Jeffrey W. Fergus, PhD, PE, Fellow ECS, Fellow ABET
Associate Dean for Undergraduate Studies and Program Assessment
Professor of Materials Engineering
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Education

Ph.D. Materials Science and Engineering (May 1990) – University of Pennsylvania, Philadelphia, PA

B.S. Metallurgical Engineering - with Honors (May 1985) – University of Illinois, Urbana-Champaign, IL

Employment History

2020-present	Associate Dean for Undergraduate Studies and Program Assessment, Samuel Ginn College of Engineering, Auburn University
2014-2020	Associate Dean for Program Assessment and Graduate Studies, Samuel Ginn College of Engineering, Auburn University
Summer 2013	Summer Faculty Fellowship Program, Wright-Patterson Air Force Research Laboratory
1992-present	Assistant/Associate/Full Professor, Auburn University
1990-1992	Postdoctoral Research Associate, University of Notre Dame
1985-1990	Research Assistant, University of Pennsylvania

Academic Leadership as Associate Dean

Undergraduate Studies (2020-present)

- Oversee several student support offices (position supervised in parentheses)
    - Engineering Student Services (Assistant Dean and Director): Provides academic advising, tutoring, academic coaching, and other academic services
    - Academic Excellence Program (Director): Provides academic support, professional development, and support community for students from underrepresented groups
    - Scholarships, Recruiting and K-12 Outreach (Director): Develops activities to interest students in STEM careers, recruits undergraduate students, and manages scholarships
    - Student Initiatives (Administrator): Provides support for extracurricular activities such as student organizations
    - Design and Innovation Laboratory (Director): Provides hands-on experiences, curricular and extracurricular, for students in makerspace facilities
    - Brown-Kopel Engineering Student Achievement Center (Manager): Center houses student services/support offices, classrooms, maker space and meeting spaces for student groups
- Academic Affairs representative: Council of associate deans from all academic colleges
- Chair of Undergraduate Program and Curriculum Committee
- Coordinate Undergraduate Research Fellowship program for College of Engineering

- Co-Advisor for Engineering School's Council (representatives of all engineering student organizations)

Program Assessment (2014-present)

- Coordinate assessment and continuous improvement processes in the college
- Support programs in preparation for their ABET evaluations
- Monitor and develop strategies for improving student retention and persistence
- Facilitate administrator reviews / department chair elections
- Chair of Continuous Improvement Committee

Diversity, Equity, and Inclusion (DEI) (2014-present)

- Initiated and chair College of Engineering Inclusion and Diversity Committee: Committee activities include:
    - Branding DEI efforts: "Engineer Together"
    - Implicit bias introduction to students in first-year orientation class
    - Develop, administer, and organize discussion sessions on climate survey
    - Provide guidance for making class assignments more inclusive and introducing DEI in classes
    - Train-the-trainer program to provide DEI sessions led by engineering faculty and staff
    - Develop awards to recognize DEI efforts of faculty, staff and students
- Develop DEI-related activities for first-year students
- Represent College of Engineering on Chief Diversity Officer Cabinet
- Initiated Promoting Emerging Engineering Scholars (PEERS) speaker series and Preparing Future Faculty workshops for recruitment of faculty from underrepresented groups
- Faculty Advisor / Co-Advisor for identity-based student organizations
    - National Society of Black Engineers (NSBE) – advisor
    - Society of Hispanic Professional Engineers (SHPE) – advisor
    - Out in STEM (oSTEM) (LGBTQ+) – co-advisor
- Lead Advocate and Allies Program for promoting understanding of gender inequity issues
- College representative for Bias Education and Response Team (BERT)
- Received LGBTQ Advocate Award in April 2022

Graduate Studies (2014-2020)

- Developed strategies for recruiting graduate students
- Managed college fellowship programs
- Oversaw Online and Continuing Education programs (Director)
- Supported academic departments in developing new graduate programs
- Developed and administrated the interdisciplinary Master of Engineering program
- Worked with Graduate Program Officers on graduate education policies and procedures
- Coordinated faculty mentoring and professional development

Professional Society Leadership

ABET

- Chair of the Accreditation Council Training Committee (2022-present)
- Lead Facilitator for Program Evaluator Training (2014-present)
- Chair of the Engineering Accreditation Commission (2019-20)
- ABET Fellow (2020-present)

The Metals, Minerals and Materials Society (TMS)

- Member of Board of Directors: Professional Development Director (2014-17)
- Chair of Professional Development Committee (2014-16)
- Chair of Accreditation Committee (2011-13)
- Chair of Professional Registration Committee (2006-08)
- Chair of Sustainability in Materials Education Subcommittee of the Materials and Society Committee (2012-17)

Electrochemical Society (ECS)

- Editor of *Electrochemical Society Transactions* (2013-21)
- Member of the Board of Directors (2011-13)
- Chair of High Temperature Materials Division (2011-13)
- Chair of Education Committee (2012-13)
- ECS Fellow (2016-present)

American Society for Engineering Education (ASEE)

- Chair of Graduate Studies Divisions (2020-22)

Fulbright

- Fulbright Specialist (2022-2026)

Educational Interests

- Energy, life-cycle analysis, critical materials, and other sustainability-related issues
- Received of Spirit of Sustainability Award (April 2019) from the Auburn University Office of Sustainability for work in promoting sustainability-related education in the College of Engineering

Extension/Outreach Interests

- Promoting diversity, equity and inclusion in science and engineering

Research Interests

- High-temperature and solid-state chemistry of materials: energy storage / conversion (fuel cells, batteries, thermoelectric devices), chemical sensors, chemical compatibility / stability in high-temperature materials

RESEARCH ACTIVITIES

Publications

Book Chapters

1. J.W. Fergus and W.P. Hoffmann, “Refractory Metals, Ceramics and Composites for High Temperature Structural and Functional Applications,” in *High Temperature Materials and Mechanisms,* Y. Bar-Cohen (Ed.) (CRC Press, Taylor Francis Group, Boca Raton, FL, 2014) 39-67.
2. C.O. Park. I. Lee, D.R. Lee, J.W. Fergus, N. Miura and H.J. Yoo, “Solid-State Electrochemical Gas Sensors,” in *Chemical Sensors: Simulation and Modeling, Volume 5: Electrochemical Sensors*, G. Korotcenkov (Ed.) (Momentum Press, New York, NY, 2013) 41-92.
3. J.W. Fergus, “Solid Oxide Fuel Cells,” in *Electrochemical Technologies for Energy Storage and Conversion*, R.-S. Liu, X. Sun, H. Liu, L. Zhang and J. Zhang (Eds.) (Wiley-VCH, Weinheim, Germany, 2012) 671-700.
4. J.W. Fergus, “High-Temperature Corrosion of Intermetallic Alloys,” in *Shreir’s Corrosion*, 4th Ed., Vol. 1, J.A. Richardson *et al.* (Eds.) (Elsevier B.V., Amsterdam, Netherlands, 2010) 646-667.
5. J.W. Fergus, “Electrochemical Sensors: Fundamentals, Key Materials and Applications,” in *Handbook of Solid-State Electrochemistry: Fundamentals, Methodology and Recent Advances*, V. Kharton (Ed.) (Wiley-VCH, Weinheim, Germany, 2009) 427-491.
6. Z. Yang and J.W. Fergus, “Interconnects,” in *Solid Oxide Fuel Cells: Materials Properties and Performance*, J.W. Fergus, R. Hui, X. Li, D. Wilkinson and J. Zhang (Eds.) (CRC Press, Taylor Francis Group, Boca Raton, FL, 2009) 179-212.

Refereed Journal Publications

7. X. Zhang, C. Li, W. Liu, T.-S. Oh and J.W. Fergus, “The Role of Site Occupancy on the Li-ion Conductivity of Ta-doped $Li_{6.75}La_3Zr_{1.75}Ta_{0.25}O_{12}$ Solid Electrolyte Materials with High Li Concentrations,” *Solid State Ionics* **369** (2021) 115713.
8. X. Zhang, T.-S. Oh and J.W. Fergus, “Densification of Ta-doped Garnet-type $Li_{6.75}La_3Zr_{1.75}Ta_{0.25}O_{12}$ Solid Electrolyte Materials by Sintering in a Lithium-Rich Air Atmosphere,” *Journal of the Electrochemical Society* **166**[15] (2019) A3753-A3759.
9. N. Sofyan, A. Ridhova, A.K. Yowono, A. Udhiarto and J.W. Fergus, “Synthesis of TiO_2 Nanoparticles at Low Hydrothermal Temperature and Its Performance for DSSC Sensitized Using Natural Dye Extracted from *Melastoma Malabathricum* L. Seeds,” *International Journal of Energy Research*, **43**[11] (2019) 5959-5968.
10. X Zhang and J.W. Fergus, “Solid Electrolytes for Lithium Batteries,” *International Journal of Technology* **6** (2018) 993-999.
11. W. Deng and J.W. Fergus, “Effect of CMAS Composition on Hot Corrosion Behavior of Gadolinium Zirconate Thermal Barrier Coating Materials,” *Journal of the Electrochemical Society* **164**[9] (2017) C526-C531.
12. H. Wang, A. Bakal, X. Zhang, E. Tarwater, Z. Sheng and J.W. Fergus, “CaO-MgO-Al_2O_3-SiO_2 (CMAS) Corrosion of $Gd_2Zr_2O_7$ and $Sm_2Zr_2O_7$,” *Journal of the Electrochemical Society* **163**[10] (2016) C643-C648.

13. R. Fu, S.-y. Choe, V. Agubra and J.W. Fergus, “Development of a Physics-Based Degradation Model for NMC Lithium Ion Polymer Batteries Considering Side Reactions,” *Journal of Power Sources*, *Journal of Power Sources* **278** (2015) 506-521.

14. V.A. Agubra, J.W Fergus, R. Fu, S.-y. Choe, “Analysis of the Deposit Layer from Electrolyte Side Reaction on the Anode of the Pouch Type Lithium Ion Polymer Batteries: The Effect of State of Charge and Charge Rate,” *Electrochimica Acta*, **149** (2014) 1-10.

15. V.A. Agubra, J.W Fergus, R. Fu, S.-y. Choe, “Analysis of Effects of the State of Charge on the Formation and Growth of the Deposit Film Layer on Graphite Electrode of Lithium Ion Polymer NMC/Carbon Batteries,” *Journal of Power Sources* **270** (2014) 213-220.

16. V. Agubra and J.W. Fergus, “The Formation and Stability of the Solid Electrolyte Interface on the Graphite Anode,” *Journal of Power Sources* **268** (2014) 153-162.

17. J.W. Fergus, “Zirconia and Pyrochlore Oxides for Thermal Barrier Coatings in Gas Turbine Engines,” *Metallurgical and Materials Transactions E* **1**[1] (2014) 118-131.

18. R. Fu, S.-y. Choe, V. Agubra and J.W. Fergus, “Modeling of Degradation Effects Considering Side Reactions for a Pouch Type Li-Ion Polymer Battery with Carbon Anode,” *Journal of Power Sources* **261** (2014) 120-135.

19. X. Yang, J. Kirsch, Y. Zhang, J. Fergus and A. Simonian, “Electrode Passivation by Phenolic Compounds: Modeling Analysis,” *Journal of the Electrochemical Society* **161**[8] (2014) E3036-E3041.

20. J.W. Fergus, K. Yerkes and K. Yost, “Numerical Modeling of Multi-Materials Thermoelectric Devices under Static and Cyclic Heat Loading,” *Journal of Electronic Materials*, **43**[2] (2014) 393-403.

21. Y. Zhao and J.W. Fergus, “Oxidation Behavior of Stainless Steel 441 and 430 in Dual Atmosphere: Effects of Alloy Grain Boundaries,” *Journal of the Electrochemical Society* **161**[1] (2014) C69-C76.

22. C.J. Dileep Kumar, A. Dekich, H. Wang, Y. Liu, W. Tilson, J. Ganley and J.W. Fergus, “Transition Metal Doping of Manganese Cobalt Spinel Oxides for Coating SOFC Interconnects,” *Journal of the Electrochemical Society*, **161**[1] (2014) F47-F53.

23. Y. Liu, K. Wang, C.D. Cruz and J.W. Fergus, “Crystal Structure, Chemical Stabilities and Electrical Conductivity of Fe-Doped Manganese Cobalt Spinel Oxide for SOFC Interconnect Coatings,” *Journal of the Electrochemical Society* **160**[11] (2013) F1316-F1321.

24. Y. Liu, J.W. Fergus and C.D. Cruz, “Electrical Properties, Cation Distribution and Thermal Expansion of Manganese Cobalt Chromite Spinel Oxides,” *Journal of the American Ceramic Society* **96**[6] (2013) 1841-1846.

25. V. Agubra and J.W. Fergus, “Lithium Ion Battery Anode Aging Mechanisms,” *Materials* **6**[4] (2013) 1310-1325.

26. X. Yang, J. Kirsch, J.W. Fergus and A.L. Simonian, “Modeling Analysis of Electrode Fouling during Electrolysis of Phenolic Compounds,” *Electrochmica Acta* **94**[1] (2013) 259-268.

27. X. Yang, J. Kirsch, E.V. Olsen, J.W. Fergus and A.L. Simonian, “Anti-Fouling PEDOT:PSS Modification on Glassy Carbon Electrodes for Continuous Monitoring of Tricresyl Phosphate,” *Sensors and Actuators B* **177** (2013) 659-667.

28. J.W. Fergus, “Ion Transport in Sodium Ion Conducting Solid Electrolytes,” *Solid State Ionics* **227** (2012) 102-112.

29. J.W. Fergus, “Oxide Materials for High Temperature Thermoelectric Energy Conversion,” *Journal of the European Ceramic Society* **32** (2012) 525-540.

30. Y. Zhao and J.W. Fergus, “High Temperature Oxidation Behavior of Stainless Steel 430 and 441 in Dual Atmosphere – Effects of Flow Rate and Humidity,” *Journal of the Electrochemical Society* **159**[3] (2012) C109-C113.

31. X. Yang, A. Zitova, J. Kirsch, J.W. Fergus, R.A. Overfelt and A.L. Simonian, “Portable and Remote Electrochemical Sensing System for Detection of Tricresyl-phosphate in Gas Phase,” *Sensors and Actuators B* **161** (2012) 564-569.

32. K. Wang, Y. Liu and J.W. Fergus, ‘Interactions between SOFC Interconnect Coating Materials and Chromia,” *Journal of the American Ceramic Society* **94**[12] (2011) 4490-4495.

33. J.W. Fergus, “Synergism in the Design of Interconnect Alloy-Coating Combinations for Solid Oxide Fuel Cells,” *Scripta Materialia* **65** (2011) 73-77.

34. J.W. Fergus, “Sensing Mechanism of Non-Equilibrium Solid Electrolyte Based Chemical Sensors,” *Journal of Solid State Electrochemistry* **15** (2011) 971-984.

35. M.H. Sk, R.A. Overfelt, R.L. Haney and J.W. Fergus, “Hydrogen Embrittlement of 4340 Steel due to Condensation during Vaporized Hydrogen Peroxide Treatment,” *Materials Science and Engineering A* **528**[10-11] (2011) 3639-3645.

36. M. Irimia-Vladu, P.A. Troshin, L. Shmygleva, Y. Kanbur, M. Reisinger, G. Schwabegger, M. Bodea, R. Schwödiauer, J.W. Fergus, V. Razumov, H. Sitter, N.S. Sariciftci and S. Bauer, “Biocompatible and Biodegradable Materials for Organic Field Effect Transistor,” *Advanced Functional Materials* **20** (2010) 4069-4076.

37. M. Irimia-Vladu, P.A. Troshin, M. Reisinger, G. Schwabegger, M. Ullah, R. Schwoediauer, A. Mumyatov, M. Bodea, J.W. Fergus, V.F. Razumov, H. Sitter, S. Bauer and N.S. Sariciftci, “Environmentally Sustainable Organic Field Effect Transistors,” *Organic Electronics* **11**[12] (2010) 1974-1990.

38. K. Wang and J.W. Fergus, The Effect of Transition Metal Doping on Chromium Deposition at Pt/YSZ Cathode Interfaces,” *Journal of the Electrochemical Society* **157**[7] (2010) B1008-B1011.

39. Purwanto, A. Fajar, H. Mugirahardjo, J.W. Fergus and K. Wang, “Cation Distribution in Spinel $(Mn,Co,Cr)_3O_4$ at Room Temperature,” *Journal of Applied Crystallography* **43** (2010) 394-400.

40. J.W. Fergus, “Ceramic and Polymer Solid Electrolytes for Lithium Ion Batteries,” *Journal of Power Sources*, **195** (2010) 4554-4569.

41. J.W. Fergus, “Recent Developments in Cathode Materials for Lithium Ion Batteries,” *Journal of Power Sources* **195** (2010) 939-954.

42. O.A. Oyarzabal, J.W. Fergus, R.S. Miller, W.F. Gale and D.E. Conner, “Reductions of *Escherichia coli*, Coliforms, Aerobic Plate Counts and *Campylobacter jejuni* by a Small-Scale, High-Pressure System Devised to Clean a Miniaturized Poultry Giblet Transport System,” *Journal of Food Safety* **29**[4] (2009) 650-660.

43. C.O. Park, J.W. Fergus, N. Miura, J. Park and A. Choi, “Solid-State Electrochemical Gas Sensors,” *Ionics* **15**[3] (2009) 261-284.

44. J.W. Fergus, S. Gopalan, T.M. Gür, R. Mukundan and W. Weppner, “Impact of Kiukkola-Wagner Paper on the Development of Electrochemical Probes and Tools for Fundamental Studies and Industrial Applications,” *ECS Interface* **18**[1] (2009) 51-55.

45. W.F. Gale, N.I. Sofyan, H.S. Gale, M.H. Sk, S.F. Chou, J.W. Fergus and C.G. Shannon, “The Effect of Vapour Phase Hydrogen Peroxide, as a Decontaminant for Civil Aviation Applications, on the Microstructure, Tensile Properties and Corrosion Resistance of 2024 and 7075 Age Hardenable Aluminum Alloys and 304 Austenitic Stainless Steel,” *Materials Science and Technology* **25**[1] (2009) 76-84.

46. J.W. Fergus, “Electrolyte and Electrode Materials for High Temperature Electrochemical CO_2 and SO_2 Gas Sensors,” *Sensors and Actuators B* **134** (2008) 1034-1041.

47. R. Aluru, W.F. Gale, S.V. Chitti, N. Sofyan, R.D. Love and J.W. Fergus, “Transient Liquid Phase Bonding of Dissimilar Nickel-Base Superalloys – Wettability, Microstructure and Mechanical Properties,” *Materials Science and Technology* **24**[5] (2008) 517-528.

48. K. Wang and J.W. Fergus, “Effect of Manganese Doping on Chromium Deposition at Pt / YSZ Cathode Interfaces, *Electrochemical and Solid-State Letters* **11**[8] (2008) B156-B160.

49. J.W. Fergus, “Materials Challenges for Solid Oxide Fuel Cells,” *JOM* **59**[12] (2007) 56-62.

50. J.W. Fergus, “Perovskite Oxides for Semiconductor-Based Gas Sensors,” *Sensors and Actuators B* **123**[2] (2007) 1169-1179.

51. J.W. Fergus, “Effect of Cathode and Electrolyte Transport Properties on Chromium Poisoning in Solid Oxide Fuel Cells,” *International Journal of Hydrogen Energy*, **32**[16] (2007) 3664-3671.

52. V. Krishnan and J.W. Fergus, “Effects of Dispersant Addition in the Synthesis of Indium-Doped Calcium Zirconate by Precipitation Methods,” *Journal of Materials Science* **42**[15] (2007) 6117-6122.

53. J.W. Fergus, “Solid Electrolyte Based Sensors for the Measurement of CO and Hydrocarbon Gases,” *Sensors and Actuators B* **122**[2] (2007) 683-693.

54. J.W. Fergus, “Materials for High Temperature Electrochemical NO_x Gas Sensors,” *Sensors and Actuators B* **121**[2] (2007) 652-663.

55. M. Irimia-Vladu and J.W. Fergus, “Suitability of Emeraldine Base Polyaniline-PVA Composite Film for Carbon Dioxide Sensing,” *Synthetic Metals* **156**[21-24] (2006) 1401-1407.

56. M. Irimia-Vladu and J.W. Fergus, “Impedance Spectroscopy of Thin Films of Emeraldine Base Polyaniline and Its Implications for Chemical Sensing,” *Synthetic Metals* **156**[21-24] (2006) 1396-1400.

57. N.I. Sofyan, T.L. Mai, D.E. Conner, J.W. Fergus and W.F. Gale, “Attachment of *Listeria monocytogenes* to an Austenitic Stainless Steel with Three Different Types of Surface Finish,” *Food Protection Trends* **26**[12] (2006) 926-929.

58. J.W. Fergus, “Electrolytes for Solid Oxide Fuel Cells,” *Journal of Power Sources*, **162**[1-2] (2006) 30-40.

59. J.W. Fergus, “Oxide Anode Materials for SOFCs,” *Solid State Ionics* **177** (2006) 1529-1541.

60. T.L. Mai, N.I. Sofyan, J.W. Fergus, W.F. Gale and D.E. Conner, “Attachment of *Listeria monocytogenes* to an Austenitic Stainless Steel after Welding and Accelerated Corrosion Treatments,” *Journal of Food Protection* **69**[7] (2006) 1527-1532.

61. V.G. Krishnardula, N.I. Sofyan, W.F. Gale and J.W. Fergus, “Joining of ferritic oxide dispersion strengthened alloys,” *Trans. Indian Inst. Metals* **59**[2] (2006) 199-203.

62. V. Krishnardula, N. Sofyan, W.F. Gale and J.W. Fergus, “Transient Liquid Phase Bonding of Ferritic Oxide-Dispersion-Strengthened Alloys,” *Metallurgical and Materials Transactions A* **37A** (2006) 497-500.

63. J.W. Fergus, “Sealants for Solid Oxide Fuel Cells,” *Journal of Power Sources* **147** [1-2] (2005) 46-57.

64. J.W. Fergus, V.L. Salazar, C.J. Long, N.L. Harris, T. Zhou and W.F. Gale, “Cyclic Oxidation of Copper Doped Ti-48Al-2Cr-2Nb,” *Journal of Materials Science*, **40**[23] (2005) 6139-6144.

65. J.W. Fergus and T. Hsu, “Integrating Humidity Sensor Based on a Polybutadiene-$MgSO_4$ Composite,” *Measurement Science and Technology* **16**[6] (2005) 1255-1262.

66. J.W. Fergus, “Metallic Interconnects for Solid Oxide Fuel Cells,” *Materials Science and Engineering A* **397**[1-2] (2005) 271-283.

67. J.W. Fergus, “Sensors for Monitoring the Quality of Molten Aluminum during Casting,” *Journal of Materials Engineering and Performance* **14**[2] (2005) 267-275.

68. J.W. Fergus, “Lanthanum Chromite Based Materials for Solid Oxide Fuel Cell Interconnects,” *Solid State Ionics* **171**[1-2] (2004) 1-15.

69. J.W. Fergus, “Doping and Defect Association in Oxides for Use in Oxygen Sensors,” *Journal of Materials Science* **38** (2003) 4259-4270.

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71. J.W. Fergus, “Review of the Effect of Alloy Composition on the Growth Rates of Scales Formed During Oxidation of Gamma Titanium Aluminide Alloys,” *Materials Science and Engineering A* **338**[1-2] (2002) 108-125.

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73. Dang, J.W. Fergus and W.F. Gale, “Effect of Copper on the Oxidation Behavior of Ti-48Al-2Cr-2Nb,” *Oxidation of Metals* **56**[1/2] (2001) 15-32.

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77. J.W. Fergus, “Chemical Sensors for Improved Control in the Processing of Molten Metals, *JOM-e*, **52**[10] 2000 (http://www.tms.org/pubs/journals/JOM/0010/Fergus/Fergus-0010.html).

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79. V.Y. Kodash and J.W. Fergus, “High-Temperature Oxidation of Tungsten- and Chromium-Alloyed Aluminosilicides,” *Journal of the Electrochemical Society* **146**[7] (1999) 2762-2768.

80. W.F. Gale, Y. Shen, J.W. Fergus and X. Wen, “Anomalous Wetting of Ti – 48 at.% 5 Al – 2 at.% Cr – 2 at.% Nb Substrates by Liquid Copper,” *Journal of Materials Research* **14**[10] (1999) 3889-3894.

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84. J.W. Fergus, "Effect of Niobium Additions on CO_2-Enhanced Oxidation of Titanium Aluminum Intermetallic Alloys," *Oxidation of Metals* **48**[3/4] (1997) 201-214.

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87. J.W. Fergus, "Crystal Structure of Lanthanum Oxyfluoride," *Journal of Materials Science Letters* **16** (1997) 267-269.

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92. J.W. Fergus, "The Effect of Fluorine on the Phase Equilibria in the Lanthanum-Aluminum-Oxygen System," *Journal of Fluorine Chemistry* **78** (1996) 83-86.

93. J.W. Fergus and S. Hui, "Solid Electrolyte Sensor for Measuring Magnesium in Molten Aluminum," *Metallurgical and Materials Transactions B*, **26B**[6] (1995) 1289-1291.

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96. J.W. Fergus and W.L. Worrell, "The Effect of Carbon and Boron on the High Temperature Oxidation of Silicon Carbide," *Journal of the American Ceramic Society*, **78**[7] 1961-1964 (1995).

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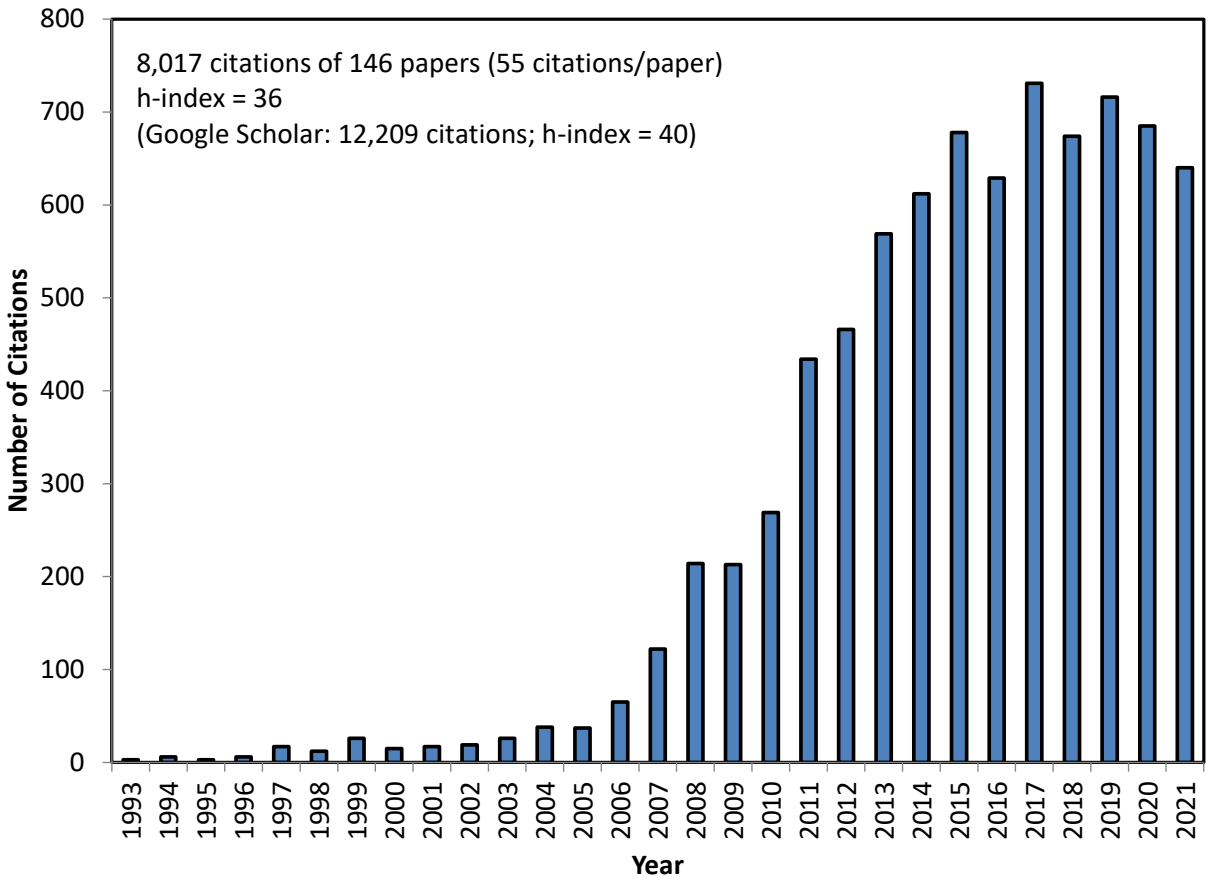

Citations of 146 papers listed on Web of Science Citation Index (26 February 2022)

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- Editor of *Electrochemical Society (ECS) Transactions* (2013-2021).
- Lead editor, J.W. Fergus, R. Hui, X. Li, D. Wilkinson and J. Zhang (Eds.) *Solid Oxide Fuel Cells: Materials Properties and Performance* (CRC Press, Taylor Francis Group, Boca Raton, FL, 2009).
- Lead editor, J.W. Fergus, B. Mishra, D. Anderson, E.A. Sarver, N.R. Neelameggham (Eds.) *Engineering Solutions for Sustainability: Materials and Resources II* (John Wiley & Sons, Hoboken, NJ, 2015).
- Co-editor, D.P. Wilkinson, J. Zhang, R. Hui, J. Fergus and X. Li (Eds.) *Proton Exchange Membrane Fuel Cells: Materials Properties and Performance* (CRC Press, Taylor Francis Group, Boca Raton, FL, 2010).
- Co-editor, X. Liu, Z. Liu, K. Brinkman, S. Das, S. Dryepondt, J.W. Fergus, Z. Guo, M. Han, J.A. Hawk, T. Horita, P. Hosemann, J. Li, E. Olivetti, A. Pandey, R.B. Rebak, I. Roy, C. Shang, J. Zhang, (Eds.) *Energy Materials 2017* (The Minerals, Metals & Materials Society, Warrendale, PA, 2017).
- Guest Editor, *ECS Interface*
    - Spring 2012, special issue on education in electrochemistry
    - Winter 2013, high temperature materials division focus issue

- Previously Member of the Editorial Review Board for *Metallurgical and Materials Transactions B*
- Previously Contributing Editor for *NIST – Phase Equilibria Diagrams*

Manuscript Reviewer

- *ACS Applied Materials and Interfaces*
- *ACS Energy Letters*
- *Acta Materialia*
- *Advanced Energy Materials*
- *Advanced Engineering Materials*
- *Advanced Functional Materials*
- *Advanced Materials*
- *Advanced Powder Technology*
- *AIMS Materials Science*
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Conference Organization

Lead Organizer

- ASEE Graduate Studies Division Symposia, ASEE 127th Annual Conference and Exposition, 21-24 June 2020, planned for Montréal, Quebec, Canada – held virtually.
- Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2020, planned for 4-8 October 2020, Pittsburgh, PA – held virtually.
- ASEE Graduate Studies Division Symposia, ASEE 126th Annual Conference and Exposition, 16-19 June, Tampa, FL.
- Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2013, 27-31 October 2013, Montréal, Quebec, Canada.
- Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2012, 7-11 October 2012, Pittsburgh, PA.
- Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2011, 16-20 October 2011 Columbus, OH.
- Symposium on High Temperature Corrosion and Materials Chemistry Robert A. Rapp, 220th Meeting of the Electrochemical Society, 9-14 October 2011, Boston, MA.
- Symposium on High Temperature Materials Chemistry, 204th Meeting of the Electrochemical Society, 12-16 October 2003, Orlando, FL.

Member of Organizing Committee

- Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2023, 1-5 October 2023, Columbus, OH.
- Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2022, 9-13 October 2022 Pittsburgh, PA.
- Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2021, 17-20 October 2021, Columbus, OH.
- Symposium on High Temperature Corrosion and Materials Chemistry XIV, 238th Meeting of the Electrochemical Society, planned for 4-9 October 2020, Honolulu, HI – held virtually.
- Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2019, 29 September – 3 October 2019, Portland, OR.
- Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2018, 14-18 October 2018, Columbus, OH.
- Symposium on High Temperature Corrosion and Materials Chemistry XIII, 233rd Meeting of the Electrochemical Society, 13-17 May 2018, Seattle, WA.

- Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2017, 8-10 October 2017, Pittsburgh, PA.
- CSM-TMS Energy Conference, 26 February – 2 March 2017, San Diego, CA.
- Engineering Solutions for Sustainability: Materials and Resources (ESS: M&R III), Toward a Circular Economy, 18-19 February 2017, Denver, CO.
- Curricular Innovations and Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2016, 23-27 October 2016, Salt Lake City, UT.
- Symposium on High Temperature Corrosion and Materials Chemistry XII, 230th Meeting of the Electrochemical Society, 2-7 October 2016, Honolulu, HI.
- Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2015, 4-8 October 2015, Columbus, OH.
- Symposium on High Temperature Corrosion and Materials Chemistry XI, 227th Meeting of the Electrochemical Society, 24-28 October 2015, Chicago, IL.
- Engineering Solutions for Sustainability: Materials and Resources (ESS: M&R II), TMS 2015, 15-19 March 2015, Orlando, FL.
- CSM-TMS Energy Conference, 4-6 November 2014, Xi'an, China.
- Continuous Improvement of Academic Programs (and Satisfying ABET Along the Way), Materials Science & Technology (MS&T) 2014, 12-16 October 2014, Pittsburgh, PA.
- High Temperature Corrosion, 226th Meeting of the Electrochemical Society, 5-10 October 2014, Cancun, Mexico.
- Thermal Energy Harvesting, 226th Meeting of the Electrochemical Society, 5-10 October 2014, Cancun, Mexico.
- SOFC Promise, Progress and Priorities Workshop, NSF Workshop, 11-12 July 2013, Arlington, VA.
- Materials in Clean Power Systems VIII: Durability of Materials, TMS 2013, 142nd Annual Meeting, 3-7 March 2013, San Antonio, TX.
- Industrial Involvement in Academia: Anthony Pengidore Memorial Symposium, 7-11 October 2012, Pittsburgh, PA.
- Symposium on Sodium Batteries, 222nd Meeting of the Electrochemical Society, 7-12 October 2012, Honolulu, HI.
- Symposium on High Temperature Corrosion and Materials Chemistry X, 222nd Meeting of the Electrochemical Society, 7-12 October 2012, Honolulu, HI.
- Symposium on High Temperature Batteries, 221st Meeting of the Electrochemical Society, 6-11 May 2012, Seattle, WA.
- Materials in Clean Power Systems VII: Clean Coal-, Hydrogen Based-Technologies, and Fuel Cells, TMS 2012, 141st Annual Meeting, 11-15 March, 2012, Orlando, FL.
- Symposium on High Temperature Corrosion and Materials Chemistry VIII, 216th Meeting of the Electrochemical Society, 5-10 October 2009, Vienna, Austria.

- Symposium on High Temperature Corrosion and Materials Chemistry VII, 214th Meeting of the Electrochemical Society, 12-17 October 2008, Honolulu, HI.
- Symposium on High Temperature Corrosion and Materials Chemistry VI, 210th Meeting of the Electrochemical Society, 29 Oct.–03 November 2006, Cancun, Mexico.
- Symposium on High Temperature Corrosion and Materials Chemistry V, 206th Meeting of the Electrochemical Society, 03-08 October 2004, Honolulu, HI.

External Research Funding

Current/past PI on $4.6 M and co-PI on $7.4 M in externally funded research projects. Projects that are current or have been completed since 2010.

- Developing Emergent Engineers and Physicists, Michelle Foster (PI – Alabama State University) J.W. Fergus (co-PI, lead for AU portion), NASA, 09/02/21 – 09/01/24, $139,622 (AU portion).
- S-STEM Mechanical Engineering Transfer Student Success (METSS), Majid Beidaghi (PI), E.W. Davis, J.W. Fergus, R.L. Jackson, L.D. Taylor (co-PIs), NSF, 09/01/20-08/31/25, $999,715.
- Solid High Energy Batteries, Lamar Meda (PI – Xavier University), J.W. Fergus (co-PI-lead for AU portion), NASA, 09/01/15-08/31/20 $437,500 (AU portion).
- Reduced Cost Bond Layers for Multi-Layer Thermal/Environmental Barrier Coatings, J.W. Fergus (PI), Department of Energy, 07/17/13 – 07/15/17, $300,000.
- Investigation of Lithium-Ion Polymer (Li-P) Batteries Degradation under Thermal Fatigue, S.I. Choe (PI) and J.W. Fergus (Co-PI), ARDI 02/01/11-1/31/13, $397,483.
- Effect of SOFC Interconnect-Coating Interactions on Coating Properties and Performance, J.W. Fergus (PI), Department of Energy, 06/15/08 – 06/14/12, $449,952.
- Scholarships for Engineering Students from Underrepresented Groups, J.W. Fergus (PI), S. Scott-Harris (Co-PI), National Science Foundation, $599,527, 08/08-07/15.
- MRI: Acquisition of a State-of-the-Art X-ray Diffraction System for Investigation of Nano/Micro/Bio-Materials and Devices, Z.-Y. Cheng (PI), J.W Fergus, M.L. Auad, and G. Mills, S. Jeelani (Co-PIs), National Science Foundation, 08/09-07/11, $292,866.
- The Effect of Hydrogen and Water Vapor on the Oxidation of Chromia-Forming Alloys, J.W. Fergus (PI), National Science Foundation, 8/06-7/10, $224,890

EDUCATIONAL ACTIVITIES

Education-Related Presentations

- J.W. Fergus, “Preparing Engineering Students to Work In and Prepare Solutions for Diverse Populations,” Materials Science & Technology (MS&T) 2023, 9-13 October 2022, Pittsburgh, PA.
- J.W. Fergus, “Introducing Students to the Importance of Sustainability in Materials Education,” Materials Science & Technology (MS&T) 2023, 9-13 October 2022, Pittsburgh, PA.
- J.W. Fergus, “Preparing for an ABET Evaluation,” Materials Science & Technology (MS&T) 2020, planned for 4-8 October 2020, Pittsburgh, PA – held virtually, Materials Science & Technology (MS&T) 2021, 17-20 October 2021, Columbus, OH.
- J.W. Fergus, “ABET and Curricular Innovation,” Session on Traditional Education Reimagined, Workshop on Materials Science and Engineering in a Post-Pandemic World, National Academies’ Defense, Materials, Manufacturing and in Infrastructure Standing Committee (CMMI), National Materials and Manufacturing Board (NMMB) 07-09 December 2020.
- Panelist, “Accreditation Reviews in the COVID-19 World,” World Engineering Education Forum and the Global Engineering Deans Council (WEEE-GEDC) Virtual Conference, 16-19 November 2020.
- J.W. Fergus, B.K. Via, M.W. Peresin and N.E. Chadwick, “Introducing the Circular Economy to Undergraduate Students,” Engineering Solutions for Sustainability: Materials and Resources 3 – Towards a Circular Economy, Denver, CO, 18-19 February, 2017.
- J.W. Fergus, “The Development of Effective Program Educational Objectives,” 2018 ABET Symposium, San Diego, CA, 12-13 April 2018, 2019 ABET Symposium, Dallas, TX, 11-12 April, 2019, Materials Science & Technology (MS&T) and 2019 Portland, OR, 29 September - 03 October.
- J.W. Fergus, “Preparation of Self-Study for Engineering,” 2014 ABET Symposium, Pittsburgh, PA, 3-4 April 2014, April 2015 ABET Symposium, Atlanta, GA, 23-24 April, 2015 and 2016 ABET Symposium, Hollywood, FL 14-15 April, 2016.
- J.W. Fergus and P. Brackin, “Statement Writing Session,” 2014 ABET Symposium, Pittsburgh, PA, 3-4 April, 2014 and 2015 ABET Symposium, Atlanta, GA, 23-24 April, 2015, 2016 ABET Symposium, Hollywood, FL 14-15 April, 2016 and 2017 ABET Symposium, Baltimore, MD, 20-21 April, 2017.
- J.W. Fergus, “Assembly and Preparation of Accreditation Teams,” 2nd World Summit on Accreditation, Indian National Board of Accreditation, 8-10 March 2014.
- J.W. Fergus, “Energy Education for Engineering: Needs and Opportunities, 2014 TMS Annual Meeting, San Diego, CA, 17-21 February 2014.
- J.W. Fergus, “Challenges and Opportunities in Preparing Scientists and Engineers for Work in Electrochemical Science and Technology,” 64th Annual Meeting of the International Society of Electrochemistry, Santiago de Querétaro, Mexico, 8-13 September 2013.

- J.W. Fergus, “Materials Engineering as a Catalyst for Sustainability Education,” 2013 ASEE Annual Conference, Atlanta, GA, 23-26 June 2013.
- J.W. Fergus and S. Scott-Harris, “Design of a Scholarship Program for Optimal Impact,” 2013 ASEE Annual Conference, Atlanta, GA, 23-26 June 2013.
- J.W. Fergus, “Program Evaluators: The Key to an Effective and Consistent Accreditation Process,” 2013 ABET Symposium, Portland, OR, 12-13 April 2013
- J.W. Fergus, “Courses on Sustainability Issues in Materials Engineering,” 2013 TMS Annual Meeting, TMS 2013, San Antonio, TX, 3-7 March 2013.
- J.W. Fergus and C. Twigge-Molecey, “Report on Subcommittee on Sustainability in Materials Education,” 2013 TMS Annual Meeting, TMS 2013, San Antonio, TX, 3-7 March 2013.
- J.W. Fergus, “Program Evaluators: The Key to an Effective and Consistent Accreditation Process,” 2012 ABET Symposium, St. Louis, 19-21 April 2012.
- J.W. Fergus, “Demonstrating the Societal Impact of Materials Science and Engineering,” 2nd North American Materials Education Symposium, Worcester, MA, 25 March 2011
- J.W. Fergus, “Program Evaluators – The Key to an Effective and Consistent Accreditation Process,” Materials Science & Technology (MS&T) 2011, Columbus, OH, 16-20 October 2011.
- J.W. Fergus, W.F. Gale, O.A. Oyarzabal, R.S. Miller and D.E. Conner, “Multidisciplinary Teams for Engineering in Food Safety Applications – Bridges between Engineering and Biology,” 2001 ASEE Southeastern Section Conference, Memphis, TN, 7-8 April 2008.
- J.W. Fergus, “Preparing Materials Engineers for Cross-Disciplinary Careers,” 2001 ASEE Annual Conference, Albuquerque, NM, 24-27 June 2001.
- J.W. Fergus, “Effective Use of a Small Faculty for Maintenance of a Comprehensive Materials Engineering Program, 1997 TMS Annual Meeting, Orlando, FL, 9-13 February 1997.

Courses Taught and Developed

Undergraduate Courses Taught

- Introduction to Sustainability
- Introduction to Engineering
- Minerals Resources: Processing and Availability
- Materials and the Environment
- Materials for Sustainable Energy Production and Storage
- Structure of Materials
- Materials and Properties (I and II)
- Phase Diagrams
- Crystallography
- X-Ray Diffraction Laboratory
- Physical Analysis of Materials
- Ferrous Metallurgy

- Introduction to Materials Science
- Engineering Materials – Ceramics
- Corrosion

Graduate Courses Taught

- Crystallography
- X-Ray Diffraction Laboratory
- Corrosion
- Solid State Electrochemistry and Sensor Materials
- High Temperature Electrochemical Devices

New Courses Developed

- Three one-hour undergraduate courses that are approved for use as an elective in the university minor in sustainability.
    - MATL 2210: Materials for Sustainable Energy Production and Storage
    - MATL 2220: Materials and the Environment
    - MATL 2230: Minerals Resources: Processing and Availability
- Graduate elective courses
    - MATL 7410: Solid State Electrochemistry and Sensor Materials
    - MATL 7450: High Temperature Electrochemical Devices
- “Corrosion: Prevention and Control" - 3-hour video lecture taken by professional engineers to fulfill continuing education requirements.
- Introduction to Engineering Problem Solving. With Tom Shumpert & Dennis Weatherby.
- Guest Lectures
    - Life Cycle Assessment
    - Critical Materials
    - Role of Engineering in Addressing the U.N. Sustainable Development Goals
    - Review course for materials science portion of FE exam
    - Materials selection for ENGR 3510: Introduction to Business and Education
    - Energy Use and Waste for HONR 1037: Sustainability and the Modern World

Study Abroad

- Sustainable Technologies and Practices in Northern Spain, 4-week, 6-credit-hour program in Pamplona, Spain – 2015, 2016.

Honors and Awards

- LBGTQ Advocate Award, Auburn University Office of Inclusion and Diversity (2022)
- Spirit of Sustainability Award, Auburn University Office of Sustainability (2019)
- Outstanding Materials Engineering Professor - Auburn University (1994, 1999, 2003, 2006)

Graduate Students Graduated

- Ph.D.: 11
- M.S. (Masters with thesis): 7
- M.Mtl. (non-thesis Master's): 19

EXTENSION AND OTHER PROFESSIONAL SERVICE

Diversity Activities

- Established / Chair College of Engineering Inclusion and Diversity Committee
- Member of Chief Diversity Officer's Cabinet
- PI for NSF ADVANCE proposals
- Member / Lead of Advocates and Allies leadership group
- Initiator and organizer of Promoting Emerging Engineering Research Scholar (PEERS) speaker program and Preparing Future Faculty Workshops (Faculty recruiting initiative)
- Member of Advisory Board for the Academic Excellence Program (AEP)
- Member of Commission on Women in Academic Careers
- Member of Executive Committee, Alabama Alliance for Students with Disabilities in STEM
- PI on NSF S-STEM Project for Scholarships for Engineering Students from Underrepresented Groups
- Co-PI on Sloan Foundation project to increase Ph.D.in materials science and engineering

University Committees and Service

- Chair, Search Committee for Director of Undergraduate Research, 2021
- Chair, Director of Design and Innovation Search Committee, 2021
- Member, Search Committee for Director of Cross Cultural Center of Excellence, 2021
- Member, Administrative Review Committee, Dean of the Graduate School, 2019
- Member, Departmental Program Review Committees
    - Poultry Sciences, 2012
    - Geosciences, 2019
    - Political Science, 2021
- Chair, Administrative Review Committee, Head of School of Industrial and Graphic Design, 2019
- Member, Faculty Search Committee for the School of Forestry and Wildlife Sciences, 2019
- Member, Search Committee for Associate Dean of the Graduate School, 2018
- Member, Search Committee for Coordinator of Alabama Power Academic Excellence Program, 2017-18
- Member, Search Committee for Department Head of Biosystems Engineering, 2016
- Member, Search Committee for Associate Dean for Research, 2015-16
- Member, Commission on Women in Academic Careers, 2015
- Member, Distance Learning Subgroup of e-Learning Committer, 2014-present
- Member, Diversity Council, 2014-present
- Member and Chair, Search Committee for Manager in the Office of Diversity and Multicultural Affairs, 2015
- Member and Chair, Search Committee for Coordinator of Alabama Power Academic

Excellence Program, 2014-15

- Member, Search Committee for Director of Alabama Power Academic Excellence Program, 2014-15
- Member, Search Committee for Vice-President of Alumni Affairs, 2014
- Member, Search Committees for Director of Biggio Center
    - First director: 2003
    - Second director: 2014
- Member, University Promotion and Tenure Committee, 2011-2014
- Member, University Scholarship Committee, 2008-2014
- Member, Academic Sustainability Advisory Committee, 2012-present
- Member, Task Force on Undergraduate Research Fellowships, 2013-2014
- Member, President's Graduate Opportunity Program (PGOP) 2001-2013
    - (Chair, 2009-2010)
- Member, Program Coordinator Faculty Search Committee, Alabama Power Academic Excellence Program, 2013-present
- Member, Faculty Search Committee, Polymer and Fiber Engineering, 2011-2012
- Member, Undergraduate Research Fellowship Evaluation Committee, 2011-2014
- Member, Competitive Research Grant Committee, 2009-2012
- Member, Internship Task Force, 2010-2011
- Member, Retention Committee, 2007-2010
- (Chair 2008-2010)
- Member, Interdisciplinary Studies Degree Faculty Oversight Committee, 2009-2011
- Member, Program Committee for Diversity Research Initiative, 2009-2011
- Member, Radiological Safety Committee, 2007-2010
- Member, University International Student Committee, 1994-1997
    - (Chair, 1996-1997)
- Member, University Senate Teaching Effectiveness Committee, 1998-2001, 2007-2010
    - (Chair, 2000-2001)
- Member, Faculty Committee for Southeastern Association of College and Schools (SACS) Self-Study, 2003
- Member, Search Committee for Special Assistant to the Associate Provost for Multicultural Affairs
- Member, Multicultural Diversity Commission, 2002-2005
- Biggio Center for the Enhancement of Teaching and Learning
    - Mentor/Facilitator, New Faculty Scholars Program, 2004-2008
    - Small group facilitator for symposium on How People Learn: Research & Application (02 February 2007)
- Member, College of Engineering Scholarship Committee, 2007-2014
- Member, College of Engineering Curriculum Committee, 1997-present
- Member, College of Engineering ABET EC 2000 Committee 1998-2014
- Member, Search Committee for Academic Advisor College of Engineering

Materials Engineering Administrative Positions and Responsibilities

- Academic Advisor, 1997-2014
- Graduate Program Officer, 1997-2012
- ABET Coordinator - develop and coordinate program outcome assessment plan, 1998-2014
- Course scheduler, 1997-2014
- Graduate Admissions Committee, 1992-2014
- Undergraduate recruitment, 1998-2014

Service to Professional Organizations

The Electrochemical Society (ECS)

- Electrochemical Society Fellow (2016-present)
- Editor of ECS Transactions (2013-2021)
- Member of Nominations Committee (2016-2017)
- Member of Open Access & Discoverability Subcommittee of Free the Science Advisory Board (2016-2019)
- Member of Publications Subcommittee (2002-2005, 2013-2021)
- Member of High Temperature Materials Executive Committee (2003-2021)
    - Chair (2011-2013)
- Board of Directors (2011-2013)
- Member of Education Committee (2008-2013)
    - Chair (2012-2013)
- Member of New Technology Subcommittee (2007-2010)
- Member of Interface Advisory Board (2008-2010)
- Faculty Advisor for Auburn University Student Chapter (2007-2016)
- Chair of Georgia Section (2004-2005)

The Metals, Minerals and Materials Society (TMS)

- Member of ad-hoc Committee on Society Governance (2021)
- Member of Board of Directors: Professional Development Director (2014-2017)
- Member of Accreditation Committee (2003-present)
    - Chair (2011-2013)
- Member of Professional Development Committee (2014-2018)
    - Chair (2014-2016)
- ABET program evaluator (2003-present)
- Representative to ABET Engineering Accreditation Commission (2008-2013)
- Member of Materials and Society Committee (2012-2017)
    - Co-Chair of Subcommittee on Sustainability in Materials Education (2012-2017)
- Representative on AIME Sustainability Steering Committee (2012-2017)
- Member of Professional Registration Committee (2000-present)
    - Chair (2006-2008)

- Representative to NCEES-EPE Committee (2006-2008)
- Member of Undergraduate Education Coordinating Committee (2010-2011)
- Member of ad-hoc Committee on Education (2011-2012)

The American Ceramic Society (ACerS)

- Established and served as Faculty Advisor for Auburn University Student Branch
- Member of Phase Equilibrium Committee (2008-2011)
    - Chair (2009-2011)
- Member of Publications Committee (2009-2011)
- Member of Presidential Committee on the ACerS Phase Equilibria Program (2009-2010)

ABET

- ABET Fellow (2020-present)
- EAC Chair (2019-2020)
- EAC Executive Committee (2013-2021)
- EAC Commissioner (2008-2013)
- Accreditation Council Training Committee Chair (2022-23)
- Lead Facilitator for program evaluator face-to-face training (2014-present)
- Support Facilitator for program evaluator face-to-face training (2011-2014)
- Program Evaluator Mentor (2010-present)
- Program Evaluator (2003-present)
- Member of Accreditation Council Training Committee (2012-2015)
    - Chair of New Team Chair Training Task Group (2012-2015)

The American Society for Engineering Education (ASEE)

- Member of Graduate Studies Division (GSD)
    - Chair (2020-2022)
- Representative to Committee on Diversion, Equity and Inclusion (2019-2021)
- Member of Minorities in Engineering Division (MIND)
- Member of the Materials Division

Alpha Sigma Mu (International Honor Society for Materials and Metallurgical Eng.)

- Board of Trustees (1996-1999)
    - President (1997-1998)
- Faculty advisor for Auburn University Chapter

Other Professional Service and Recognition

- Appointed at Fulbright Specialist 2022-2026
    - University of Indonesia, December 2022
- Participated in World Class Professor (WCP) program with the University of Indonesia, Depok, Indonesia (2018)
- Served as opponent for Ph.D. defense in Chalmers University, Gothenburg, Sweden

(2017)

- Member of External Advisory Committee for the Partnership for Research and Education in Materials (PREM) of Xavier University of Louisiana (2012-2013)
- Served on external review team for Romanian National Authority for Scientific Research (2012)
- Licensed Professional Engineer (AL No. 22261)
- Write / review questions for the Metallurgical and Materials Engineering PE Examination
- Proposal Review
    - National Science Foundation (NSF)
    - U.S. Department of Energy (DOE)
    - CASIS: Materials Testing in the Extreme Environment of Space
    - NASA Postdoctoral Program
    - U.S. Department of Agriculture (USDA)
    - Army Research Laboratory (ARO)
    - U.S. Civilian Research and Development Foundation (CRDF)
    - ACS Petroleum Research Fund
    - Alfred P. Sloan Foundation
    - UTSA DoD HBCU
    - American Association for the Advancement of Science (AAAS) (Inland Northwest Research Alliance (INRA)
    - Kentucky Science and Engineering Foundation R&D Excellence Awards
    - University Research for Graduate Education (URGE) project (World Bank)
    - The International Copper Association (ICA) Center for Advanced Interdisicplinary Research in Materials (CIMAT) Program
    - Engineering and Physical Sciences Research Council (ESPRC) (UK)
    - Natural Sciences and Engineering Research Council (NSERC) (Canada)
    - Ontario Centres of Excellence Inc (OCE)
    - German Israeli Foundation (GIF)
    - German Research Foundation (DFG)
    - German Academic Exchange (DAAD)
    - Einstein Foundation
    - German Academic Exchange Service (DAAD)
    - Czech Science Foundation (CSF)
    - Hungarian Scientific Research Fund ((OKTA)
    - Netherlands Organisation for Scientific Research (NWO)
    - French National Research Agency (ANR)
    - Portuguese Foundation for Science and Technology (FCT)
    - National Science Centre, Poland
    - Georgian National Science Foundation (GNSF)
    - Estonia Research Council
    - Research Council of Romania
    - Israel Science Foundation (ISF)

Consulting

- Hoerbiger Drive Tech.
- Rheem Manufacturing
- Schlumberger Industries
- G&M Industries
- Southern Wildlife Systems
- Alabama Specialty Products
- U.S. Filter Wheelabrator
- Rushton, Stakely, Johnston and Garrett
- Sharpe and Reynolds
- Southern Glassline Equipment
- Talladega Engineering
- Nanotek Instruments, Inc.
- Griffith Sikes
- Intermet
- Farrier
- Mando
- CSP Technologies
- Greg Davis
- Research Quality & Design Engineering