

Curriculum Vitae

CHAD E. SOSOLIK

Professor, Department of Physics and Astronomy

Clemson University
Clemson, SC 29634-0978

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EDUCATION

Ph.D., Cornell University, 2001, Physics

M.S., Cornell University, 1998, Physics

B.S., Texas A&M University, 1995, Physics

PROFESSIONAL EXPERIENCE

Clemson University, 2018 - 2019, Interim Department Chair

2015 - , Undergraduate Program Coordinator

2015 - , Professor of Physics

2009-2015, Associate Professor of Physics

2003-2009, Assistant Professor of Physics

NIST-Gaithersburg, 2001-2003, NRC Postdoctoral Research Associate

PROFESSIONAL ACTIVITIES

President, Southern Atlantic Coast Section of the American Association of Physics Teachers

International Scientific Committee – International Workshop on Inelastic Ion Surface Collisions.

American Society for Engineering Education, SMART Scholarship Panel

NSF Panel Reviewer (DMR, MRI and GRFP)

PROFESSIONAL ACTIVITIES (cont.)

Journal Reviewer: Applied Surface Science, Atoms, Europhysics Letters, Journal of Applied Physics, Journal of Chemical Physics, Journal of Physics D: Applied Physics, Journal of Vacuum Science and Technology A/B, Langmuir, Nature, Nuclear Instruments and Methods in Physics Research B, Physical Review Letters, Physical Review A/B/Materials, Superconductor Science and Technology, Surface Science, Vacuum

MEMBERSHIPS

Member, American Association of Physics Teachers (1999-)

Member, American Astronomical Society (2018-)

Member, American Physical Society (1993-)

Member, American Vacuum Society (2003-)

Member, Council on Undergraduate Research (2005-)

Member, Materials Research Society (1999-)

PUBLICATIONS (* denotes undergraduate coauthor)

1. S. Bromley, C. Ahl*, C.E. Sosolik and J. Marler, "Charge Exchange Cross Sections for Noble Gas Ions and N₂ between 0.2 and 5.0 keV", *Atoms* **7**, 96(2019).
2. S. Bromley, C.E. Sosolik and J. Marler, "Symmetric charge exchange for intermediate velocity noble gas projectiles", *J. Phys. B: At. Mol. Opt. Phys.* **52**, 215203(2019).
3. E.S. Srinadhu, D.D. Kulkarni, D.E. Field, J.E. Harriss and C.E. Sosolik, "Multicharged ion irradiation effects on a polycarbonate surface", *Radiat. Eff. Defect S.* **174**, 205(2019).
4. E.S. Srinadhu, J.E. Harriss and C.E. Sosolik, "Shape transitions of Cu₃Si islands grown on Si(111) and Si(100)", *Appl. Surf. Sci.* **465**, 201(2019).
5. D.B. Cutshall, D.D. Kulkarni, J.E. Harriss, D.E. Field, C.E. Sosolik and W.R. Harrell, "Effects of slow highly charged ion irradiation on metal oxide semiconductor capacitors", *J. Vac. Sci. Technol. B* **36**, 052901(2018).
6. S.J. Bromley, D.C. Fox*, C.E. Sosolik, J.E. Harriss and J.P. Marler, "A gas cell apparatus for measuring charge exchange cross sections with multicharged ions", *Rev. Sci. Instrum.* **89**, 073107(2018).
7. D.B. Cutshall, D.D. Kulkarni, A.J. Miller*, J.E. Harriss and C.E. Sosolik, "Tracking ion irradiation effects using buried interface devices", *Nucl. Instrum. Meth. B* **422**, 47(2018).
8. D.D. Kulkarni, C.D. Ahl*, A.M. Shore*, A.J. Miller*, J.E. Harriss, C.E. Sosolik and J.P. Marler, "Kinetic energy offsets for multicharged ions from an electron beam ion source", *Rev. Sci. Instrum.* **88**, 083306(2017).

PUBLICATIONS (cont.)

9. D.D. Kulkarni, D.A. Field, D.B. Cutshall, J.E. Harriss, W.R. Harrell and C.E. Sosolik, "Probing kinetically excited hot electrons using Schottky diodes", *J. Vac. Sci. Tech. B* **35**, 03D103(2017).
10. D.D. Kulkarni, L.A.M. Lyle* and C.E. Sosolik, "Ion transport through macrocapillaries – Oscillations due to charge patch formation", *Nucl. Instrum. Meth. B* **382**, 54(2016).
11. R.E. Shyam, D.D. Kulkarni, D.A. Field, E.S. Srinadhu, J.E. Harriss, W.R. Harrell and C.E. Sosolik, "Encapsulating Ion-Solid Interactions in Metal-Oxide-Semiconductor (MOS) Devices", *IEEE Trans. Nucl. Sci.* **62**, 3346(2015).
12. D.D. Kulkarni, R.E. Shyam, D.B. Cutshall, D.A. Field, J.E. Harriss, W.R. Harrell and C.E. Sosolik, "Tracking Subsurface Ion Radiation Damage with MOS Device Encapsulation", *J. Mat. Res.* **30**, 1413(2015).
13. R. Shyam, D.D. Kulkarni, D.A. Field, E.S. Srinadhu, D.B. Cutshall, W.R. Harrell, J.E. Harriss and C.E. Sosolik, "First Multicharged Ion Irradiation Results from the CUEBIT Facility at Clemson University", *AIP Conf. Proc.* **1640**, 129(2015).
14. E. Takacs, T. D. Kimmel*, K. H. Brandenburg*, R. K. Wilson*, A. C. Gall, J. E. Harriss and C.E. Sosolik, "Diagnostic Measurements of CUEBIT Based on the Dielectronic Resonance Process", *AIP Conf. Proc.* **1640**, 154(2015).
15. M.P. Ray, R.E. Lake, J.B. Marston and C.E. Sosolik, "Energy and Charge Transfer for Na⁺ Ions Scattered from a Ag(001) Surface", *Surface Science* **635**, 37(2015).
16. R.E. Lake, C.E. Sosolik, and J.M. Pomeroy, "Classical over-the-barrier model for neutralization of highly charged ions above thin dielectric films", *Phys. Rev. A* **87**, 062901(2013).
17. R.E. Lake, J.M. Pomeroy, H. Grube, and C.E. Sosolik, "Charge State Dependent Energy Deposition by Ion Impact", *Phys. Rev. Lett.* **107**, 063202(2011).
18. R.E. Lake, J.M. Pomeroy, and C.E. Sosolik, "Critical capture distances for highly charged ions above dielectric covered metal surfaces", *Nucl. Instrum. Meth. B* **269**, 1199(2011).
19. J.M. Pomeroy, R.E. Lake, and C.E. Sosolik, "Highly charged ion interactions with thin insulating films", *Nucl. Instrum. Meth. B* **269**, 1238(2011).
20. R.E. Lake, J.M. Pomeroy, and C.E. Sosolik., "Energy dissipation of highly charged ions on Al oxide films", *Journal of Physics: Condensed Matter* **22**, 084008 (2010).
21. M.P. Ray, R.E. Lake, L.B. Thomsen, G. Nielson, O. Hansen, I. Chorkendorff, and C.E. Sosolik, "Towards hot electron mediated charge exchange in hyperthermal energy ion-surface interactions", *Journal of Physics: Condensed Matter* **22**, 084010 (2010).
22. M. P. Ray, R. E. Lake, C. E. Sosolik, L. B. Thomsen, G. Nielsen, I. Chorkendorff, and O. Hansen, "Subsurface excitations in a metal", *Phys. Rev. B* **80**, 161405(R) (2009).

PUBLICATIONS (cont.)

23. M.P. Ray, R.E. Lake, and C.E. Sosolik, "Energy Transfer in Quasi-Binary and Collective Scattering Events at a Ag(001) Surface", *Phys. Rev. B* **79**, 155446(2009).
24. R.E. Lake, J.R. Puls, M.P. Ray, and C.E. Sosolik, "A compact deposition system for device-based ultrathin crystalline film growth", *J. Vac. Sci. Tech. A* **27**, 1024(2009).
25. M.P. Ray, R.E. Lake, and C.E. Sosolik, "Alkali Ion Scattering from Ag(001) and Ag Thin Films at Low and Hyperthermal Energies", *Nucl. Instrum. and Meth. B* **267**, 615(2009).
26. M.P. Ray, R.E. Lake, S.A. Moody, V. Magadala and C.E. Sosolik, "A hyperthermal energy ion beamline for probing hot electron chemistry at surfaces", *Rev. Sci. Instrum.* **79**, 076106(2008).
27. R.E. Lake, A. Dean, N. Maheswaranathan, A.P. Lange, M.P. Ray and C.E. Sosolik, "Vacancy island creation and coalescence using automated scanning tunneling microscopy", *Rev. Sci. Instrum.* **79**, 013703(2008).
28. J.M. Pomeroy, H. Grube, A.C. Perella, C.E. Sosolik and J.D. Gillaspay, "Transport and STM Measurements of HCI Modified Materials", *Nucl. Instrum. and Meth. B* **256**, 319(2007).
29. J. Powers, J.R. Manson, C.E. Sosolik, J.R Hampton, A.C. Lavery and B.H. Cooper, "Temperature-Dependent Scattering of Hyperthermal Energy K⁺ Ions", *Phys. Rev. B.* **70**, 115413(2004).
30. C.E. Sosolik, J.A. Stroscio, M.D. Stiles, E.W. Hudson, S.R. Blankenship, A.P. Fein, and R.J. Celotta, "Real-Space Imaging of Structural Transitions in the Vortex Lattice of V₃Si", *Phys. Rev. B* **68**, 140503(2003).
31. C.E. Sosolik, J.R. Hampton, A.C. Lavery, B.H. Cooper and J.B. Marston, "Thermally Enhanced Neutralization in Hyperthermal Energy Ion Scattering", *Phys. Rev. Lett.* **90**, 013201(2003).
32. C.E. Sosolik and B.H. Cooper, "Heavy Atom-Surface Scattering at Hyperthermal Energies", *Nucl. Instrum. Meth. B* **182**, 167(2001).
33. A.C. Lavery, C.E. Sosolik, and B.H. Cooper "Surface Trapping During Hyperthermal Energy Scattering", *Phys. Rev. B* **62**, 16126(2000).
34. C.E. Sosolik, A.C. Lavery, E.B. Dahl and B.H. Cooper, "A Technique for Accurate Measurements of Ion Beam Current Density Using a Faraday Cup, *Rev. Sci. Instrum.* **71**, 3326(2000).
35. A.C. Lavery, C.E. Sosolik, C.A Keller, and B.H. Cooper, "Charge Transfer and Memory Loss in keV Oxygen-Ion Scattering from Cu(001)", *Phys. Rev. B* **61**, 2291(2000).
36. A.C. Lavery, C.E. Sosolik, and B.H. Cooper, "Corrugation Effects in Oxygen Surface Trapping at Hyperthermal Energies", *Phys. Rev. Lett.* **83**, 5286(1999).

PUBLICATIONS (cont.)

37. A.C. Lavery, C.E. Sosolik, and B.H. Cooper, "Energy- and Angle-Dependent Trends in the Trapping Probability of 0^+ Incident on Cu(001)", *Nucl. Instrum. Meth. B* **157**, 214(1999).
38. A.C. Lavery, C.E. Sosolik, C.A Keller, and B.H. Cooper, "Charge Transfer Dynamics of Low Energy Oxygen Ion Beams Scattered From Cu(001)", *Nucl. Instrum. Meth. B* **157**, 42(1999).

PRESENTATIONS

“PhysTEC 2019: A Report from the meeting of the Physics Teacher Education Coalition”, South Atlantic Coast Section of the AAPT (SACS-AAPT) Spring Meeting, Univ. of N. Georgia (2019)

“STEM Training for K-12 Teachers: A Pilot Program in Upstate South Carolina”, Physics Teacher Education Coalition (PhysTEC) Conference, Boston, MA (2019)

“Vacuum Applications of 3D Printed Materials and Devices for Ion Beam Physics”, Poster Presentation, Council on Undergraduate Research Posters on the Hill, Washington DC (2018) [undergraduate student presentation]

“Ion-Solid Interactions: Probing Energy and Charge Exchange for Singly-to-Multiply Charged Ions”, Special Seminar, Univ. of Virginia, VA (2018)

“STEM Training for K-12 Teachers: A Pilot Program in Upstate South Carolina”, American Association of Physics Teachers (AAPT) Winter Meeting, Atlanta, GA (2017)

“Probing Ion Irradiation Effects with Buried Interface Devices”, 22nd International Workshop on Inelastic Ion Surface Collisions (IISC-22), Dresden, Germany (2017)

“Probing Ion Irradiation Effects with Buried Interface Devices”, Southeastern Section of the APS (SESAPS) Meeting, Milledgeville, GA (2017)

“Hot Carrier Excitations due to Hyperthermal Ion Irradiation Probed Using Schottky Diodes”, American Vacuum Society Meeting, Nashville, TN (2016) (contributed talk)

“Unlocking the Potential of Multiply Charged Ions”, Colloquium at Dept. of Physics and Astronomy, University of Georgia, Athen, GA (2016)

“Recent Results from the Ion Beam Laboratories at Clemson University”, 21st International Workshop on Inelastic Ion Surface Collisions (IISC-21), San Sebastian, Spain (2015)

“CUEBIT: A User Facility for Probing Highly Charged Ion-Materials Interactions”, International Symposium on Electron Beam Ion Sources and Traps (EBIST), East Lansing, MI (2014) (invited talk)

“Probing Energy loss with MOS structures”, American Vacuum Society Meeting, Long Beach, CA (2013) (poster)

PRESENTATIONS (cont.)

“Capturing Ion-Solid Interactions with MOS Structures”, American Vacuum Society Meeting, Tampa, FL (2012) (contributed talk)

“Capturing Ion-Solid Interactions with MOS Structures”, American Physical Society March Meeting (2012) (contributed talk)

“Low Energy Heavy Ion Irradiation of MOS devices”, Southeastern Section of the APS (SESAPS), Roanoke, VA (2011) (contributed talk)

“Electronic Interaction of Highly Charged Ions with Dielectric Covered Metal Surfaces”, 18th International Workshop on Inelastic Ion Surface Collisions, Gatlinburg, TN (2010) (contributed talk)

“The Center for Ion Modified Materials Research: A New Highly Charged Ion-Based User Facility at Clemson University”, Conference on Application of Accelerators in Research and Industry (2010) (invited talk)

“Highly Charged Ion Astrophysics in the Laboratory: A New User Facility at Clemson University”, Southeastern Laboratory Astrophysics Meeting on Dust and Ice: Their Roles in Astrophysical Environments (2010) (invited talk)

“Trajectories and Neutral Fractions of Alkali Ions Scattered from Au(788)”, American Vacuum Society Meeting, San Jose, CA (2009) (poster)

"A Compact Deposition Chamber Design for Low Temperature Growth of Ultrathin Crystalline Films on Metal-Insulator-Semiconductor Devices", American Vacuum Society Meeting, Boston, MA (2008)

"Hyperthermal Energy Ion Scattering from Ag(001)", 17th International Workshop on Inelastic Ion Surface Collisions, Porquerolles, France (2008)

"Hyperthermal Energy Ion Scattering as a Time Resolved Probe of Pico- to Femtosecond Surface Excitations", American Physical Society Meeting, New Orleans, LA (2008)

"Surface Femtochemistry with Hyperthermal Energy Ion Beams", American Physical Society Meeting, New Orleans, LA (2008)

"A Method for Studying Atomic Diffusion by STM Tip-Crash Induced Vacancy Island Coalescence", American Physical Society Meeting - Southeastern Section, Nashville, TN (2007)

"Probing the Surface Potential of Ag(001) with Hyperthermal K⁺ Ion Scattering", American Physical Society Meeting - Southeastern Section, Nashville, TN (2007)

“Nanoscale Stability: The Characterization and Modification of Nanostructures on Ag(111) Using Scanning Tunneling Microscopy”, Poster Presentation, Council on Undergraduate Research, Posters on the Hill, Washington DC (2007) [student presentation]

PRESENTATIONS (cont.)

"Probing Electron-Hole Pair Production in Ultrathin Film Schottky Diode Devices using Hyperthermal Energy Ion Beams", American Physical Society Meeting, Denver CO (2007)

"Automated Tracking of Nanometer-Scale Feature Evolution Using an STM", Southeastern Section of the APS (SESAPS) Meeting, Williamsburg, VA (2006)

"Probing Chemicurrent Production in Ultrathin Film Schottky Diode Devices using Hyperthermal Energy Ion Beams", Southeastern Section of the APS (SESAPS) Meeting, Williamsburg, VA (2006)

"Investigating Chemicurrent Production from Hyperthermal-Energy Ion Impacts", American Physical Society Meeting, Baltimore, MD (2006)

"A low and hyperthermal energy UHV ion beamline for surface scattering spectroscopies", American Physical Society Meeting, Baltimore, MD (2006)

"Imaging Carbon Nanotubes with a Scanning Tunneling Microscope", Poster Presentation, Council on Undergraduate Research Posters on the Hill, Washington DC (2005) [student presentation]

"Real-Space Imaging of Structural Transitions in a Vortex Lattice", University of Minnesota, Minneapolis, MN (2003)

"Real-Space Imaging of Structural Transitions in a Vortex Lattice", Massachusetts Institute of Technology, Boston, MA (2003)

"Real-Space Imaging of Structural Transitions in a Vortex Lattice", Clemson University, Clemson, SC (2003)

"Real-Space Imaging of the Vortex Lattice in V_3Si ", American Physical Society Meeting, Austin, TX (2003)

"Asymmetry and Fermi Liquid Effects in Scanning Tunneling Spectroscopy of V_3Si ", Physical Electronics Conference, Atlanta, GA (2002).

"Asymmetry and Fermi Liquid Effects in Scanning Tunneling Spectroscopy of V_3Si ", IEEE Conference on Nanotechnology Washington DC (2002)

"Spin Polarized Vacuum Tunneling from a Conventional Superconductor", American Physical Society Meeting, Indianapolis, IN (2002)

"Atom-Surface Scattering and the Search for the 'Flying' Kondo Effect", Leiden University, Leiden, The Netherlands (2001)

"Atom-Surface Scattering and the Search for the 'Flying' Kondo Effect", Condensed Matter Seminar, Princeton University, Princeton, NJ (2001)

PRESENTATIONS (cont.)

"Heavy Atom-Surface Scattering at Hyperthermal Energies", American Physical Society Meeting, Seattle, WA (2001)

"Heavy Atom-Surface Scattering at Hyperthermal Energies", 13th International Workshop on Inelastic Ion-Surface Collisions, Argentina (2000)

"The Search for the Flying Kondo Effect", Cornell University, Ithaca, NY (2000)

"The Dynamics of Multi-State Charge Transfer", European Science Foundation Conference on Particle-Solid Interactions: Dynamic Phenomena, San Sebastian, Spain (1999)

"Charge Transfer Dynamics of Low Energy Oxygen Ion Beams Scattered from Cu(001)", 12th International Workshop on Inelastic Ion-Surface Collisions, South Padre Island, TX (1999)

"Temperature-Dependent Neutralization in Alkali and Alkaline-Earth Ion-Surface Scattering", American Physical Society Meeting, Minneapolis, MN (2000)

"Temperature Dependent K⁺ and Ca⁺ Scattering from Cu(001)", American Physical Society Meeting, Atlanta, GA (1999)

"Energy Dependent Trapping Probabilities of Hyperthermal O⁺ on Cu(001)", Materials Research Society Meeting, Boston, MA (1998)

"Charge Transfer Dynamics of Low Energy Oxygen Ion Beams Scattered from Cu(001)", American Physical Society Meeting, Los Angeles, CA (1998)

"Excited State Formation in Li⁺ Scattering", Univ. of Houston, Houston, TX (1997)

"Excited State Formation in Atom-Surface Scattering", American Physical Society Meeting, Kansas City, MO (1997)

HONORS AND AWARDS

PhysTEC Fellow, APS and AAPT (2019-2021)

Teaching Forward Fellow, Clemson University (2019-2020)

University Research, Scholarship, and Artistic Achievement Award Recipient, Clemson University (2018)

NSF CAREER Award (2006)

Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Assoc. Univ. (2004)

National Research Council Postdoctoral Research Associateship (2001-2003)

NSF Traineeship in Instrumentation, Cornell University (1995-1999)

Graduated Magna Cum Laude, Texas A&M University (1995)

HONORS AND AWARDS (cont.)

John Beckham Award in Science, Texas A&M University (1995)

Outstanding Honors Thesis, Texas A&M University (1995)

SPONSORED RESEARCH

“RET Supplement”, National Science Foundation, \$20,000 (2019).

“REU Supplement”, National Science Foundation, \$20,000 (2019).

“Momentum Resolved Charge Exchange Cross Section Measurements and X-ray Spectroscopy”, NASA, \$636,916 (2018-2021).

“Collaborative Research: Bound-Bound and Bound-Free Opacities of Heavy Lowly-Charged r-Process Ions”, National Science Foundation, \$260,518 (2018-2021).

“RET Supplement”, National Science Foundation, \$20,000 (2018).

“Eclipse Workshops for Upstate South Carolina Educators”, South Carolina Space Grant Consortium, \$2,000, (2017).

“RET Supplement”, National Science Foundation, \$20,000 (2017).

“REU Site: Solid-State Devices for Electronics, Photonics, and Magnetics Technology”, National Science Foundation, \$352,644 (2017-2019).

“Phase 1 Option: Multicharged Ion Promoted Desorption (MIPD) of Reaction Co-Products”, DARPA and Army Research Office, \$151,671 (2013-2014).

“Multicharged Ion Promoted Desorption (MIPD) of Reaction Co-Products”, DARPA and Army Research Office, \$189,949 (2012-2013).

“Ion Modified Barrier Enhanced Detection of Highly Charged Ion Impact Sites”, National Institute of Standards and Technology, \$32,641 (2011-12)

“Initiating Ionic Radiation Effects Testing at CUEBIT”, SC Space Grant Consortium, \$6,000 (2011-12).

“Highly Charged Ion Modified Magnetic Tunnel Junction”, National Institute of Standards and Technology, \$25,000 (2010-11).

“MRI-R2: Acquisition of a Highly Charged Ion Beamline for Interdisciplinary Materials Research and Education at Clemson University”, National Science Foundation – MRI(PI) – \$1,648,901, (2010-2013).

"South Carolina Space Grant Consortium Palmetto Academy Program", NASA – South Carolina Space Grant Consortium, \$52,800 (\$52,800), (2009-2010).

"Ionization-on-a-Chip for Miniaturized Mass Spectrometry", NASA - South Carolina Space Grant Consortium, \$30,000 (\$30,000), (2008-2009).

SPONSORED RESEARCH (cont.)

"Instrumentation for Characterization of the Electronic Properties of Nanoscale Materials and Devices", Clemson University Research Investment Fund Program, \$152,000 (\$152,000), (2007).

"Acquisition of A Microsystem Analyzer for Integrated Research and Education in Dynamic Analysis, Surface Topography, and Characterization of Active Microstructures," National Science Foundation - MRI, \$280,300, (2006-2007).

"Chemicurrent-Based Sensing: A Compact, Single-Impact Method for the Detection of Energetic Gas Species," NASA - South Carolina Space Grant Consortium, \$60,000 (\$30,000), (2006-2007).

"CAREER: Energy and Charge Transfer Dynamics in Hyperthermal Energy Ion-Surface Impacts," National Science Foundation, \$522,000, (\$522,000), (2006-2011).

"Probing Doped Single-Walled Nanotubes at the Atomic Level," Oak Ridge Associated Universities - Ralph E. Powe Junior Faculty Award, \$10,000 (\$10,000), (2004-2005).

"A Compact Electron Impact Ionization Source for Fullerene Molecules," Clemson University Research Grant Committee, \$3,000, (\$3,000), (2003-2004).

OTHER SPONSORED ACTIVITY

"Design, Construction, and Testing of a Rubens' Tube for Wave Demonstrations", Roper Mountain Science Center, \$3,037 (2017).

Alpha Immersion Equipment Grant for Advanced Teaching Laboratory, Jonathan F. Reichert Foundation, \$4,047 (2015).

"Construction of a 12" Cyclotron", American Institute of Physics [funding awarded to local SPS Chapter, mentor is PI], \$1,750 (2012-13).

"Restoration of the Clemson University Foucault Pendulum", Clemson University Student Senate – Capital Improvement Grant, \$68,001 (2012-13).

"SCSGC Palmetto Academy", REU – South Carolina Space Grant Consortium, \$24,000 (2009-2010).

GRADUATE STUDENT ADVISING

Doctoral Graduates

Ray, M.P. "The Dynamics of Energy and Charge Transfer in Low and Hyperthermal Energy Ion-Solid Interactions", 8/2009.

Lake, R.E., "Highly Charged Ion Modified Magnetic Tunnel Junctions", 8/2012.

Shyam, R., "Energy Loss of Ions Implanted in MOS Dielectric Films", 8/2014.

Srinadhu, E.S., "Defect Assisted Growth of Copper-Silicide Nanostructures on Si(100) and Si(111)", 5/2016.

Kulkarni, D.D., "Metrology and Transport of Multiply Charged Ions", 5/2017.

Masters Graduates

Bellam, H.C. (M.S. Materials Science), "Scanning Tunneling Imaging and Spectroscopy of Single- and Multi-Walled Carbon Nanotubes", 8/2005.

Moody, S. (M.S. Physics), "Detection of Single Atom-Surface Collision Events with Schottky Barrier-Type Devices", 8/2006.

Ray, M.P. (M.S. Physics), "Trajectory-Resolved Scattering of Alkali Ions from a Ag(001) Surface", 12/2006.

Lake, R.E. (M.S. Physics), "HCI and STM Induced Morphological Changes at the Nanoscale", 12/2009.

Sayson, N.L. (M.S. Physics), "Heavy Atom Surface Scattering", 5/2012.

Puls, J.R. (M.S. Materials Science), "Double Paddle Oscillators for the Mechanical Spectroscopy of Ion-Solid Modifications", 8/2012.

Current Graduate Advising

Bromley, S.J. (Ph.D. Physics), "Charge Exchange Cross Sections for Highly Charged Ions"

Cutshall, D.B. (Ph.D. Electrical Engineering), "Ion Impact Effects on Buried Interface Devices"

Field, D.A. (Ph.D. Physics), "Mechanical Spectroscopy for Single Ion Impact Detection" (Major Advisor).

Johnson, P.R. (Ph.D. Physics), "Ionization and Spectroscopy of Lanthanide Series Elements for Ground-Based Neutron Star Merger Studies" (Major Advisor)

McCall, D. (Ph.D. Physics), "Band Structure Effects in Surface Electronic Friction" (Major Advisor)

TEACHING

PHYS 2000, Introductory Physics, S06

PHYS 2210, Physics with Calculus II, F06/F07/F19

PHYS H2210, Physics with Calculus II (Honors), F04/F05/F08

PHYS 3210/H3210, Classical Mechanics I, F09/F10

PHYS 3220/H3220, Classical Mechanics II, S09/S10

PHYS 3250/H3250, Experimental Physics I, F10/F11/F12/F13/F14/F15/F16/F17

PHYS 3260/H3260, Experimental Physics II, S11/S12/S13/S14/S15/S16/S17/S18

PHYS 3560/H3560, Modern Physics, S12/S13/S14/S15

PHYS 4450/6450, Solid State Physics, S07/S08

PHYS 4650/H4650/6650, Thermodynamics and Statistical Mechanics, S04/S05

PHYS 4750, GRE Preparation I, F04/F05

UNIVERSITY AND PUBLIC SERVICE

Committees

Department: Interim Department Chair (2018-19)
Member, Search Committee for Laboratory Coordinator (2017)
Undergraduate Program Coordinator (2015 -)
Chair, Search Committee for Shop Head (2015)
Chair, Undergraduate Recruiting Committee (2015 - 2018)
Chair/Member, Curriculum Committee (2015 - 2018)
Member, Faculty Search Committee (2014 - 2015)
Member, Chair's Advisory Committee (2013 – 2015)
Chair, Dept. Safety Committee (2010 - 2017)
Member, Faculty Search Committee (2012 – 13)
Chair, Faculty Search Committee (2011 – 12)

UNIVERSITY AND PUBLIC SERVICE (cont.)

- Chair, Dept. Chair Review Committee (2011)
- Chair, Strategic Planning Committee (2011)
- Chair/Member, Graduate Student Evaluation Committee (2008 - 2015)
- Member (sole), Dept. Honors and Awards Committee (2006-2010)
- Member, Dept. Search Committee for Office Manager (2005)
- Member, Committee to Review Dept. By-Laws (2005-2006)
- Department: Member/CMP Rep., Graduate Admissions (2005-2010)
- Member, Astrophysics and CMP Faculty Searches (2005)
- Member, Dept. Brochure Committee (2004)
- Chair/Member, Shop Committee (2003 - 2017)
- College: Dept. Representative to CoS Curriculum Committee (2016-2018)
- Dept. Representative to CES/CoS Comm. on Global Engagement (2013 - 16)
- Dept. Representative to Research Infrastructure Committee (2013 - 2017)
- Dept. Representative to Honors and Awards Committee (2006-2010)
- University: Alternate, Faculty Senate (2017 - 2018)
- Member, Radiation Safety Committee (2014 –)
- Member/Dept. Rep., Federal Space Survey (2006, 2010, 2014)
- Member/CES Rep., Graduate Dean's Advisory Committee (2006 - 16)

Undergraduate Research

Advised multiple Creative Inquiry since 2006 (25+ students)

Advised REU students in my laboratories:

- R.E. Lake, A. Dean, and A.P. Lange (2005-2007, NSF REU in Physics)
- E. Livesey (2010, Palmetto Academy/NASA REU)
- A. Samojlow (2010, DAAD-RISE, German Exchange)
- S. Berry, N. Smith, L. Lyle, A.J. Miller, A. Ojo and L. Strohbehm (2013-19, NSF REU)
- M. Shew (2014, Clemson University EUREKA)

Multiple undergraduate researchers selected to present at Council on Undergraduate Research Posters on the Hill Event in Washington, DC (2005, 2006, 2018)

High School Research

Advised Summer Program for Research Intern (SPRI) students: N. Maheswaranathan, C. Rains, P. Forshey, J. Young, A. Ralph, A. Shore, M. Siden and T. Pedapolu (2006 – 2019)

Hosted Research Experience for Teachers (RET) participants: R. Sheffield, S. Vick, and P. Drisgula (2017 – 2019)

School Outreach

Instructor for Laurens School District STEM Program for Teachers (2015 - 2018)

Coach for 4th and 5th grade robotics team (2013 - 16)

Other Service

Faculty Advisor, Society for Physics Students and Sigma Pi Sigma (2012 -)

Undergraduate Academic Advisor, Dept. Majors in Four-Year Degree Cycle (2009 -)

Last update 15 October 2019.