate Committee Member: Wilson Pritchard, Ph.D. in Biomedical Science, Auburn University, 2001.
Graduate Committee Member: Fang Fang Zhou, MME. in Materials Engineering, Auburn University, 2001.
Graduate Committee Member: Nathaniel Hudson, M.S. in Mechanical Engineering, Auburn University, 2001.
Graduate Committee Member: Rick Williams, Ph.D. in Mechanical Engineering, Auburn University, 2002.
Graduate Committee Member: Seshagirirao Sattiraju, Ph..D. in Materials Engineering, Auburn University, 2002.
Graduate Committee Member: Prasanna Kulkarni, Ph.D. in Materials Engineering, Auburn University, 2002.
Graduate Committee Member: Mark Borowiscz, Ph.D. in Materials Engineering, Auburn University, 2002.
Graduate Committee Member: Lewis Payton, Ph.D. in Industrial and Systems Engineering, Auburn University, 2002.
Graduate Committee Member: Ranjit David, M.S. in Industrial and Systems Engineering, Auburn University, 2002.
Outside Reader: Maria Charina, Ph.D. in Mathematics, Auburn University, 2002.
Graduate Committee Member: Tao Zhou, Ph.D. in Materials Engineering, Auburn University, 2002.
Graduate Committee Member: Kenny Wall, M.S. in Mechanical Engineering, Auburn University, 2003.
Graduate Committee Member: Michael Malesky, M.S. in Mechanical Engineering, Auburn University, 2003.
Graduate Committee Member: Rohan Bhat, M.S. in Mechanical Engineering,

Auburn University, 2004.
Graduate Committee Member: Mihai Dupac, Ph.D. in Mechanical Engineering, Auburn University, 2005.
Graduate Committee Member: Nikhil Mehta, M.S. in Materials Engineering, Auburn University, 2005.
Graduate Committee Member: Ajay Roy, M.S. in Industrial and Systems Engineering, Auburn University, 2005.
Graduate Committee Member: Xuejun Liu, Ph.D. in Mechanical Engineering, Auburn University, 2005.
Graduate Committee Member: Courtney Guasti, M.S. in Materials Engineering, Auburn University, 2006.
Graduate Committee Member: Rajesh Kitey, Ph.D. in Mechanical Engineering, Auburn University, 2006.
Graduate Committee Member: Bo Zhou, Ph.D. in Materials Engineering, Auburn University, 2010.
Graduate Committee Member: Shakib Morshed, Ph.D. in Materials Engineering, Auburn University, 2010.
Graduate Committee Member: Chang Lin, Ph.D. in Mechanical Engineering, Auburn University, 2010.
Graduate Committee Member: Yifei Zhang, Ph.D. in Mechanical Engineering, Auburn University, 2010.
Graduate Committee Member: Lance Haney, Ph.D. in Materials Engineering, Auburn University, 2011.
Graduate Committee Member: Allen Craven, M.S. in Mechanical Engineering, Auburn University, 2011.
Graduate Committee Member: Chandru Periasamy, M.S. in Mechanical Engineering, Auburn University, 2012.
Graduate Committee Member: Sabrina Wahid, Ph.D. in Chemical Engineering, Auburn University, 2014.
Graduate Committee Member: Qiang Gu, Ph.D. in Chemical Engineering, Auburn University, 2014.
Graduate Committee Member: Naved Siddiqui, Ph.D. in Materials Engineering, Auburn University, 2014.

Graduate Students In Progress

Major Professor: Bethany Brooks, currently pursuing a M.S. in Materials Engineering, expected graduation in May 2014, Auburn University.

Postdoctoral Student Direction

Dr. Vivek Sahai (1993-1996): performed research in the utilization of computational models to understand solidification of nickel-base superalloys.
Dr. Shao-feng Chen (1995-1997): performed research into electromagnetic levitation of molten metals.
Dr. Probal Banerjee (1995-1998): performed metallurgical research in the solidification of nickel-base superalloys.

Dr. Deming Wang (1998-2001): investigated the application of computational models to directional solidification experiments and thermophysical property measurement technology for earth and space measurements

Professional Activities

Society Memberships and Committee Activities

American Society of Mechanical Engineers (1995 – present)
ASME Crew Systems Technical Committee (2010- 2014)
ASME K7 Committee on Thermophysical Properties (1997-2005)
SAE AS6263 Aircraft Quality Bleed Air Committee (2011 – 2014)
American Welding Society (2009 –2011)
American Foundry Society (1984 - 2008)
IUPAC Fellow (International Union of Pure and Applied Chemistry) 2006-present
NASA Space Station Utilization Advisory Subcommittee, SSUAS (2001-2004)
NASA Commerical Advisory Subcommittee, CAS (2001-2004)
AFS Process Design and Modeling Subcommittee (1991-2003)
AIAA Space Processing Technical Subcommittee (1990-1992)

University Activities

Advisor to the Materials Engineering Student Organization -
Auburn Materials Society (1997-2002)
Faculty organizer for Materials Engineering E-day Activities (1997-2002)
University Instrumentation Committee (1997-2000)
Mechanical Engineering Departmental Resource Committee (1997-2000)
College of Engineering T&P Committee (2006-2014)
Auburn University T&P Committee (2015-present)
Provost's Writing Initiative Task Force, 2008
Auburn University Writing Committee (2009 – 2011)
OVPR Core Facilities Advisory Committee (Chair, 2013-2014)
University e-Portfolio Grants and Awards Subcommittee (2013-2014)

Conference Organization Activities

Organizer and co-chair of the NASA Workshop on the Thermophysical Properties of Molten Materials held Oct. 22 and 23, 1992 in Cleveland, OH
Co-chair of the Heat Transfer Symposium, Engineering Division, AFS Casting Congress, Chicago, IL, April 1993
Organizer and chair of the 2nd Workshop on the Thermophysical Properties of Molten Materials held June 19-20, 1994 in conjunction with the Twelth Symposium on Thermophysical Properties in Boulder, CO.
Co-chair of the Heat Transfer Symposium, Engineering Division, AFS Casting Congress, Kansas City, MO, April 1995.

Co-chair of the Heat Transfer Symposium, Engineering Division, AFS Casting Congress, Philadelphia, PA, April 1996.
Co-organizer and co-chair of Space Processing Session of the Space Technologies and Applications International Forum to be held in January 1997, in Albuquerque, NM.
Co-chair of the Heat Transfer Symposium, Engineering Division, AFS Casting Congress, Seattle, WA, April 1997.
Co-organizer and co-chair of the Thirteenth Symposium on Thermophysical Properties, June 1997, in Boulder, CO.
Session Chair, 24th International Thermal Conductivity Conference, Pittsburgh, PA, October 1997.
Session Chair of the Heat Transfer Symposium, Engineering Division, AFS Casting Congress, Atlanta, GA, April 1998.
Session Chair of the Process Modeling Symposium, Engineering Division, AFS Casting Congress, St. Louis, MO, March 1999.
Session Chair of the Process Modeling Symposium, Engineering Division, AFS Casting Congress, Pittsburgh, PA, April 2000.
Session Co-chair of the Materials Processing Session, Southeastern Conference On Theoretical and Applied Mechanics - SECTAM XX, April 18, 2000, Callaway Gardens, GA
Co-organizer and co-chair of the Fourteenth Symposium on Thermophysical Properties, June 2000, in Boulder, CO.
Session Chair of the Process Modeling Symposium, Engineering Division, AFS Casting Congress, Milwaukee, WI, April 2003.
Co-organizer and co-chair of the Properties for Metallurgical Process Design, Fifteenth Symposium on Thermophysical Properties, June 2003, in Boulder, CO.
Session Chair of the Airliner Cabin Environment Session, 40th International Conference on Environmental Systems, Barcelona, Spain, July 11-15, 2010.
Session Chair of the Airliner Cabin Environment Session, 41st International Conference on Environmental Systems, Portland, OR, July 11-17, 2011.
Session Chair of the Airliner Cabin Environment Session, 42nd International Conference on Environmental Systems, San Diego, CA, July 15-19, 2012.
Session Chair of the Airliner Cabin Environment Session, 43nd International Conference on Environmental Systems, Vail, CO, July 14-18, 2013.

Reviewer for Papers, Articles, Proposals

Member of the Editorial Review Board, Metallurgical & Materials Transactions B (2000-2007)
North American Regional Editor, High Temperatures - High Pressures (2007 – 2008)
Metallurgical and Materials Transactions, A
Materials Science and Engineering
Measurement Science and Technology

International Journal of Thermophysics
ASME Heat Transfer Division Conference Proceedings
Transactions, American Foundrymen's Society
NASA Office of Space Access and Technology, NASA SBIR Proposals
Auburn University Internal Proposal Review Committees:
NSF MRI Proposal Review Committee, 2003
NSF NIRT, 2004
NASA EPSCoR, 2007

Honorary Societies and Awards

Materials Engineering Outstanding Faculty of the Year Award:
2003, 2008, 2010, 2013, 2015
Philpott-WestPoint Stevens Distinguished Professorship in Engineering,
Auburn University, 2002 – 2005
William and Elizabeth Reed Distinguished Professorship in Engineering,
Auburn University, 2011 - 2016
AFS Engineering Division's Best Paper during 2000: "Thermophysical Properties of A356 Aluminum, Class 40 Gray Iron, and CF8M Stainless Steel," R. Overfelt, S.I. Bakhtiyarov and R.E. Taylor, AFS Transactions, Vol. 108 (2000) pp. 369-376.
AFS Investment Casting Division's Best Paper during 1995: "Contact Conductance Simulation for Alloy 718 Investment Castings of Various Geometries," V. Sahai and R. Overfelt, AFS Transactions., Vol. 95 (1995) pp. 627-632.

Tau Beta Pi Phi Kappa Phi
Alpha Sigma Mu Sigma Xi
Who's Who in American Colleges and Universities, 1977-1978
Outstanding Young Men in America, 1983

Personal Data

Married to Katherine A. Overfelt since 1979
Two daughters: Jennifer Lynn (b. 1983) and Melissa Leigh (b. 1984)
Active member of Church of the Highlands, Auburn, AL (2007-present)
Taught 2nd grade Sunday school class at Lakeview Baptist Chruch,
Auburn, AL (1994-1999, 2001-2006);
Board member and volunteer counselor at Mercy Medical outreach clinic
(2003-2014)
Hobbies: Tae Kwon Do karate, motorcycling, home improvement projects;
Founded the Auburn Martial Arts Fellowship (2000-2011) to teach 2 classes/week of karate free of charge to home-schoolers and disadvantaged children
Co-authored with wife: No Thanks - I'll Sell It Myself, a popular book on how to sell your house without a real estate agent published nationally by AVON Press, New York, NY in 1991.

Appointed by the Auburn, AL City Council to the Water Works Board
(Auburn, AL), appointment effective 2002-2012.
Vice-Chairman, 2008-2009; Chairman, 2010-2012
Appointed by the Waverly, AL Town Council to the Board of Zoning Adjustment,
appointment effective 2014-present

Past and Current Sponsored Research Projects

1. "Center for the Space Processing of Engineering Materials," NASA Office of Commercial Programs, 1991, Vanderbilt University, Grant NAGW-810, Principal Investigator, 12 months, $920,000.

2. "Solar Furnace Satellite-Solidification Design," NASA Office of Commercial Programs through the Auburn Center for the Commercial Development of Space Power and Advanced Electronics, 1992, Grant NAGW-1192, Principal Investigator, 12 months, $470,000.

3. "Industrial membership in the NASA Center," Howmet Corporation, 1992, Principal Investigator, 36 months, $45,000.

4. "Solidification Design," NASA Office of Commercial Programs through the Auburn Center for the Commercial Development of Space Power and Advanced Electronics, 1993, Grant NAGW-1192, Principal Investigator, 12 months, $350,000.

5. "Microstructural Modeling and Thermophysical Properties of Nickel Base Superalloys," ARPA through Howmet Corp., 1993, Principal Investigator, 24 months, $434,000.

6. "Solidification Design," NASA Office of Commercial Programs through the Auburn Center for the Commercial Development of Space Power and Advanced Electronics, 1994, Grant NAGW-1192, Principal Investigator, 12 months, $250,000.

7. "Porosity Criteria Functions for Nickel-Based Superalloys," Defense Experimental Program to Stimulate Competitive Research (DEPSCoR), ARPA, 1994, Principal Investigator, 36 months, $525,317.

8. "Industrial membership in the NASA Center," Howmet Corporation, 1995, Principal Investigator, 24 months, $30,000.

9. "Solidification Design/CASTNET," NASA Office of Space Access and Technology, 1995, Principal Investigator, 12 months, $500,000.

10. "Deformation of Ceramic Cores During Manufacturing," NASA Office of Space Access and Technology through Howmet Corporation, 1995, Principal Investigator, 24 months, $104,000.

11. "Manufacturing Processes for Air-Blown Cores," NASA Office of Space Access and Technology through Ford Motor Company, 1995, Principal Investigator, 24 months, $100,000.

12. "Flight Hardware Augmentation," NASA Office of Space Access and Technology, 1995, Principal Investigator, 12 months, $100,000.

13. "Process Modeling of High-Integrity AlBeMet Investment Castings," Brush-Wellman Inc., Principal Investigator, 1995, 12 months, $54,255.

14. "Solidification Design/CASTNET," NASA Office of Space Access & Technology, 1996, Principal Investigator, 12 months, $525,000.

15. “Rene’ 108 Defect Map Study,” General Electric Power Systems, Principal Investigator, 1996, 2 months, $22,000.

16. “Thermophysical Properties of Ductile Iron,” Knight+Packer, Inc., 1995, Principal Investigator, 2 months, $15,000.

17. "Flight Hardware Augmentation," NASA Office of Space Access and Technology, 1996, Principal Investigator, 12 months, $400,000.

18. "Interdendritic Fluid Flow Effects on Single Crystal Grain Defects," ARPA/DSO through Alabama DEPSCoR, Principal Investigator, 1996, 36 months, $322,152.

19. "Solidification Design/CASTNET," NASA Office of Space Access & Technology, 1997, Principal Investigator, 12 months, $470,000.

20. "A Proposal to Determine Integrated Thermophysical Property Data Sets of Selected Ferrous and Non-ferrous Casting Alloys," American Foundrymen's Society, Principal Investigator, 1997, 36 months, $60,000.

21. "Industrial membership in the NASA Center," Anter Corporation, Principal Investigator, 1997, 36 months, $15,000.

22. " Solidification Design/CASTNET," NASA Office of Life and Microgravity Science and Applications, 1998, Principal Investigator, 12 months, $1,000,000.

23. “Thermophysical Properties of Rene’ 88 Alloy,” Teledyne Allvac., 1998, Principal Investigator, 2 months, $15,000.

24. "Solidification Design/CASTNET," NASA Office of Life and Microgravity Science and Applications, 1999, Principal Investigator, 12 months, $1,277,000.

25. Gift to support aluminum solidification research at Auburn University, " Alcoa, Principal Investigator, 1998, 12 months, $20,000.

26. “Gift to support metal casting research at Auburn University,” Citation Corp., 1999, 12 months, $20,000

27. Gift to support aluminum solidification research at Auburn University, " Alcoa, Principal Investigator, 1999, 12 months, $20,000.

28. "Solidification Design/CASTNET," NASA Office of Life and Microgravity Science and Applications, 2000, Principal Investigator, 12 months, $2,900,000.

29. Gift to support aluminum solidification research at Auburn University, " Alcoa, Principal Investigator, 2000, 12 months, $24,000.

30. "Thermophysical Properties of Mg Alloys," CANMET, 2000, Co- Investigator, 12 months, $10,000.

31. "Solidification Design/CASTNET," NASA Office of Life and Microgravity Science and Applications, 2001, Principal Investigator, 12 months, $2,400,000.

32. "Solidification Design/CASTNET," NASA Office of Life and Microgravity Science and Applications, 2002, Principal Investigator, 12 months, $1,750,000.

33. "Solidification Design/CASTNET," NASA Office of Life and Microgravity Science and Applications, 2003, Principal Investigator, 12 months, $1,750,000.

34. "Solidification Design/CASTNET," NASA Office of Life and Microgravity Science and Applications, 2004, Principal Investigator, 12 months, $2,060,000.

35. “Bioeffects of Precision Electrical Shocks to Peripheral Nerves,” 2005, Marine Corps Systems Command, Quantico, VA, 36 months, $150,000

36. "Thermophysical Properties of Cast Iron Alloys," Catepillar, 2006, Principal Investigator, 3 months, $6,614.

37. "Thermophysical Properties of Copper Alloys," Hughes Christensen R&D, 2006, Principal Investigator, 3 months, $39,979.

38. "Plastic Deformation and Stability of Cylindrical Shells," ACIPCO, Birmingham, AL, 2006, Principal Investigator, 12 months, $19,999.

39. "Cooperative Agreement for the National Air Transportation Center of Excellence for Research in the Intermodal Transport Environment," FAA Office of Aerospace Medicine, 2008.

40. “Chemical Sensors for Cabin Air Quality,” FAA Office of Aerospace Medicine, 2009, 18 months, $250,000.

41. “Sensors and Prognostics to Mitigate Bleed Air Contamination Events,” FAA Office

of Aerospace Medicine, 2010, 18 months, $351,240.

42. “Hazard Analysis and Critical Control Point Methodology applied to Disease Transmission,” FAA Office of Aerospace Medicine, 2010, 18 months, $294,665.

43. “Hazard Analysis and Critical Control Point Methodology applied to Disease Transmission – Phase II,” FAA Office of Aerospace Medicine, 2011, 38 months, $217,362.

44. “Hazard Analysis and Critical Control Point Methodology applied to Disease Transmission – Phase III,” FAA Office of Aerospace Medicine, 2011, 38 months, $213,723.

45. “Sensors and Prognostics to Mitigate Bleed Air Contamination Events – Phase II,” FAA Office of Aerospace Medicine, 2011, 38 months, $384,683.

46. “Development of a Plan for a Study of Bleed Air Quality in Aircraft Cabins,” FAA Office of Aerospace Medicine, 2012, 13 months, $109,076.

47. “Sensors and Prognostics to Mitigate Bleed Air Contamination Events – Phase III,” FAA Office of Aerospace Medicine, 2012, 30 months, $388,484.

48. “Sensors and Prognostics to Mitigate Bleed Air Contamination Events – Phase IV,” FAA Office of Aerospace Medicine, 2013, 16 months, $175,000 and $65,691.

Current Sponsored Research Projects

1. “Selective Laser Melting Process Characterization,” NASA MSFC, 2015-2016, 18 months, $50,000.

2. “Development of Industrialized Additive Manufacturing Technologies for Small Manufacturers,” NIST, 2016 - 2019, 36 months, $1,500,000.

Theses/Dissertations

1. "The Effects of Aluminum Oxide on the Friction Behavior of Four Aluminum Auto Body Sheet Alloys," Master of Science; May, 1981. Supervisor: James J. Wert.

2. "Rapidly Solidified Alloys of Iron-Rare Earth-Boron for Permanent Magnets," Doctor of Philosophy; December, 1984. Supervisor: William F. Flanagan.

Refereed Publications: Archival Journals, Books, and Transactions

1. "Influence of Thermal Oxide on the Friction Behavior of Aluminum Auto Body

Sheet Alloys," R.A. Overfelt, J.J. Wert and W.H. Hunt, Jr., ASLE Transactions, 24(1981), pp. 175-185.

2. "Thermal Effects of Substitution of Cobalt for Iron in $Fe_{76}Pr_{16}B_8$," R.A. Overfelt and J.J. Becker, Applied Physics Letters, 44(1984)No. 9, pp. 925-926.

3. "Surface Effects on the Coercive Force of Rapidly Solidified Fe-Pr-B Alloys," J.J. Becker and R.A. Overfelt, IEEE Transactions on Magnetics, MAG-20(1984), pp. 1596-1598.

4. "Plasma Sprayed $Fe_{76}Nd_{16}B_8$ Permanent Magnets," R.A. Overfelt, C.D. Anderson and W.F. Flanagan, Applied Physics Letters, 49(1986)No. 26, pp. 1799-1801.

5. "Electromagnetic Deceleration of Metallic Spheres," R.A. Overfelt, IEEE Transactions on Magnetics, Vol. 27, No. 6, November 1991, pp. 4400-4404.

6. "Microstructural and magnetic characterization of rapidly solidified and annealed Pt-Co-B alloys," N. Qiu, J.A. Teubert, R.A. Overfelt and Jim Wittig. J. Appl. Physics , 70 (1991) No. 10, pp. 6137-6139.

7. "Solar Furnace Satellite for Large Diameter Crystal Growth in Space," T. Overfelt, M. Wells, and J. Blake, Journal of Spacecraft and Rockets, Vol. 30, No. 1, January-February, 1993, pp. 87-91.

8. "Solidification Map of Directionally Solidified Inconel 718," C.A. Matlock, J.M. Merrill, B.C. Ambrose, R.C. Wilcox and R.A. Overfelt, Microstructural Science, Vol. 21, 1994, C.R. Brooks and M.R. Louthan, Eds. (ASM, Metals Park, OH), pp. 51-60.

9. "A Note on the Sensitivity of Solidification Models to Thermophysical Properties," Tony Overfelt, Metallurgical Transactions: B, 25B, February 1994, pp. 154-167.

10. "Comparison of Theory with Experiment in 1-D Analytical Modeling of Directional Solidification," R.A. Overfelt, C.A. Matlock and R.C. Wilcox, Journal of Crystal Growth, Vol. 147 (1995) pp. 403-407.

11. "Contact Conductance Simulation for Alloy 718 Investment Castings of Various Geometries," V. Sahai and R.A. Overfelt, AFS Transactions., Vol. 95 (1995) pp. 627-632.

12. "Viscosity of Superalloy 718 by the Oscillating Vessel Technique," R.A. Overfelt, C.A. Matlock and M.E. Wells, Metallurgical and Materials Transactions: B, Vol 27B (1996) pp. 698-701.

13. “Study of Cohesive Flow in Fluidized Foundry Sands,” Sayavur Bakhtiyarov and Ruel A. Overfelt, AFS Transactions., Vol. 96 (1996) pp. 705-708.

14. "Transient Effects in the Directional Solidification of Al-Cu Alloys," R.-J. Su, W. A. Jemian and R.A. Overfelt, J. Cryst. Growth, Vol. 179 (1997) pp. 625-634.

15. "Study of Rheological Properties of Isocure LF-305/904 G Binder System," Sayavur Bakhtiyarov and Ruel A. Overfelt, Journal of Elastomers and Plastics, Vol 29, No. 4 (1997) pp. 314-325.

16. "Porosity Patterns in Aluminum A356 Bar and Plate Castings and their Relation to Riser Design," J. T. Berry and R. P. Taylor and R.A. Overfelt, AFS Transactions., Vol. 97 (1997) pp. 465-471.

17. "Rheological Study of Phenolic-Urethane-Amine Process," Sayavur Bakhtiyarov and Ruel A. Overfelt, Journal of Elastomers and Plastics, Vol 30, No. 1 (1998) pp. 11-27.

18. "Rheological and Thermal Characteristics of Technikure Binder System Used in Core-box Process," Sayavur Bakhtiyarov and Ruel A. Overfelt, Journal of Elastomers and Plastics, Vol 30, No. 4 (1998) pp. 328-339.

19. "Fluidized Bed Viscosity Measurements in Reduced Gravity," Sayavur I. Bakhtiyarov and Ruel A. Overfelt, Powder Technology, Vol. 99/1, 1 Sept 1998, pp. 53-59.

20. "In-situ Monitoring of the Sintering Behavior of Microcomposite Particles using Laser Scanning Micrometry," Z. Chen, S-F. Chen, R.A. Overfelt and M.F. Rose, Journal of Materials Research, Vol. 13, No. 8 (1998) pp. 2202-2205.

21. "Microstructural and Compositional Transients During Accelerated Directional Solidification of Al-4.5 wt. % Cu," R.-J. Su, R.A. Overfelt and W. A. Jemian, Metallurgical and Materials Transactions, 29A, Sept. 1998, pp. 2375-2381.

22. "Dynamics and Fuzzy Control of a Levitated Particle," B.O Ciocirlan, D.B.Marghitu, D.G. Beale and R.A. Overfelt, Nonlinear Dynamics, Vol. 17 (1998) pp. 61-76.

23. "The Effect of Sample Size on Surface Tension Measurements of Nickel in Reduced Gravity Parabolic Flights," Shao-feng Chen and Tony Overfelt, International Journal of Thermophysics., Vol. 19, No. 3 (1998) pp. 817-826.

24. "Three Zone Liquid Metals Solidification Model," Sayavur I. Bakhtiyarov and Ruel A. Overfelt, J. Materials Science Letters, 17 (1998) 2029-2031.

25. "Electrical Conductivity Measurements in Liquid Metals by Rotational Technique," Sayavur I. Bakhtiyarov and Ruel A. Overfelt, J. Materials Science., Vol. 34 (1999) pp. 945-949.

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60. "Thermophysical Properties of A356 Aluminum, Class 40 Gray Iron, and CF8M Stainless Steel," R.A. Overfelt, R.E. Taylor, and S.I. Bakhtiyarov, presented at the 104th AFS Casting Congress, Pittsburgh, PA, April 8, 2000.

61. "Advances in Countergravity Casting Lost Foam Casting Process," Sayavur I. Bakhtiyarov, Ruel A. Overfelt, and Al Alagarsamy, presented at the 104th AFS Casting Congress, Pittsburgh, PA, April 10, 2000.

62. "Local Velocity Measurements in Liquid Metals by Permanent Magnet Potential Probe," S.I. Bakhtiyarov, R.A. Overfelt, S. Teodorescu, presented at the Southeastern Conference On Theoretical and Applied Mechanics - SECTAM XX, April 17, 2000, Callaway Gardens, GA.

63. "Heat Transfer Simulation in Directional Solidification," D. Wang and R.A. Overfelt, presented at the Southeastern Conference On Theoretical and Applied Mechanics - SECTAM XX, April 18, 2000, Callaway Gardens, GA.

64. "Microstructure and Segregation of Directionally Solidified Superalloy PWA 1484," L. Li, H.S. Whitesell, and R.A. Overfelt, presented at the Southeastern Conference On Theoretical and Applied Mechanics - SECTAM XX, April 17, 2000, Callaway Gardens, GA.

65. "Study of Molten Metal – Polymeric Foam Interface Dynamics in Countergravity Casting Process," S.I. Bakhtiyarov, R.A. Overfelt, A. Alagarsamy, and B. Vatakhah, presented at the Southeastern Conference On Theoretical and Applied Mechanics - SECTAM XX, April 17, 2000, Callaway Gardens, GA.

66. "Advances in Countergravity Lost Foam Casting Process," S.I. Bakhtiyarov, R.A. Overfelt, A. Alagarsamy, and B. Vatakhah, presented at the Southeastern Conference On Theoretical and Applied Mechanics - SECTAM XX, April 17, 2000, Callaway Gardens, GA.

67. "Oscillating Cup Viscosity Measurements of Aluminum Alloys: A356 and A319," D. Wang and R.A. Overfelt, , presented at the Fourteenth Symposium on Thermophysical Properties, Boulder, CO, June 25-30, 2000.

68. "Contactless Inductive Technique for Electrical Conductivity Measurements on Molten Metals," S.I. Bakhtiyarov, R.A. Overfelt, and S. Teodorescu, presented at the Fourteenth Symposium on Thermophysical Properties, Boulder, CO, June 25-30, 2000.

69. "Thermoviscoelastic Properties of Phenolic Resin/Polymeric Isocyanate Binders System," S.I. Bakhtiyarov and R.A. Overfelt, presented at the Fourteenth Symposium on Thermophysical Properties, Boulder, CO, June 25-30, 2000.

70. "Finite Element Analysis and Fuzzy Logic Control of a Levitated Droplet," D.G. Beale, B.O. Ciocirlan, D.B. Marghitu, R.A. Overfelt, paper presented at the 2000 ASME International Design Engineering and the 20th Computer and Information in Engineering Conference, Sept. 10-13, 2000, Baltimore, MD.

71. "Experimental Study of Multiphase Flow in Cold Box Core Process," S.I. Bakhtiyarov and R.A. Overfelt, presented at the 2000 ASME International Mechanical Engineering Congress, Nov. 5-10, 2000, Orlando, FL.

72. "Measurements of Decomposed EPS Gas Pressure and Molten Metal/Polymeric Foam Interface Velocity during Lost Foam Casting Process – Part I: Disconnect Casting" S.I. Bakhtiyarov and R.A. Overfelt, presented at the 2000 ASME International Mechanical Engineering Congress, Nov. 5-10, 2000, Orlando, FL.

73. "Measurements of Decomposed EPS Gas Pressure and Molten Metal/Polymeric Foam Interface Velocity during Lost Foam Casting Process – Part II: Rectangular Bars Casting" S.I. Bakhtiyarov and R.A. Overfelt, presented at the 2000 ASME International Mechanical Engineering Congress, Nov. 5-10, 2000, Orlando, FL.

74. "Electromagnetic Levitator at Space Power Institute, Auburn University" B.O. Ciorcirlan, D.G. Beale, D.B. Marghitu, R.A. Overfelt, presented at the 2000 ASME International Mechanical Engineering Congress, Nov. 5-10, 2000, Orlando, FL.

75. "Experimental and Numerical Study of Sand Core Molding Process," Sayavur I. Bakhtiyarov and Ruel A. Overfelt, presentation at the 105th Casting Congress, Dallas, TX, April 28 – May 1, 2001.

76. "Measurements of Decomposed EPS Gases Pressure and Molten Metal-Polymeric Foam Interface Velocity during Countergravity Lost Foam Casting," Sayavur I. Bakhtiyarov, Ruel A. Overfelt, and Al Alagarsamy, presentation at the 105th Casting Congress, Dallas, TX, April 28 – May 1, 2001.

77. "Vulcan-TP: Industrial Thermophysical Property Measurements in Space," R. Overfelt, M. Crumpler, H. Cobb, R. Langley, B. Strom, and R. Williams, presented at the International Space Station Utilization 2001 Conference, September 2001.

78. "Electromagnetic Levitation Melting Technique: History and Future (Thermophysical Properties Measurements under Microgravity Conditions)", S. I. Bakhtiyarov, R. A. Overfelt and D. Wang, presented at the Microgravity Transport Processes in Fluid, Thermal, Biological and Materials Sciences II Conference in Banff, Alberta, Canada, September 30 – October 5, 2001, UEF: MTP-01-02.

79. "Numerical Simulation of Molten Metal-Polymeric Foam Interface Velocity During Lost Foam Casting", S. I. Bakhtiyarov and R. A. Overfelt, presented at the Symposium on Rheology and Fluid Mechanics of Nonlinear Materials, ASME International Mechanical Engineering Congress and Exposition, New York, NY, Nov. 2001.

80. "Numerical Study of Mold Filling Dynamics in "Cold-Box" Sand Coremaking Process", S. I. Bakhtiyarov and R. A. Overfelt, presented at the Symposium on Rheology and Fluid Mechanics of Nonlinear Materials, ASME International Mechanical Engineering Congress and Exposition, New York, NY, Nov. 2001.

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Process", Y. Liu, S. I. Bakhtiyarov and R. A. Overfelt, presented at the Symposium on Rheology and Fluid Mechanics of Nonlinear Materials, ASME International Mechanical Engineering Congress and Exposition, New York, NY, Nov. 2001.

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83. "Numerical Simulations of Fluid Flow During Electromagnetic Stirring of Metals," S. G. Teodorescu, M. Dupac, S. I. Bakhtiyarov and R. A. Overfelt, presented at the Symposium on Rheology and Fluid Mechanics of Nonlinear Materials, ASME International Mechanical Engineering Congress and Exposition, New York, NY, Nov. 2001.

84. "Fluid Flow Effect in Electrical Conductivity Measurements of Molten Metals by Inductive Technique," S.I. Bakhtiyarov, M. Dupac, R.A. Overfelt and S.G. Teodorescu, presented at the ASME 2002 Fluids Engineering Division Summer Meeting, July 14-18, 2002, Montreal, Quebec.

85. "Numerical Simulation and Experimental Study of Heat and Mass Transfer Phenomena in Vacuum-Sealed Casting Process," S.I. Bakhtiyarov and R.A. Overfelt, presented at the ASME 2002 Fluids Engineering Division Summer Meeting, July 14-18, 2002, Montreal, Quebec.

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87. "Thermophysical Properties of A201 Aluminum, Ductile Iron and Sebiloy II," Ruel A. Overfelt, Sayavur I. Bakhtiyarov, and Ray E. Taylor, presented at the 106th AFS Casting Congress, Kansas City, MO, May 6, 2002.

88. "Experimental and Numerical Study of Bonded Sand/Air Two-Phase Flow in PUA Process," Sayavur I. Bakhtiyarov and Ruel A. Overfelt, presented at the 106th AFS Casting Congress, Kansas City, MO, May 6, 2002.

89. "Electrical Resistivity and Thermal Conductivity of Magnesium Alloy AE42," Sayavur I. Bakhtiyarov and Ruel A. Overfelt, presented at the 106th AFS Casting Congress, Kansas City, MO, May 7, 2002.

90. "Thermophysical Properties of Magnesium Alloys AE42, AJ52X, and AM60B" Y. Fasoyinu, J. Barry, M. Sahoo, P. Labelle, D. Wang and R. Overfelt, presented at the 107th Casting Congress, April 26-29, 2003, Milwaukee, WI, Paper No. 03-098.

91. "Numerical Simulations and Experimental Study of Gassing Cycle in Cold Box Sand

Coremaking Process," by S. Bakhtiyarov and R. Overfelt, , presented at the 107th Casting Congress, April 26-29, 2003, Milwaukee, WI, Paper No. 03-066.

92. "Electrical Resistivity and Thermal Conductivity of Magnesium Alloy AZ91E by Contactless Measurement Technique," by S. Bakhtiyarov, S. Teodorescu and R. Overfelt, , presented at the 107th Casting Congress, April 26-29, 2003, Milwaukee, WI, Paper No. 03-050.

93. "Thermal Expansion and Density Measurement of Metals by an Electromagnetic Levitation Melting Technique," D. Wang, B. Gao, and R.A. Overfelt, presented at the Fifteenth Symposium on Thermophysical Properties, Boulder, CO, June 22-27, 2003.

94. "Thermophysical Property Measurements on Mold Materials," S.I. Bakhtiyarov, R.A. Overfelt and D. Wang, presented at the Fifteenth Symposium on Thermophysical Properties, Boulder, CO, June 22-27, 2003.

95. "Electrical Conductivity Measurements on Light Metal Alloys," Sayavur Bakhtiyarov and Ruel A. Overfelt, presented at the 27th International Thermal Conductivity Conference, October 26-29, 2003, Knoxville, TN.

96. "Thermophysical Bulk Properties of Mold Materials," Sayavur Bakhtiyarov, Deming Wang and Ruel A. Overfelt, presented at the 27th International Thermal Conductivity Conference, October 26-29, 2003, Knoxville, TN.

97. "Future needs and opportunities in thermophysics from a materials engineer's perspective," Ruel A. Overfelt, Rick Williams, Sayavur Bakhtiyarov and Deming Wang, presented at the 27th International Thermal Conductivity Conference, October 26-29, 2003, Knoxville, TN.

98. "Differential Scanning Calorimetry Measurements on Molten Magnesium Alloys," Deming Wang, Rui Shao and Ruel A. Overfelt, presented at the 27th International Thermal Conductivity Conference, October 26-29, 2003, Knoxville, TN.

99. "An Image Processing Method for Thermal Expansion Measurements on Electromagnetically Levitated Molten Alloys," Baojian Guo, Deming Wang and Ruel A. Overfelt, presented at the 27th International Thermal Conductivity Conference, October 26-29, 2003, Knoxville, TN.

100. "First V-Process Casting of Magnesium," S.I. Bakhtiyarov and R.A. Overfelt, presented at the 108th Casting Congress, June 12-15, 2004, Des Plaines, IL, Paper No. 04-028.

101. "Hot Distortion Studies in Phenolic Urethane Cold-Box System," S.I. Bakhtiyarov, R.A. Overfelt and C.H. Sherwin, presented at the 108th Casting Congress, June 12-15, 2004, Des Plaines, IL, Paper No. 04-027.

102. "Vacuum-sealed aluminum step casting," Sayavur Bakhtiyarov, Johnathon Capps, Amit Suryawanshi and Ruel A. Overfelt, TMS Solidification of Aluminum Alloys Conference, Charlotte, NC, March 14-18, 2004.

103. "Measurement of Kinetic Zone Temperature and Heat Transfer Coefficient in the Lost Foam Casting Process," X.J. Liu, S.H. Bhavnani and R.A. Overfelt, International Mechanical Engineering Conference and Exhibition, Nov. 13-19, 2004, Anaheim, CA.

104. "Spectral-Direction Emittance of CuO at High Temperatures," George Teodorescu, Peter Jones and Ruel A. Overfelt, presented at the 2004 ASME Heat Transfer/Fluids Engineering Summer Conference, Charlotte, NC, July 11-15, 2004.

105. "First magnesium V-process casting," Sayavur Bakhtiyarov and Ruel A. Overfelt, TMS Magnesium Technology Conference, Charlotte, NC, March 14-18, 2004.

106. "Numerical Simulations and Experimental Study of Hot Core Distortion Phenomenon in Aluminum Casting, "Sayavur Bakhtiyarov, Ruel A. Overfelt, Amit Surywanshi and Johnathon Capps, presented at the 2004 ASME Heat Transfer/Fluids Engineering Summer Conference, Charlotte, NC, July 11-15, 2004.

107. "Spectral-directional emittance of CuO at high temperatures," P. D. Jones, G. Teodorescu, R. A. Overfelt, Proceedings of 2004 ASME Heat Transfer/Fluids Engineering Conference, Charlotte, NC, July 11-15, 2004.

108. "Modeling and Surface Oscillation of a Levitated Droplet" Mihai Dupac, David Beale, and Ruel Overfelt, Auburn University, SIAM Conference on Applications of Dynamical Systems, May 22-26, 2005, Snowbird,Utah.

109. "Spectral-directional emittance of aluminum at high temperature," G. Teodorescu, B. Guo, P. D. Jones, R. A. Overfelt, 2005 ASME Heat Transfer Conference and InterPACK' 05, San Francisco, CA, July 17-22, 2005.

110. "Spectral-directional emittance of electromagnetically heated nickel at high temperatures," G. Teodorescu, B. Guo, P. D. Jones, R. A. Overfelt, Materials Science & Technology 2005 Conference and Exhibition, Pittsburgh, PA, Sept. 25-28, 2005.

111. "Numerical model for specific heat measurement modulation power of electromagnetically levitated samples by modulation power method," B. Guo, G. Teodorescu, D. Wang, R. A. Overfelt, Materials Science & Technology 2005 Conference and Exhibition, Pittsburgh, PA, Sept. 25-28, 2005.

112. "High temperature emissivity of high purity titanium and zirconium", G. Teodorescu, P. D. Jones, R. A. Overfelt, B. Guo, 16th Symposium on Thermophysical Properties, Boulder, CO, July 30-August 04, 2006.

113. "Measurement of the heat capacity titanium and zirconium by electromagnetic levitation," B. Guo, G. Teodorescu, R. A. Overfelt, P.D. Jones, 16th Symposium on Thermophysical Properties, Boulder, CO, July 30-August 04, 2006.

114. "Casting Related Research and Education Activities at Auburn University," R.A. Overfelt, 2007 Southeast Regional Meeting of the American Foundry Society, Myrtle Beach, SC, March 1-2, 2007.

115. "Vulcan TP/PDA - A Modular Materials Processing System for Proprietary R&D," presented at the Next Generation Suborbital Researchers Conference, Boulder, CO, February 19, 2010.

116. "Status of RITE's Airliner Cabin Environment Research (ACER) Program," presented at the 40th International Conference on Environmental Systems, Barcelona, Spain, July 15, 2010.

117. "Preliminary Evaluation of Commercial Indoor Air Quality Sensors for Application to Aircraft Cabin Air Measurements," R. Lance Haney, John Andress, Jeffrey Fergus, Tony Overfelt, presented at the Sixth Triennial International Aircraft Fire and Cabin Safety Research Conference, Atlantic City, NJ, October 26, 2010.

118. "Working with Writing: Curricular Change, Assessment and Faculty Engagement in Student Learning," Margaret Marshall, David Weaver, Sharon Roberts and Ruel Overfelt, presented at the RosEvaluation Conference 2011, Terre Haute, IN, April 17-19, 2011.

119. "Portable Electrochemical Sensor for Detection of Tricresyl-phosphate," Xiaoyun Yang, Alice Zitova, Jeffrey Kirsch, Ruel Overfelt, and Alex Simonian, presented at the 219th Annual ECS Meeting, May 1-6, 2011, Montreal, Canada.

120. "Preliminary Investigation into Thermal Degradation Behavior of Mobil Jet Oil II," A.J. Neer, J.R. Andress, R.L. Haney, R.A. Overfelt, B.C. Prorok, J.W. Fergus and L.C. Mathison, presented at the 41st International Conference on Environmental Systems, AIAA, Portland, OR, July 17-21, 2011.

121. "Principal Component Analysis (PCA) Application to FTIR Spectroscopy Data of CO/CO2 Contaminants of Air," R.L. Haney, Naved Siddiqui, J.R. Andress, J.W. Fergus, R.A. Overfelt, and B.C. Prorok, presented at the 41st International Conference on Environmental Systems, AIAA, Portland, OR, July 17-21, 2011.

122. "Monitoring of Potential Bleed Air Gas Contaminants with FTIR Spectroscopy," R.L. Haney, A.J. Neer, N. Siddiqui, J.W. Fergus, R.A. Overfelt, and B.C. Prorok, presented at the 41st International Conference on Environmental Systems, AIAA, Portland, OR, July 17-21, 2011.

123. "Electrochemical Sensing Technology for Detection of Tricresyl Phosphate," Y. Xiaoyun, R.A. Overfelt, A. Simonian, presented at the 41st International Conference on Environmental Systems, AIAA, Portland, OR, July 17-21, 2011.

124. "Mechanobiology of Alpha-Keratin Using North American Porcupine Quills," Shih-Feng Chou and Ruel A. Overfelt, presented at the 2011 Annual Meeting of the American Society of Biomechanics, Long Beach, CA, August 10-13, 2011.

125. "The Study of Mechanical Properties on Cellular Solids Using North American Porcupine Quills" Shih-Feng Chou and Ruel A. Overfelt, Professor K. K. Chawla Honorary Symposium on Fibers, Foams and Composites, Materials Science & Technology 2011 Annual Conference, Columbus, Ohio, October 16-20, 2011.

126. "Integrating Grading with Program Assessment," Ruel A. Overfelt, workshop presented at the 2011-2012 Auburn University Symposium on Writing, Nov. 9-10, 2011, Auburn, AL

127. "Experimental characterization of natural keratin biomaterial by tensile and nanoindentation using North American porcupine quills," S.F. Chou and R.A. Overfelt, 4th International Conference on the Mechanics of Biomaterials and Tissues, December 11-15, 2011, Hawaii.

128. "Integrating Grading with Program Assessment," Ruel A. Overfelt, presented at the 11th International Writing Across the Curriculum Conference, June 7-9, 2012, Savannah, GA

129. "Overview of Commercial Electrochemical Carbon Monoxide Sensors for Aircraft Applications," J.R. Andress, B.S. McCall, R.A. Overfelt, J.W. Fergus. B.C. Prorok, M.S. Crumpler and L.C. Mathison, 42nd International Conference on Environmental Systems, AIAA, San Diego, CA, July 15-29, 2012.

130. "Survival of Escherichia coli O157:H7 on surfaces in airplane cabins," Vaglenov, K., I-Hsuan Chen, A Goodloe, P. Zwack, R.A. Overfelt, and J. Barbaree, presented October 25-27 at the 2012 Southeast American Society for Microbiology, Athens, Georgia.

131. "PDF-based Rubrics to Align Scoring and Grading of Student Lab Activities and Reports with ABET Programmatic Assessment," Ruel A. Overfelt, paper presented at the RosEvaluation Conference 2013 (Rose Hulman Institute of Technology, Terre Haute, IN), April 1-2, 2013.

132. "The Effects of Prior Austenitic Grain Size and Martensitic Hardness on Hydrogen Embrittlement of 4340 Steel," Mobbassar Hassan Sk, Ruel A Overfelt, Jeffrey W Fergus, Barton C Prorok, presented at the AISTech 2013 Conference, Pittsburgh, PA, May 6-9, 2013.

133. "Survival of Methicillin-Resistant Staphylococcus aureus and Escherichia coli O157:H7 on Airplane Cabin Surfaces," K. A. Vaglenov, I-H. Chen, A. N. Good-

loe, B. Koonce, P. J. Zwack, R. A. Overfelt, J. M. Barbaree; Auburn Univ., Auburn, AL, presented at the 113th General Meeting of the American Society for Microbiology, May 18-21, Denver, Colorado.

134. "Shape Optimization of Piezoelectric Devices for Vibration Energy Harvesting, " Naved A. Siddiqui, Seon-Bae Kim, Dong-Joo Kim, Ruel A. Overfelt, Barton C. Prorok, presented at Society of Experimental Mechanics Conference, Lombard, IL, June 3-5, 2013.

135. "Visualization of Aviation Fluid Droplets At High Temperatures In A Drop Tube Furnace," J Vignesh Venkatasubramanian, Jingran Duan, Stephen A. Giles, Ste-ve R. Duke and Ruel A. Overfelt, paper presented at the 43rd International Conference on Environmental Systems, AIAA, Vail, CO, July 14-18, 2013.

136. "Transient Response Characteristics of Electrochemical Carbon Monoxide Sensors," Amy Buck and Ruel A. Overfelt, paper presented at the 43rd International Conference on Environmental Systems, AIAA, Vail, CO, July 14-18, 2013.

137. "Preliminary Evaluation of Non-Dispersive Infrared Carbon Dioxide Sensors for Bleed Air Applications," Matthew Roberts and Ruel A. Overfelt, paper presented at the 43rd International Conference on Environmental Systems, AIAA, Vail, CO, July 14-18, 2013.

138. "Changes in Fracture Characteristics for Electrochemically Hydrogenated 4340 Steel," Mobbassar Hassan Sk, Ruel A. Overfelt, presented at the Thirteenth International ASTM/ESIS Symposium on Fatigue and Fracture Mechanics, Jacksonville, Florida, November 13-15, 2013.

139. "Mechanical Behavior and Structural Evolution of Keratin Tissues," Shih-Feng Chou, Michael E. Miller and Ruel A Overfelt, Paper C9.04, presented at the 2013 MRS Fall Meeting, Boston, MA, December 1-6, 2013.

140. "Effects of Strain Rate on Hydrogen Embrittlement Characteristics of 4340 Steel," Mobbassar Hassan Sk, Ruel A Overfelt, Paper JJ4.02, presented at the 2013 MRS Fall Meeting, Boston, MA, December 1-6, 2013.

141. "Tapered Piezoelectric Devices for Vibration Energy Harvesting," Naved A. Siddiqui, Matthew I Roberts, Dong-Joo Kim, Ruel A. Overfelt, Barton C. Prorok, presented at the 2014 SPIE Smart Structures/NDE Conference, March 9-13, 2014, San Diego, CA.

142. "Shape Optimization of Cantilevered Devices for Piezoelectric Energy Harvesting," Naved A. Siddiqui, Dong-Joo Kim, Ruel A. Overfelt, Barton C. Prorok, presented at the 2014 Society of Experimental Mechanical Conference, June 2-5, 2014, Greenville, SC.

143. "High Temperature Thermophysical Property Measurements of Metals to Support Additive Manufacturing Process Development," Ruel A. Overfelt, Rod Summers

and Mike Ogles, presented at the JANNAF (Joint Army, Navy, NASA, Air Force) Technical Interchange Meeting on Additive Manufacturing for Propulsion Applications, Huntsville, AL, Sept. 3-5, 2014.

Patents

1. Platinum-Cobalt Alloy Permanent Magnets of Enhanced Coercivity,"
   US Patent 4,983,230; R.A. Overfelt and J.T. Teubert, issued January 8, 1991.

2. "Method and Apparatus for Making Rapidly Solidified Metallic Particulate,"
   US Patent 5,032,172; R.A. Overfelt, W.H. Hofmeister, R.J. Bayuzick,
   M.B. Robinson, M. Wells, and D. Dillard, issued July 16, 1991.

3. “Directed Vortex Blow Tube for Air Molds,” Sayavur Bakhtiyarov and
   Ruel A. Overfelt, invention disclosure submitted.

4. “Disposable Vent Filter for Air Molds,” Sayavur Bakhtiyarov and Ruel A. Overfelt, invention disclosure submitted.

5. “Fiber Reinforced Sand-Binder System for Coremaking Process,”
   Sayavur Bakhtiyarov, Ruel A. Overfelt and Sabit Adanur, invention disclosure submitted.

Industrial and Restricted Distribution Reports

1. "Evaluation of the Split Probe Rotor Tester," R.A. Overfelt, General Electric Company, Fort Wayne, IN, GE Report DF83SAC1000, January 1983, restricted.

2. "Rapidly Solidified Alloys of Iron-Rare Earth-Boron for Permanent Magnets," Ruel A. Overfelt, GE Report 84CRD107, May 1984, unrestricted.

3. "Fluid Mechanics of Low Pressure Rotor Casting," R.A. Overfelt, General Electric Company, Fort Wayne, IN, GE Report 85FWL1000, April 1985, restricted.

4. Heat Transfer in Low Pressure Rotor Casting," R.A. Overfelt, General Electric Company, Fort Wayne, IN, GE Report 85FWL1001, August 1985, restricted.

5. "Effects of Impurities on the Conductivity of Aluminum," R.A. Overfelt, General Electric Company, Fort Wayne, IN, GE 84FWL1002, October 1985, restricted.

6. "Microstructure and Grain Defect Formation in Directionally Solidified Rene' N5," Ruel A. Overfelt, Craig Matlock, Vivek Sahai, and Dixie Matlock, August 1994, Auburn University, Space Power Institute, Auburn Alabama, restricted.

7. "Determination of Interfacial Heat Transfer Values Between the Metal and Shell in Aerospace Alloy Castings: Howmet Corporation," Vivek Sahai and Tony Overfelt, October 1994, Auburn University, Space Power Institute, Auburn Alabama, restricted.

8. "Determination of Interfacial Heat Transfer Values Between the Metal and Shell in Aerospace Alloy Castings: IMI Titanium Inc.," Vivek Sahai and Tony Overfelt, November 1994, Auburn University, Space Power Institute, Auburn, Alabama, restricted.

9. "Surface Tension and Viscosity of Superalloy 718," Tony Overfelt, Craig Matlock, Dixie Matlock and Vivek Sahai, February 1995, Auburn University, Space Power Institute, Auburn, AL, restricted.

10. "Surface Tension and Viscosity of GE Rene' N5," Tony Overfelt, Craig Matlock, Dixie Matlock and Vivek Sahai March 1995, Auburn University, Space Power Institute, Auburn, AL, restricted.

11. "Surface Tension and Viscosity of PWA 1484," Tony Overfelt, Craig Matlock, Dixie Matlock and Vivek Sahai, February 1995, Auburn University, Space Power Institute, Auburn, AL, restricted.

12. "Microstructure and Grain Defect Formation in Directionally Solidified PWA 1484," Tony Overfelt, Craig Matlock, Vivek Sahai and Probal Banerjee, December 1995, Auburn University, Space Power Institute, Auburn Alabama, restricted.

13. “Interface Heat Conductance,” Richard A. McDaniel and Ruel A. Overfelt, ICCA Subtask 4.3 Final Report to ARPA, June 1995, Investment Casting Cooperative Arrangement chaired by Howmet Corporation, Whitehall, MI, restricted.

14. “Thermophysical Properties,” Richard A. McDaniel, Anthony Giamei, Ruel A. Overfelt and Ray Taylor, ICCA Subtask 4.4 Final Report to ARPA, Jan. 1996, Investment Casting Cooperative Arrangement chaired by Howmet Corporation, Whitehall, MI, restricted.

15. “Microstructure Models and Metallurgical Data,” Richard A. McDaniel, Anthony Giamei and Ruel A. Overfelt, ICCA Subtask 4.2 Final Report to ARPA, Jan. 1996, Investment Casting Cooperative Arrangement chaired by Howmet Corporation, Whitehall, MI, restricted.

16. “Thermophysical Properties of Ductile Iron Supplied by Knight+Packer, Inc.” Tony Overfelt, Probal Banerjee, Ray Taylor, Hans Groot and D.L. Taylor, Jan. 1996, restricted.

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Tony Overfelt, Probal Banerjee, Ray Taylor, Hans Groot and D.L. Taylor, August 1996, restricted.

18. "Viscosity Measurements of WE43 Magnesium Casting Alloy," Tony Overfelt and Probal Banerjee, for Pratt & Whitney Company, Dec. 1996.

19. "Process Modeling of High Integrity AlBeMet Investment Castings," Probal Banerjee, Vivek Sahai and Tony Overfelt, 1998, Final Report to Brush Wellman Inc. under P.O. EL51533, restricted.

20. "Thermophysical Properties of Superalloy Rene' 88," Tony Overfelt, June 1998, restricted.

21. "Thermophysical Properties of A356 Aluminum, Class 40 Gray Iron, and CF8M Stainless Steel," R.A. Overfelt, R.E. Taylor, and S.I. Bakhtiyarov, progress report to AFS, 1998.