Steven R. Spurgeon, Ph.D.

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Professional Summary

Internationally-recognized materials data scientist with 15 years of experience in the artificial-intelligence-guided discovery and design of functional materials. Recipient of awards from the Department of Energy, Department of Defense, National Science Foundation, Materials Research Society, and Microscopy Society of America. **Leading project teams of 12+ scientists, producing over 79 publications, 6 software packages, and 2 licensed technologies. Thrust / project lead for 6 current and former laboratory strategic initiatives. PI / Co-PI for $2M/yr in external and $500k/yr in internal funding, advancing transformative discovery for basic and applied missions.**

Research Experience

Materials Data Scientist IV Dec 2022 – Present
National Security Directorate, Pacific Northwest National Laboratory, Richland, WA

- Leading project teams of 12+ scientists in AI-guided materials design through autonomous electron microscopy, precision synthesis, and modeling, including the hiring of 4 early career staff.
- Thrust lead for $4M/yr PNNL Adaptive Tunability for Synthesis and Control via Autonomous Learning on Edge (ATSCALE) Initiative and materials science advisor to Cloud, High-Performance Computing, and Edge for Science and Security (CHESS) and Materials Characterization, Prediction, and Control (MCPC) Initiatives.
- PI for cooperative research and development agreement (CRADA) with JEOL–IDES in autonomous science, yielding prototype hardware, licensing of 2 patents, and nominations for R&D 100 and Federal Lab Consortium Awards.
- Co-PI for $1.5M/yr DOE-BES core program in oxide synthesis, helping grow budget nearly 50% since 2014 through over 30 publications and dozens of invited talks.
- Co-PI for BNL-led National Quantum Initiative Co-design Center for Quantum Advantage (C2QA), developing correlative microscopies for donor qubits. Total budget $115M for 2020–2025.
- Strategic advisor on AI-guided materials data science for PNNL National Security Directorate and NNSA Defense Programs Sector.

Affiliate Associate Professor Dec 2021 – Present
Department of Physics, University of Washington, Seattle, WA

- Leading development of AI-driven materials discovery and design for quantum information science and condensed matter physics.
- Supporting NSF program development and facilitating regional partnerships in data-driven materials science, including Northwest Quantum Nexus and Northwest IMPACT Program.
- Mentoring students through UW-DIRECT and Industry Capstone Programs in applied data science.

Materials Scientist III Jan 2020 – Dec 2022
Energy and Environment Directorate, Pacific Northwest National Laboratory, Richland, WA

- PI and thrust lead for $500k Chemical Dynamics (CDi) and $400k Electrochemical Storage Materials Initiative (ESMI) LDRD projects, producing 16 publications on functional oxides in extreme environments and contributing to renewal of FUTURE EFRC.
- Co-PI for $1.5M/yr DOE-BES core program in oxide synthesis, leading efforts in machine learning-driven quantification of nanoscale defects and development of advanced microscopies.
- Co-PI for LANL-led $4M/yr FUTURE DOE Energy Frontier Research Center (EFRC), examining mass transport in reactor materials under extreme environments using high-resolution STEM imaging and simulations.
- Recipient of 2022 Laboratory Director's Award for Exceptional Early Career Achievement.

Materials Scientist II Oct 2017 – Jan 2020
Energy and Environment Directorate, Pacific Northwest National Laboratory, Richland, WA

- Led $650k Nuclear Process Science Initiative (NPSI) LDRD project to examine structure-property relationships in irradiated functional oxides, resulting in 7 publications and NNSA Tritium Science Program follow-on funding.
- Established microscopy laboratory and commissioned $4M aberration-corrected JEOL GrandARM-300F STEM in PNNL Radiochemical Processing Laboratory.
- Organized workshop on Next-Generation Transmission Electron Microscopy (NexTEM) with over 100 attendees, resulting in highly-cited perspective in Nature Materials.
- Contributed to the renewal of multi-million dollar DOE-BES research programs through 17 high-impact publications and received multiple outstanding staff performance awards.
- Research featured by DOE Office of Science, Office of Nuclear Energy, and Materials Research Society.

Postdoctoral Research Associate Jan 2015 – Oct 2017
Fundamental and Computational Sciences Directorate, Pacific Northwest National Laboratory, Richland, WA

- Pioneered a novel multi-dimensional analysis approach for structure-property relationships in complex oxides, combining analytical STEM with APT and theory calculations.
- Explored the fundamental limitations of atomic-scale chemical mapping using an extensively optimized aberration-corrected JEOL ARM-200CF STEM in combination with multislice theory calculations.
- Contributed to the renewal of $1.1M DOE-BES core program in oxide synthesis through 11 high-impact publications.
- Received postdoctoral research award from the Microscopy Society of America and performance award from PNNL.

Visiting Researcher Jun 2010 – Sep 2014
National Institute of Standards and Technology, Gaithersburg, MD

Visiting Researcher Apr 2011 – Jun 2012
Oak Ridge National Laboratory, Oak Ridge, TN

High Temperature Alloys Research Intern Jun 2008 – Aug 2008
Carpenter Specialty Alloys, Reading, PA

National Science Foundation Research Experiences for Undergraduates (REU) Intern May 2007 – Aug 2007
University of Colorado, Boulder, CO

Education

Ph.D. in Materials Science and Engineering 2009 – 2014
Drexel University, Philadephia, PA

- Thesis title: "Correlating interfacial structure and magnetism in thin-film oxide heterostructures using transmission electron microscopy and polarized neutron reflectometry."
- Advisor: Mitra Taheri (Presently Johns Hopkins University)

B.S. in Materials Science and Engineering 2005 – 2009
Carnegie Mellon University, Pittsburgh, PA

Honors and Awards

Outstanding Performance Award for Microscopy Licensing, Pacific Northwest National Laboratory 2023

Laboratory Director's Award for Exceptional Early Career Achievement, Pacific Northwest National Laboratory 2022

Outstanding Performance Award for AI-Driven Microscopy, Pacific Northwest National Laboratory 2022

Innovation in Research Award, Pacific Northwest National Laboratory 2021

Directorate Core Values Award, Pacific Northwest National Laboratory 2020

Outstanding Performance Award for Electron Microscope Management, Pacific Northwest National Laboratory 2020

Outstanding Performance Award for NexTEM Workshop 2018, Pacific Northwest National Laboratory 2018

Pathway to Excellence Award, Pacific Northwest National Laboratory 2017

Outstanding Poster Award, Advances in Structural and Chemical Imaging Workshop 2017

Outstanding Poster Award, Advances in Structural and Chemical Imaging Workshop 2016

Postdoctoral Research Award, Microscopy Society of America 2016

National Defense Science & Engineering Graduate (NDSEG) Fellowship, Department of Defense 2011 – 2014

Presidential Student Award, Microscopy Society of America 2013

Gold Graduate Student Research Award, Materials Research Society 2013

GMAG Travel Award, American Physical Society 2013

Conference Travel Award, Neutron Scattering Society of America 2012

FGSA Travel Award, American Physical Society 2012

Integrative Graduate Education and Research Traineeship (IGERT) Fellowship, National Science Foundation 2009 – 2011

Provost's Fellowship, Drexel University 2009 – 2011

X-ray and Neutron Scattering Scholarship, Argonne / Oak Ridge National Laboratories 2010

Axel-Madsen Conference Grant, Center for Powder Metallurgy Technology 2010

SMART Fellowship Semi-Finalist, Department of Defense 2010

Steel Engineering Education Link Scholarship, Association of Iron and Steel Technology 2007 – 2009

Chairperson's Educational Assistance Scholarship, ASM International 2007

Research Grants

Spurgeon, S.R. (2023). **"Atoms to Devices: An AI-Guided Discovery Workflow for Radiation-Hard Microelectronics."** PNNL LDRD Program. $550k total FY 23–24.

Co-PI for A. Houck (2022). **"Co-design Center for Quantum Advantage (C2QA)."** DOE National Quantum Initiative Center. $115M total FY 20–25.

Co-PI for B. Uberuaga (2022). **"FUTURE: Fundamental Understanding of Transport Under Reactor Extremes."** DOE Office of Science Energy Frontiers Research Center. $13M total FY 23–27.

DOE Laboratory Partner for R.B. Comes (2022). **"In Situ Studies of Charge Transfer Phenomena in Complex Oxide Heterostructures."** DOE Office of Science Established Program to Stimulate Competitive Research (EPSCoR) Program.

Matthews, B.E., Spurgeon, S.R., Albrecht, A., Pope, T., and C.A. Barrett. (2021). **"Multi-scale Analysis for Bulk Pore Volume and Microstructure Characterization."** NNSA Tritium Science Program. $96k total FY 22.

Spurgeon, S.R., Olszta, M., Hopkins, D., M. Oostrom, and S. Reehl. (2021). **"Development of an Artificial Intelligence-Driven Electron Microscope to Accelerate Energy Storage Material Discovery and Design."** PNNL LDRD Program. $400k total FY 22–24.

Chambers, S., Du, Y., Wang, L., Sushko, P. and S.R. Spurgeon. (2020). **"Electronic, Magnetic and Optical Properties of Doped Metal Oxides Epitaxial Films and Interfaces."** DOE Office of Science. $4.7M total FY 21–23.

Spurgeon, S.R., Taylor, S.D., Sassi, M., and B. Matthews. (2020). **"Multimodal Quantification of Nanoscale Defect Evolution in Heterostructured Interfaces."** PNNL LDRD Program. $500k total FY 21–23.

Spurgeon, S.R., Olszta, M., Hopkins, D., and S. Reehl. (2020). **"Automated Electron Microscope Data Collection, Triaging, and Classification Platform."** PNNL LDRD Program. $209k total FY 20–21.

Spurgeon, S.R., Sassi, M., and K. Rosso. (2017). **"Damage Mechanisms and Defect Formation in Irradiated Model Systems."** PNNL LDRD Program. $650k total FY 18–20.

Chambers, S., Sushko, P., Kaspar, T., Du, Y., Droubay, T., Bowden, M., and S.R. Spurgeon. (2017). **"Electronic, Magnetic and Optical Properties of Doped Metal Oxides Epitaxial Films and Interfaces."** DOE Office of Science. $3.871M total FY 18–20.

Edwards, D.J., Spurgeon, S.R., Zhu, Y., and B.D. Hanson. (2017). **"Statistical Microscopy Conjoined with Deep Learning - Revolutionary Insights Across Length Scales."** PNNL LDRD Program. $175k total FY 18.

Spurgeon, S.R. and B.R. Johnson. (2017). **"International Workshop on Next-Generation Transmission Electron Microscopy."**

PNNL LDRD Program. $6k total FY 18.

Spurgeon, S.R. and M. Olszta. (2017). **"DRIFTER: Automatic Image Distortion Correction for Transmission Electron Microscopy."** PNNL LDRD Program. $5k total FY 18.

Spurgeon, S.R. and P.A. Salvador. (2007). **"Synthesis of oxynitride ABO_2N thin films using a two-step processing approach."** Carnegie Mellon University Undergraduate Research Grant Program. $2k total 2007.

Synergistic Activities

Professional Service

Chair, Focused Interest Group Committee, Microscopy Society of America	2025 – Present
Member, Computational and Theoretical Chemistry Institute, PNNL	2023 – Present
Editor, Microscopy and Microanalysis Journal	2022 – Present
Member, Autonomous Discovery Community, Lawrence Berkeley National Laboratory	2022 – Present
Member, Molecular Foundry Proposal Review Board, Lawrence Berkeley National Laboratory	2020 – Present
Chair, Aberration-Corrected Electron Microscopy Committee, Microscopy Society of America	2021 – 2023
Advisor, User Executive Committee, Molecular Foundry, Lawrence Berkeley National Laboratory	2021 – 2022
Science Communication Consultant, Materials Research Society	2011 – 2021
Member, Early Career Professionals Subcommittee, Materials Research Society	2018 – 2020

Regular reviewer for proposals from Department of Energy and National Science Foundation.

Regular reviewer for *Nature Communications*, *Science Advances*, *npj Computational Materials*, *ACS Nano*, *Acta Materialia*, *Physical Review Materials*, *Applied Physics Letters*, *Applied Physics Reviews*, *Journal of Applied Physics*,*Journal of Magnetism and Magnetic Materials*, *APL Materials*, *Microscopy and Microanalysis*, *Micron*, *IEEE Transactions on Magnetism*, APS and MRS Conference Proceedings.

Department Service

Advisor, Energy and Machine Learning (eML) Interest Group, Pacific Northwest National Laboratory	2022 – Present
Co-Lead, Artificial Intelligence for Materials Science COIN, Pacific Northwest National Laboratory	2021 – Present
Staff Advisor, Postdoctoral Council, Pacific Northwest National Laboratory	2017 – 2020
Officer, Postdoctoral Council, Pacific Northwest National Laboratory	2015 – 2017
Officer, Graduate Student Council, Drexel University	2010 – 2013

Conference and Workshop Organization

Organizer, AI Microscopy Symposium, Frontiers of Electron Microscopy in Materials Science (FEMMS) Conference	Sep 2024
MAS Conference Co-Chair, Microscopy and Microanalysis 2024	Aug 2024
Organizer, Automated Experimentation Symposium, Materials Research Society Fall 2023	Nov 2023
Organizer, Artificial Intelligence in Action Symposium, Microscopy and Microanalysis 2023	Aug 2023
Organizer, Microscopy Infrastructures Symposium, Microscopy and Microanalysis 2022	Aug 2022
Awards Committee Member, Microscopy and Microanalysis 2022	Aug 2022
Panelist, Microscopy Careers Miniseries, Microscopy Society of America	Jun 2021
Roundtable Participant, Decadal Plan for Semiconductors, Semiconductor Research Corporation	Jun 2021
Organizer, Electron Energy Loss Spectroscopy Symposium A03, Microscopy and Microanalysis 2020	Aug 2020
Organizer, Government Lab and Industry Career Workshop, Materials Research Society Spring Meeting	Apr 2020
Organizer, NexTEM Pre-Meeting Congress, Microscopy and Microanalysis 2019	Aug 2019

Session Chair, Science Communication Workshop, Materials Research Society Spring Meeting	Apr 2019
Organizer, Complex Oxide and Chalcogenide Semiconductors Symposium, EMA Meeting 2019	Jan 2019
Organizer, Next-Generation Transmission Electron Microscopy (NexTEM) Workshop, PNNL	Oct 2018
Session Chair, Science Communication Workshop, Materials Research Society Spring Meeting	Apr 2018
Co-Organizer, IAEA Nuclear Forensics Methodologies Workshop, PNNL	Apr 2018
Session Chair, Science Communication Workshop, Materials Research Society Spring Meeting	Apr 2017
Session Chair, Thin Film Imaging Symposium, Microscopy and Microanalysis 2016	Aug 2016
Session Chair, Magnetic Oxide Thin Films and Heterostructures, American Physical Society March Meeting	Mar 2014

Staff & Students Advised

Michael Holden, Post-Masters Researcher, Pacific Northwest National Laboratory	2023 – Present
Arman Ter-Petroysan, Post-Bachelors Researcher, Pacific Northwest National Laboratory	2022 – Present
Pedro Rodriguez, Post-Bachelors Researcher, Pacific Northwest National Laboratory	2022 – Present
Christina Doty, Data Scientist II, Pacific Northwest National Laboratory	2021 – Present
Bethany Matthews, Materials Scientist III, Pacific Northwest National Laboratory	2018 – Present
Eli Meyers, DOE SULI Intern, Stanford University	2023
Michael DeFord, DOE SULI Intern, Brigham Young University	2022
Alexander Bard, DOE SCGSR Fellow, University of Washington	2018 – 2022
Sydney Neuman, DOE SULI Intern, Rensselaer Polytechnic Institute	2021
Nina Hooper, National Security Internship Program Intern, University of Colorado – Boulder	2021
Minfei Fei, Graduate Student, Nanjing University	2016
James Hart, Graduate Student, Drexel University	2012–2014
Ian McDonald, Masters Student, Drexel University	2011–2012

Teaching

Microscopy Working Group Seminar Series, Pacific Northwest National Laboratory	2016 – 2018
Metals Processing Laboratory Class (MATE 366), Drexel University	2009 – 2013

Community Outreach

Invited Speaker, PNNL Community Science and Technology Seminar Series	2019
Microscopy Lecturer, Mid-Columbia STEM Collaboratory	2015 – 2017
Microscopy Lecturer, Philly Materials Science and Engineering Day	2011 – 2014
Demonstration Volunteer, Philadelphia Science Festival	2013 – 2014
High School and Freshman Visit Lecturer, Drexel University	2010 – 2013

Professional Society Memberships

Materials Research Society (MRS), American Physical Society (APS), Microscopy Society of America (MSA), and Microanalysis Society (MAS)

Patents

Reehl, S. and S.R. Spurgeon (2021). **"Artificial intelligence (AI) assisted analysis of electron microscope data."** Provisional Patent Application.

Taheri, M., Sunday, K.J., Spurgeon, S.R., and S.J. May (2015). **"Soft magnetic composites for electric motors."** International Patent Application #WO2015100244A1

Software

Lewis, N., Jin, Y., Tang, X., Shah, V., Doty, C., Akers, S., and Spurgeon, S.R. (2022). **"EELSTM."** A long short-term memory model for forecasting of electron energy loss spectroscopy. Available on GitHub at https://github.com/pnnl/EELSTM.

Oostrom, M. and Spurgeon, S.R. (2022). **"TEMWizard."** Used to visualize intermediate and final results from Atomap, an open-source software tool for determining the position and other features of atomic columns in transmission electron microscopy (TEM) images. Available on GitHub at https://github.com/pnnl/temwizard.

Doty, C., Gallagher, S., Cui, W., Chen, W., Bhushan, S., Oostrom, M., Akers, S., and Spurgeon, S.R. (2021). **"pyCHIP."** Graphical user interface for image segmentation and feature classification in transmission electron microscopy (TEM) images based on a small support set of user-provided examples. Available on GitHub at https://github.com/pnnl/pychip_gui.

Akers, S.M. and Spurgeon. S.R. (2021). **"WizEM."** Few-shot machine learning microscope analysis software. Under license to JEOL-IDES Company.

Hopkins, D., Spurgeon. S.R., Akers, S.M., and Olszta, M.J. (2021). **"AutoEM."** Autonomous microscope control software. Under license to JEOL-IDES Company.

S.R. Spurgeon (2015). **"XTL-Converter."** Conversion script for the μSTEM software package for STEM multislice and ionization map simulations. Available on GitHub at DOI:10.5281/zenodo.33072.

Peer-Reviewed Publications

79 publications and over 1616 citations with an *h*-index of 23.

Journal Articles

2023 Kalinin, S.V., Mukherjee, D., Roccapriore, K., Blaiszik, B., Ghosh, A., Ziatdinov, M., Al-Najjar, N., Doty, C.M., Akers, S.M., Rao, N.S., Agar, J. and S.R. Spurgeon. **"Machine learning for automated experimentation in scanning transmission electron microscopy."** ***npj Computational Materials.*** 9 (2023): 227. DOI:10.1038/s41524-023-01142-0

Ter-Petrosyan, A.H., Bilbrey, J.A., Doty, C.M., Matthews, B.E., Wang, L., Du, Y., Lang, E., Hattar, K., and S.R. Spurgeon. **"Unsupervised segmentation of irradiation-induced order-disorder phase transitions in electron microscopy."** ***Proceedings of Thirty-Seventh Conference on Neural Information Processing Systems (NeurIPS).*** (2023). DOI:10.48550/arXiv.2311.08585

Spurgeon, S.R., Yano, K., Doty, C., Akers, S., and M.J. Olszta. **"Revealing the latent atomic world through data-driven microscopy."** ***Microscopy and Analysis.*** 37.6 (2023): S3-S7.

Fiedler, K.R., Olszta, M., Yano, K., Doty, C., Hopkins, D., Akers, S., and S.R. Spurgeon. **"Evaluating stage motion for automated electron microscopy."** ***Microscopy and Microanalysis.*** 29.6 (2023): 1931–1939. DOI:10.1093/micmic/ozad108

Kaspar, T.C., Spurgeon, S.R., Yano, K.H., Matthews, B.E., Bowden, M.E., Ophus, C., Kim, H., Wang, Y., and D.K. Schreiber. **"Role of structural defects in mediating disordering processes at irradiated epitaxial Fe_3O_4 / Cr_2O_3 interfaces."** ***Physical Review Materials.*** 7 (2023): 093604. DOI:10.1103/PhysRevMaterials.7.093604

Yama, N.S., Cheng, I-T., Chakravarthi, S., Li, B., Pederson, C., Matthews, B.E., Spurgeon, S.R., Perea, D.E., Wirth, M.G., Sushko, P.V., Li, M., and K-M. Fu. **"Silicon-lattice-matched boron-doped gallium phosphide: A scalable acousto-optic platform."** ***Advanced Materials.*** (2023). DOI:10.1002/adma.202305434

Spurgeon, S.R., Yano, K., Doty, C., Akers, S., and M.J. Olszta. **"Revealing the latent atomic world through data-driven microscopy."** ***JEOL News.*** 58.1 (2023): 2–11.

Spurgeon, S.R., Mukherjee, D., Gibson, W., and Lupini, A. **"Focused interest groups propel innovation in the emerging data-driven hardware ecosystem."** ***Microscopy Today.*** 31.4 (2023): 20–21. DOI:10.1093/mictod/qaad042

Blanchet, M.D., Matthews, B.E., Spurgeon, S.R., Heald, S.M., Isaacs-Smith, T., and R.B. Comes. **"Jahn-Teller-driven phase segregation in $Mn_xCo_{3-x}O_4$ spinel thin films."** ***Journal of Vacuum Science and Technology A.*** (2023). DOI:10.1116/6.0002329

Taylor, S.D., Yano, K.H., Sassi, M., Matthews, B.E., Kautz, E.J., Lambeets, S.V., Neumann, S., Schreiber, D.K., Wang, L., Du, Y. and S.R. Spurgeon. **"Resolving diverse oxygen transport pathways across $La_{1-x}Sr_xFeO_3$ and metal-perovskite heterostructures."** ***Advanced Materials Interfaces.*** (2023): 2202276. DOI:10.1002/admi.202202276

2022 Fu, W., Spurgeon, S.R., Wang, C., Shao, Y. Peles, A., and W. Wang. **"Deep-learning-based prediction of nanoparticle phase transitions during in situ transmission electron microscopy."** (2022). https://arxiv.org/abs/2205.11407

Adiga, P., Wang, L., Wong, C., Matthews, B.E., Bowden, M.E., Spurgeon, S.R., Sterbinsky, G.E., Blum, M., Choi, M.-J., Tao, J., Kaspar, T.C., Chambers, S.A., Stoerzinger, K.A., and Y. Du. **"Correlation between oxygen evolution reaction activity and surface compositional evolution in epitaxial $La_{0.5}Sr_{0.5}Ni_{1-x}Fe_xO_{3-\delta}$ thin films ."** ***Nanoscale.*** 15 (2022): 1119–1127. DOI:10.1039/D2NR05373J

Yoon, H., Truttman, T., Liu, F., Matthews, B.E., Su, Q., Saraswat, V., Manzo, S., Arnold, M., Kawasaki, J., Koester, S., Spurgeon, S.R., Chambers, S.A., and B. Jalan. **"Free-standing epitaxial $SrTiO_3$ nanomembranes via hybrid molecular beam epitaxy on graphene."** ***Science Advances.*** 8 (2022): eadd5328. DOI:10.1126/sciadv.add5328

Lewis, N., Jin, Y., Tang, X., Shah, V., Doty, C., Matthews, B.E., Akers, S. and S.R. Spurgeon. **"Forecasting of in situ electron energy loss spectroscopy."** ***npj Computational Materials.*** 8 (2022): 252. DOI:10.1038/s41524-022-00940-2

Yano, K., Kohnert, A., Kaspar, T.C., Taylor, S.D., Spurgeon, S.R., Kim, H., Wang, Y., Uberuaga, B.P., and D.K. Schreiber. **"Dose rate dependent cation and anion radiation enhanced diffusion in hematite."** ***Journal of Materials Chemistry A.*** 10 (2022): 24167–24177. DOI:10.1039/D2TA03403D

Kalinin, S.V., Ziatdinov, M., Spurgeon, S.R., Ophus, C., Stach, E.A., Susi, T., Agar, J., and J. Randall. **"Deep learning for electron and scanning probe microscopy: from materials design to atomic fabrication."** ***MRS Bulletin.*** 47 (2022): 931–939. DOI:10.1557/s43577-022-00413-3

Liu, F., Truttmann, T.K., Lee, D., Matthews, B.E., Laraib, I., Janotti, A., Spurgeon, S.R., Chambers, S.A., and B. Jalan. **"Hybrid molecular beam epitaxy of Ge-based oxides."** ***Communications Materials.*** 3 (2022): 69. DOI:10.1038/s43246-022-00290-y

Thapa, S., Provence, S., Gemperline, P.T., Matthews, B.E., Spurgeon, S.R., Battles, S., Heald, S.M., Kuroda, M.A., and R.B. Comes. **"Surface stability of $SrNbO_{3+\delta}$ grown by hybrid molecular beam epitaxy."** ***APL Materials.*** 10 (2022): 091112. DOI:10.1063/5.0097699

Wang, L., Zhao, J., Kuo, C-T., Matthews, B.E., Oostrom, M.T., Spurgeon, S.R., Bowden, M.E., Lee, S-J., Lee, J-S., Guo, E-J., Wang, J., Chambers, S.A., and Y. Du. **"Synthesis and electronic properties of epitaxial $SrNiO_3$ / $SrTiO_3$ superlattices."** ***Physical Review Materials.*** 6 (2022): 075006. DOI:10.1103/PhysRevMaterials.6.075006

Kaspar, T.C., Hatton, P.J., Yano, K.H., Taylor, S.D., Spurgeon, S.R., Uberuaga, B.P., and D.K. Schreiber. **"Adatom-driven oxygen intermixing during the deposition of oxide thin films by molecular beam epitaxy."** ***Nano Letters.*** 22.12 (2022): 4963–4969. DOI:10.1021/acs.nanolett.2c01678

Olszta, M., Hopkins, D., Fiedler, K.R., Oostrom, M., Akers, S., and S.R. Spurgeon. **"An automated scanning transmission electron microscope guided by sparse data analytics."** ***Microscopy and Microanalysis.*** 28.5 (2022): 1611–1621. DOI:10.1017/S1431927622012065

Sassi, M., Spurgeon, S.R., Matthews, B.E., Devaraj, A., and D.J. Senor. **"Characterization and first principles modeling of tritium trapping in γ-$LiAlO_2$ nanovoids."** ***Journal of Physical Chemistry C.*** 126.12 (2022): 5767–-5776. DOI:10.1021/acs.jpcc.2c00381

Bredar, A.R.C., Blanchet, M.D., Burton, A.R., Matthews, B.E., Spurgeon, S.R., Comes, R.B., and B.H. Farnum. **"Oxygen reduction electrocatalysis with epitaxially grown spinel $MnFe_2O_4$ and Fe_3O_4."** ***ACS Catalysis.*** 12 (2022): 3577–3588. DOI:10.1021/acscatal.1c05172

Chambers, S.A., Chrysler, M., Ngai, J., Lee, T.-L., Gabel, J., Matthews, B.E., Spurgeon, S.R., Bowden, M.E., Zhu, Z., and P.V. Sushko. **"Mapping hidden space-charge distributions across crystalline metal oxide/group IV semiconductor interfaces."** ***Physical Review Materials.*** 6 (2022): 015002. DOI:10.1103/PhysRevMaterials.6.015002

Doty, C., Gallagher, S., Cui, W., Chen, W., Bhushan, S., Oostrom, M., Akers, S., and S.R. Spurgeon. **"Design of a graphical user interface for few-shot machine learning-based classification of electron microscopy data."** ***Computational Materials Science.*** 203.15 (2022): 111121.DOI:10.1016/j.commatsci.2021.111121

2021 Burton, A., Paudel, R., Matthews, B.E., Sassi, M., Spurgeon, S.R., Farnum.B.H., and R.B. Comes. **"Thickness dependent OER electrocatalysis of epitaxial $LaFeO_3$ thin films."** ***Journal of Materials Chemistry A.*** 10 (2021): 1909–1918. DOI:10.1039/D1TA07142D

Yano, K., Kohnert, A., Kaspar, T.C., Taylor, S.D., Spurgeon, S.R., Kim, H., Wang, Y., Uberuaga, B.P., and D.K. Schreiber. **"Radiation enhanced anion diffusion in chromia."** ***Journal of Physical Chemistry C.*** 125.50 (2021): 27820–27827. DOI:10.1021/acs.jpcc.1c08705

Akers, S., Kautz, E., Trevino-Gavito, A., Olszta, M., Matthews, B., Wang, L., Du, Y., and S.R. Spurgeon. **"Rapid and flexible segmentation of electron microscopy data using few-shot machine learning."** ***npj Computational Materials.*** 7 (2021): 187. DOI:10.1038/s41524-021-00652-z

Chrysler, M., Gabel, J., Lee, T.-L., Penn, A., Matthews, B.E., Kepaptsoglou, D., Ramasse, Q., Paudel, J.R., Sah, R.K., Grassi, J.D., Zhu, Z., Gray, A.X., LeBeau, J.M., Spurgeon, S.R., Chambers, S.A., Sushko, P.V., and J.H. Ngai. **"Tuning band alignment at a semiconductor-crystalline oxide heterojunction via electrostatic modulation of the interfacial dipole."** ***Physical Review Materials.*** 5 (2021): 104603. DOI:10.1103/PhysRevMaterials.5.104603

Wang, L., Adiga, P., Zhao, J., Samarakoon, W.S., Stoerzinger, K., Matthews, B.E., Spurgeon, S.R., Bowden, M.E., Sushko, P.V., Wang, H., Wangoh, L., Wu, J., Guo, E., Qian, H., Wang, J., Vargas, T., Thevuthasan, S., Feng, Z., Yang, W., Du, Y., and S.A. Chambers. **"Understanding the electronic structure evolution of epitaxial $LaNi_{1-x}Fe_xO_3$ thin films for water oxidation."** ***Nano Letters.*** 21.19 (2021): 8324–8331. DOI:10.1021/acs.nanolett.1c02901

Yu, X.-Y., Yao, J., Matthews, B.E., Spurgeon, S.R., Riechers, S.L., Sevigny, G.J., Zhu, Z., Jiang, W., and W.G. Luscher. **"Evidence of lithium mobility under neutron irradiation."** ***Journal of Materials Research and Technology.*** 14 (2021): 475–483 (2021). DOI:10.1016/j.jmrt.2021.06.066

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Book Chapters

2022 S.R. Spurgeon. **"Scanning transmission electron microscopy of oxide interfaces and heterostructures."** ***Materials Characterization Methods for Epitaxial Films and Heterostructures***, World Scientific Publishing. (2022). In press.

2018 Spurgeon, S.R. and S.A. Chambers. **"Atomic-scale characterization of oxide interfaces and superlattices using scanning transmission electron microscopy."** ***Encyclopedia of Interfacial Chemistry: Surface Science and Electrochemistry***, Elsevier. (2018) 38–48. DOI:10.1016/B978-0-12-409547-2.12877-X

Book Reviews

2014 S.R. Spurgeon **"Experimental Neutron Scattering, by B.T.M. Willis and C.J. Carlile."** ***Contemporary Physics***, 55.3 (2014). DOI:10.1080/00107514.2014.907352

Presentations

Invited Talks

1. S.R. Spurgeon. **"Artificial Intelligence-Guided Mastery of Materials."** Texas Tech University. Lubbock, TX. 17 Nov 2023.

2. S.R. Spurgeon. **"Understanding Oxides in Extreme Environments Via Machine Intelligence."** Microscopy and Microanlaysis 2023. Minneapolis, MN. 27 Jul 2023.

3. S.R. Spurgeon. **"Artificial Intelligence-Guided Discovery: The Hidden Life of Functional Materials in Extreme Environments."** National Renewable Energy Laboratory. Golden, CO. 26 Jun 2023.

4. S.R. Spurgeon. **"Accelerating Discovery in the Electron Microscope: Machine Reasoning in Action."** Emergent Opportunities in Data-Driven Electron Microscopy for Materials Science Workshop. Urbana, IL. 8 Jun 2023.

5. S.R. Spurgeon. **"Artificial Intelligence-Guided Microscopy of Materials."** University of Illinois–Chicago. Chicago, IL. 7 Jun 2023.

6. S.R. Spurgeon. **"Revealing the Lifecycle of Oxides in Extremes Through Bespoke Machine Reasoning."** Deep Learning for Microscopy Image Analysis in Materials Science: Advancing Research and Education Workshop. Knoxville, TN. 5 Jun 2023.

7. S.R. Spurgeon. **"Artificial Intelligence-Guided Mastery of Materials."** Los Alamos National Laboratory. Los Alamos, NM. 9 Mar 2023.

8. S.R. Spurgeon. **"Welcoming our AI Overlords: Operationalizing Machine Learning for Materials Discovery and Design."** Western Washington University Data Science Seminar. Online. 13 Oct 2022.

9. S.R. Spurgeon. **"Artificial Intelligence-Guided Microscopy: Discovery at the Pace of Change."** Artificial Intelligence for Nuclear Materials and Applications. Lemont, IL. 10 Aug 2022.

10. S.R. Spurgeon. **"Microscopy in the Age of Automation: Accelerating Scientific Discovery via Artificial Intelligence."** Microscopy and Microanalysis 2022. Portland, OR. 31 Jul 2022.

11. S.R. Spurgeon. **"Welcoming our robot overlords: microscopy in the age of automation."** Invited Seminar at National Center for Electron Microscopy, Lawrence Berkeley National Laboratory. Berkeley, CA. 4 May 2022.

12. S.R. Spurgeon. **"Realizing the artificial intelligence-driven future of materials discovery and design." WSU-PNNL Discuss, Discourse, Disseminate with Data (D4) Seminar Series.** Online webinar. 27 Apr 2022.

13. S.R. Spurgeon. **"Understanding energy materials in extremes via artificial intelligence-guided electron microscopy."** Invited Seminar at University of California – Davis. Davis, CA. 19 Apr 2022.

14. S.R. Spurgeon. **"Realizing the artificial intelligence-driven future of electron microscopy ." Seagate AI/ML Virtual Distinguished Speaker Series.** Online webinar. 11 Feb 2022.

15. S.R. Spurgeon. **"Atomistic engineering of the energy materials of the future." Materials Challenges in Alternative and Renewable Energy 2021.** Online webinar. 21 Jul 2021.

16. S.R. Spurgeon. **"Designing novel functional materials through data-infused microscopy." Microscience Microscopy Congress 2021.** Online webinar. 7 Jul 2021.

17. S.R. Spurgeon. **"Rapid and flexible few shot learning-based classification of scanning transmission electron microscopy data." Electronic Materials Conference 2021.** Online webinar. 24 Jun 2021.

18. S.R. Spurgeon. **"Shaping the atomic world: the data-driven future of materials science." University of Washington Undergraduate Engineering Seminar Series.** Online webinar. 29 Apr 2021.

19. S.R. Spurgeon. **"Progress toward rapid, statistical scanning transmission electron microscopy." Autonomous Discovery in Science and Engineering Workshop.** Online webinar. 22 Apr 2021.

20. S.R. Spurgeon. **"Harnessing the energy materials of the future one atom at a time." American Nuclear Society Eastern Washington Chapter Meeting.** Online webinar. 16 Mar 2021.

21. S.R. Spurgeon. **"Next-generation materials discovery and design enabled by data-infused electron microscopy." University of Nebraska – Lincoln NCMN Seminar.** Online webinar. 3 Mar 2021.

22. S.R. Spurgeon. **"Exploring the world of nanomaterials defects through atomic-scale electron microscopy." Indiana University – Purdue University Mechanical Engineering Department Seminar.** Online webinar. 25 Feb 2021.

23. S.R. Spurgeon. **"A window into order-disorder processes at oxide interfaces." Electronic Materials & Applications Conference.** Online webinar. 19 Jan 2021.

24. S.R. Spurgeon. **"Harnessing atomistic defects to advance materials discovery and design." University of Washington Physics Department Seminar.** Online webinar. 10 Dec 2020.

25. S.R. Spurgeon. **"Unlocking the materials of the future through atomic-scale electron microscopy." Trinity College–Dublin.** Online webinar. 23 Jul 2020.

26. S.R. Spurgeon. **"Advancing materials design and discovery through atomic-scale electron microscopy." National Institute of Standards and Technology.** Boulder, CO. 6 Jan 2020.

27. S.R. Spurgeon. **"Modern-day alchemy: Engineering the future atom-by-atom." Washington State University Tri-Cities Engineering Seminar Series.** Richland, WA. 22 Feb 2019.

28. S.R. Spurgeon, M. Sassi, J. Stubbs, E. Ilton, and E. Buck. **"Atomic-scale structural and chemical investigation of UO_2 surface oxidation." ACS Northwest Regional Meeting.** Richland, WA. 25 Jun 2018.

29. S.R. Spurgeon. **"Development of an integrated TEM platform." D-ITEM Meeting.** Telluride, CO. 19 Jun 2018.

30. S.R. Spurgeon. **"Nano to meso: Pushing the limits of atomic-scale materials analysis." Nion. Co.** Kirkland, WA. 17 Mar 2018.

31. S.R. Spurgeon. **"Nano to meso: Pushing the limits of atomic-scale materials analysis." PNNL Physical Sciences Division Fall Seminar Series.** Richland, WA. 5 Oct 2016.

32. Spurgeon, S.R. **"Static and dynamic studies of charge- and strain-mediated magnetoelectric coupling in ferromagnetic / piezoelectric oxide heterostructures using PNR and TEM." Pacific Northwest National Laboratory.** Richland, WA. 27 Jun 2014.

33. Spurgeon, S.R. **"Static and dynamic studies of charge- and strain-mediated magnetoelectric coupling in ferromagnetic / piezoelectric oxide heterostructures using PNR and TEM." National Institute of Standards and Technology, Center for Neutron Research.** Gaithersburg, MD. 10 Feb 2014.

Contributed Talks

1. S.R. Spurgeon. **"Atomic fortune-telling—forecasting the future for in situ experimentation." MRS Spring Meeting.** San Francisco, CA. 11 Apr 2023.

2. S.R. Spurgeon. **"Discovery accelerated by artificial intelligence-guided microscopy." EMSL Integration Conference.** Richland, WA. 4 Oct 2022.

3. S.R. Spurgeon. **"Materials discovery accelerated by artificial intelligence-guided microscopy." 11th International Workshop on Combinatorial Materials Science and Technology.** Golden, CO. 27 Sep 2022.

4. S.R. Spurgeon. **"A Vision for the Data-Guided Future of Electron Microscopy." PNNL TechFest 2021.** Online webinar. 12 Jul 2021.

5. S.R. Spurgeon, M. Sassi, T. Kaspar, W. Jiang, and V. Shutthanandan. **"Atomic-scale mechanisms for interfacial radiation damage resistance of thin film oxide heterostructures." Microscopy and Microanalysis Conference.** Portland, OR. 7 Aug 2019.

6. S.R. Spurgeon, M. Sassi, J. Stubbs, E. Ilton, and E. Buck. **"Atomic-scale electron energy loss spectroscopy of uraninite UO_2 surface oxidation." ACS Northwest Regional Meeting.** Portland, OR. 18 Jun 2019.

7. S.R. Spurgeon, M. Sassi, T. Kaspar, W. Jiang, and V. Shutthanandan. **"Atomic-Scale mechanisms for interfacial radiation damage resistance of oxide heterostructures." Materials Research Society Spring Meeting.** Phoenix, AZ. 24 Apr 2019.

8. S.R. Spurgeon, M. Sassi, T. Kaspar, and V. Shutthanandan. **"Atomic-scale mechanisms for interfacial damage resistance in ion-irradiated $La_2Ti_2O_7$ / $SrTiO_3$ thin film heterostructures." Electronic Materials and Applications.** Orlando, FL. 24 Jan 2019.

9. S.R. Spurgeon, M. Sassi, T. Kaspar, W. Jiang, and V. Shutthanandan. **"Nanoscale evolution of amorphization in ion-irradiated $La_2Ti_{2-x}Zr_xO_7$ thin film heterojunctions." ACS Northwest Regional Meeting.** Portland, OR. 18 Jun 2019.

10. S.R. Spurgeon, M. Sassi, J. Stubbs, E. Ilton, and E. Buck. **"Examination of UO_2 surface oxidation using atomic-scale electron energy loss spectroscopy." NuMat 2018.** Seattle, WA. 16 Oct 2018.

11. Spurgeon, S.R., Sassi, M., Kaspar, T., and V. Shutthanandan. **"Defect formation and interfacial damage resistance in ion-irradiated $La_2Ti_{2-x}Zr_xO_7$ Thin Films." ACS Northwest Regional Meeting.** Richland, WA. 26 Jun 2018.

12. Spurgeon, S.R., Sassi, M., Kaspar, T., and V. Shutthanandan. **"Effect of cation substitution on defect generation and damage tolerance in ion-irradiated $La_2Ti_{2-x}Zr_xO_7$ thin films." Materials Research Society Spring Meeting.** Phoenix, AZ. 3 Apr 2018.

13. Spurgeon, S.R., Sushko, P.V., Comes, R.B., and S.A. Chambers. **"Dynamic interface rearrangement in $LaFeO_3$ / n-$SrTiO_3$ heterojunctions." Materials Research Society Spring Meeting.** Phoenix, AZ. 3 Apr 2018.

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21. Spurgeon, S.R., McDonald, I.J., Huang, E., Vasudevan, R., Lofland, S.E., Kirby, B.J., Valanoor, N., and M.L. Taheri. **"*In situ* electrical biasing studies of interfacial magnetoelectric coupling in $La_{1-x}Sr_xMnO_3$ – $PbZr_xTi_{1-x}O_3$ thin film oxide heterostructures." American Physical Society March Meeting**, 3 Mar 2014.

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23. Spurgeon, S.R., Sloppy, J.D., Kepaptsoglou, D.M., Balachandran, P.V., Nejati, S., Karthik, J., Damodaran, A.R., Johnson, C.L., Ambaye, H., Goyette, R., Lauter, V., Ramasse, Q.M., Idrobo, J.C., Lau, K.K.S., Lofland, S.E., Rondinelli, J.M., Martin, L.W., and M.L. Taheri. **"Thickness-dependent crossover from charge- to strain-mediated magnetoelectric coupling in ferromagnetic/piezoelectric oxide heterostructures." Materials Research Society Fall Meeting**, 3 Dec 2013.

24. Jablonski, M., Spurgeon, S.R., Marshall, M.S.J., Arredondo, M., Ahn, C.H., Martin, L.W., and M.L. Taheri. **"*In situ* transmission electron microscopy studies of domain wall motion in ferroelectric perovskite oxides." Materials Research Society Fall Meeting**, 4 Dec 2013.

25. Spurgeon, S.R., Sloppy, J.D., Kepaptsoglou, D.M., Balachandran, P.V., Nejati, S., Karthik, J., Damodaran, A.R., Johnson, C.L., Ambaye, H., Goyette, R., Lauter, V., Ramasse, Q.M., Idrobo, J.C., Lau, K.K.S., Lofland, S.E., Rondinelli, J.M., Martin, L.W., and M.L. Taheri. **"A combined TEM, STEM-EELS, and neutron reflectometry study of charge- and strain-mediated magnetoelectric coupling in LSMO/PZT thin-film heterostructures." Materials Science and Technology Conference**, 8 Oct 2012.

26. Spurgeon, S.R., Sloppy, J.D., Kepaptsoglou, D.M., Balachandran, P.V., Nejati, S., Karthik, J., Damodaran, A.R., Johnson, C.L., Ambaye, H., Goyette, R., Lauter, V., Ramasse, Q.M., Idrobo, J.C., Lau, K.K.S., Lofland, S.E., Rondinelli, J.M., Martin, L.W.,

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28. Spurgeon, S.R., Sloppy, J.D., Nejati, S., Karthik, J., Damodaran, A.R., Johnson, C.L., Ambaye, H., Goyette, R., Lauter, V., Idrobo, J.C., Lau, K.K.S., Lofland, S.E., Martin, L.W., and M.L. Taheri. **"A study of strain- and charge-mediated magnetoelectric coupling in PZT-LSMO heterostructures using transmission electron microscopy and polarized neutron reflectometry." Materials Research Society Fall Meeting**, 29 Nov 2011.

29. Spurgeon, S.R., Lofland, S.E., Misra, A., and M.L. Taheri. **"A study of the interfacial magnetic and atomic structure of oxide-coated ferrous powder metals." PowderMet Conference**, 20 May 2011.

30. Spurgeon, S.R., Winkler, C.R., Kirby, B.J., and M.L. Taheri. **"A multi-scale analysis of the structural and magnetic properties of oxide coatings for iron powders used in electromagnetic applications." PowderMet Conference**, 29 Jun 2010.

31. S.R. Spurgeon. **"Engineering anisotropic lyotropic liquid crystal nano-architectures." National Science Foundation Research Experiences for Undergraduates Program. University of Colorado**, 9 Aug 2007.

Poster Presentations

1. S.R. Spurgeon, M. Sassi, C. Ophus, J. Stubbs, E. Ilton, and E. Buck. **"Nanoscale quantification of interstitial oxygen in hyperstoichiometric UO_{2+x}." Microscopy and Microanalysis.** Portland, OR. 6 Aug 2019.

2. S.R. Spurgeon, M. Sassi, T.C. Kaspar, S. Reehl, B. Stanfill, B. Matthews, W. Jiang, V. Shutthanandan, and K.M. Rosso. **"Damage mechanisms and defect formation in irradiated model systems." Millennial Nuclear Caucus.** Richland, WA. 4 Apr 2019.

3. S.R. Spurgeon, A. Devaraj, B. Matthews, P. Sushko, C. Thomas, M., Manfra, M. Thomas, J. Gamble. **"Advanced characterization of quantum materials systems." Northwest Quantum Nexus Summit.** Seattle, WA. 19 Mar 2019.

4. S.R. Spurgeon, M. Sassi, T.C. Kaspar, V. Shutthanandan, and K.M. Rosso. **"Atomic-scale imaging of interfacial damage evolution in ion-irradiated $La_2Ti_{2-x}Zr_xO_7$ thin films." NuMat 2018.** Seattle, WA. 17 Oct 2018.

5. Spurgeon, S.R., Sushko, P.V., Devaraj, A., Du, Y. Droubay, T., and S.A. Chambers. **"Multiscale analysis of cation disorder and oxygen deficiency-mediated phase separation in double perovskite oxides." Advances in Structural and Chemical Imaging Workshop**, 23 May 2017.

6. Spurgeon, S.R., Sushko, P.V., Devaraj, A., Du, Y. Droubay, T., and S.A. Chambers. **"Oxygen transport-driven suppression of phase separation in the double perovskite oxide La_2MnNiO_6." Materials Research Society Spring Meeting**, 18 Apr 2017.

7. Spurgeon, S.R., Du, Y. and S.A. Chambers. **"Atomically-resolved chemical mapping of a model oxide interface: Challenges and insights." Advances in Structural and Chemical Imaging Workshop**, 19 May 2016.

8. Comes R.B., Lin, S.C., Kuo, C.T., Heald, S.M., Spurgeon, S.R., Kepaptsoglou, D.M., Ramasse, Q.M., Rault, J., Nemsak, S., Fadley, C.S., Sushko, P.V., and S.A. Chambers. **"Probing electronic structure and polarization in $SrTiO_3$–$LaCrO_3$ superlattices using X-ray spectroscopy." Materials Research Society Spring Meeting**, 30 Mar 2016.

9. Spurgeon, S.R., Jones, L., Kepaptsoglou, D.M., Comes, R.B., Ramasse, Q.M., and S.A. Chambers. **"Measuring local ferroelectric polarization using aberration-corrected STEM-HAADF imaging and non-rigid image correction routines." Advances in Structural and Chemical Imaging Workshop**, 21 May 2015.

10. Spurgeon, S.R., Sloppy, J.D., Kepaptsoglou, D.M., Balachandran, P.V., Nejati, S., Karthik, J., Damodaran, A.R., Johnson, C.L., Ambaye, H., Goyette, R., Lauter, V., Ramasse, Q.M., Idrobo, J.C., Lau, K.K.S., Lofland, S.E., Rondinelli, J.M., Martin, L.W., and M.L. Taheri. **"Evidence for a thickness-dependent crossover from charge- to strain-mediated magnetoelectric coupling in $La_{0.7}Sr_{0.3}MnO_3$ / $PbZr_{0.2}Ti_{0.8}O_3$ thin film oxide heterostructures." Microscopy and Microanalysis Conference**, 8 Aug 2013. DOI:110.1017/S1431927613011811

11. Spurgeon, S.R., Sloppy, J.D., Kepaptsoglou, D.M., Balachandran, P.V., Nejati, S., Karthik, J., Damodaran, A.R., Johnson, C.L., Ambaye, H., Goyette, R., Lauter, V., Ramasse, Q.M., Idrobo, J.C., Lau, K.K.S., Lofland, S.E., Rondinelli, J.M., Martin, L.W., and M.L. Taheri. **"Thickness-dependent crossover from charge- to strain-mediated magnetoelectric coupling in $La_{0.7}Sr_{0.3}MnO_3$ / $PbZr_{0.2}Ti_{0.8}O_3$ thin film heterostructures." Drexel University Research Day**, 18 Apr 2013.

12. Spurgeon, S.R., Sloppy, J.D., Kepaptsoglou, D.M., Balachandran, P.V., Nejati, S., Karthik, J., Damodaran, A.R., Johnson, C.L., Ambaye, H., Goyette, R., Lauter, V., Ramasse, Q.M., Idrobo, J.C., Lau, K.K.S., Lofland, S.E., Rondinelli, J.M., Martin, L.W., and M.L. Taheri. **"A local study of magnetoelectric coupling in PZT-LSMO thin film heterostructures using transmission electron microscopy and polarized neutron reflectometry." American Physical Society March Meeting**, 21 Mar 2013.

13. McDonald, I.J, Spurgeon, S.R., Beckett, D., May, S.J., and M.L. Taheri. **"Development of a unique surface magneto-optical Kerr magnetometer to study correlation of magnetism and structure at iron / oxide interfaces." PowderMet Conference**, 11 Jun 2012.

14. Kriete, A.S., Sparber, B.A., Spurgeon, S.R., Hanejko, F.J., and M.L. Taheri. **"The effect of sintering dynamics on additive diffusion in ferrous powder metal compacts." PowderMet Conference**, 11 Jun 2012.

15. McDonald, I.J, Spurgeon, S.R., Beckett, D., May, S.J., and M.L. Taheri. **"Development of a unique surface magneto-optical Kerr effect magnetometer to correlate magnetism and structure in coated ferrous thin films and powders." Materials Research Society Fall Meeting**, 29 Nov 2011.

16. Taheri, M.L., Winkler, C.R., Sloppy, J.D., Spurgeon, S.R., Martin, L.W., Idrobo, J.C., Phatak, C., Wen, J., and D.J. Miller. **"A quantitative understanding of domain relaxation behavior in $BiFeO_3$-based multiferroic systems using *in situ* TEM." Materials Research Society Fall Meeting**, 28 Nov 2011.

17. Spurgeon, S.R., Sloppy, J.D, Lofland, S.E., Baldwin, J.K., Misra, A., and M.L. Taheri. **"The effect of film morphology and interface structure on the magnetic properties of Fe - MgO (001) thin films." Microscopy and Microanalysis Conference**, 9 Aug 2011. DOI:10.1017/S1431927611008099

18. Sloppy, J.D., Idrobo, J.C., Sundaram, S., Spurgeon, S.R., Winkler, C.R., Valanoor, N., Munroe, P., and M.L. Taheri. **"Interfacial chemistry, defects, and strain in multiferroic heterostructures." Microscopy and Microanalysis Conference**, 10 Aug 2011. DOI:10.1017/S1431927611007781

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20. Spurgeon, S.R., Kikkawa, J., Baldwin, J.K., Misra, A., and M.L. Taheri. **"A structural and magnetic study of interfacial spin coupling in Fe–MgO ferromagnetic-dielectric thin film composites." Materials Research Society Fall Meeting**, 19 Nov 2010.

21. Barr, C.M., Vetterick, G., Scotto D'Antuono, D., Winkler, C.R., Spurgeon, S.R., Kirk, M.A., Knight, R., and M.L. Taheri. **"Multi-scale examination of the effect of $\Sigma 3_n$ CSL boundaries on radiation-induced degradation in stainless steels." Materials Research Society Fall Meeting**, 19 Nov 2010.

22. Spurgeon, S.R., Winkler, C.R., Kirby, B.J., Johnson, C.L., and M.L. Taheri. **"Correlating interfacial structure and magnetism in Fe–MgO thin films using electron microscopy, X-ray and neutron reflectometry." Microscopy and Microanalysis Conference**, 3 Aug 2010.

23. Spurgeon, S.R., Winkler, C.R., Kirby, B.J., Johnson, C.L., Atthipalli, G., Gray, J., and M.L. Taheri. **"A multiscale correlation of the structural and magnetic properties of complex metal oxide thin film composites." Materials Research Society Spring Meeting**, 6 Apr 2010.

MRS Bulletin Publications

1. S. Spurgeon. **"Single chip integrates transistors and photonic components."** ***Materials Research Society Bulletin***, 41 (2016): 180-2. DOI:10.1557/mrs.2016.37

2. S. Spurgeon. **"SPM scans the chemical landscape of manganite oxides"** ***Materials Research Society Bulletin***, 40 (2015): 465-6. DOI:10.1557/mrs.2015.126

3. S. Spurgeon. **"'Paper Factory' produces blend of science and engineering education."** ***Materials Research Society Bulletin***, 39 (2014): 945-6. DOI:10.1557/mrs.2014.268

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16. S. Spurgeon. **"Modified SPM allows high resolution mapping of lithium-ion diffusion."** ***Materials Research Society Bulletin***, 35 (2010): 836. DOI:10.1557/mrs2010.723