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EDUCATION

Ph.D., Materials Science and Engineering	Cornell University, 1988
M.S., Materials Science and Engineering	Cornell University, 1984
B.A., Physics	Reed College, 1982

EMPLOYMENT

Distinguished R&D Staff, Neutron Scattering Division	Oak Ridge National Laboratory 2019-present
Professor of Physics (Joint Faculty Appointment)	University of Tennessee 2016-present
Group Leader in the Neutron Sciences Directorate	Oak Ridge National Laboratory 2015-2019
Technical Staff Member; Scientist-4	1993-2015 Los Alamos National Laboratory
Postdoctoral Fellow	1990-1993 Los Alamos National Laboratory
Fulbright Junior Research Fellow	1989-1990 Ludwig Maximilians Universität, München Germany

TEACHING

2021	PHYS 599 Condensed Matter Seminar (UTK)
2021	PHYS 231 Electricity and Magnetism for Engineers (UTK)
2019	Neutron reflectometry (30-hour course), CNEA Buenos Aires, Argentina
2019	PHYS 342/555 Structure of Matter (UTK)
2017	PHYS 599 Graduate student research seminar, presentation skills (UTK)
2016	PHYS 594 and MSE 576 X-ray and neutron scattering (UTK)

POSTDOCS MENTORED

Phil Yashar	Qorvo Inc.
Axel Hoffmann	Professor, University of Illinois, Urbana IL
Sungkyun Park	Dept. Chair, Professor, Pusan, Korea
Justin Olamit	U.S. Patent office
Brian Kirby	Group Leader—Neutron Research, NIST
Mikhail Zhernenkov	Instrument scientist, NSLS-2
Surendra Singh	Instrument scientist, BARC India
Qiang Wang	Research professor, West Virginia University
Prashant Jain	CEO, Sirphey, https://sirphey.com/aboutus
Erjia Guo	Professor, Institute of Physics, Beijing
Ryan Desautels	Seagate
Thomas Farmer	ISIS, Rutherford Lab
Tianhao Wang	Chinese Neutron Spallation Source
Amanda Huon	Professor, University of the Sciences, Philadelphia PA

GRADUATE STUDENT MENTORED

Xin Wen	University of Tennessee, Knoxville

AWARDS AND HONORS

2019	Subject matter expert for the International Atomic Energy Agency
2014	**Fellow of the Neutron Scattering Society of America**
2014	Visiting scholar, University of California at San Diego
2008-11	Visiting scholar, the Laboratoire de Physique des Matériaux, Université H. Poincaré Vandœuvre les Nancy, France
2007	**Fellow of the American Physical Society**
2004	Los Alamos Neutron Science Director's Award
2001	Los Alamos National Laboratory Director's Award (individual)

SERVICE

Professional Society Governance

2019 President of the Materials Research Society
Materials Research Society, 1/1/2018-12/31/2020
VP in 2018, Pres. in 2019, Past Pres. in 2020.
Treasurer and Officer of the Board of Directors,
Materials Research Society, 1/1/2010-12/31/2015
Chair, Finance Committee, Materials Research Society, 2013-2015
Member-at-large, topical Group on Magnetism and its Applications (GMAG), American Physical Society, 2007-2009
Chair, Nominating committee for GMAG 2009

Committees

Chair, Science Technical Advisory Panel (reflectometry) for the European Spallation Source, 2016-present
Member, Basic Research Needs for Synthesis Science Basic Energy Sciences, panel 2016
Member, Neutron Optics Technical Advisory Panel for the European Spallation Source, 2012-2016
Member, Basic Energy Sciences review panel of the neutron scattering directorate, Oak Ridge National Laboratory, 2012

Conferences

Member, programming committee condensed matter programming committee International Conference on Neutron Scattering '17
Member, programming committee condensed matter programming committee American Conference on Neutron Scattering '16
Member, programming committee Surface X-ray and Neutron Scattering Conference, '15
Member, programming committee Magnetism and Magnetic Materials Conference '13
Member, programming committee condensed matter programming committee American Conference on Neutron Scattering '12
Meeting Chair, Fall 2008 Meeting of the Materials Research Society
Chair, condensed matter programming committee American Conference on Neutron Scattering '08
Symposium organizer, Materials Research Society, 2002.

Neutron Scattering Schools

Lecturer, Neutron reflectometry, Comisión Nacional de Energía Atómica, Buenos Aires, Argentina 2019 on behalf of the International Atomic Energy Agency (IAEA)
Lecturer, Neutron reflectometry and small angle neutron scattering, Comisión Nacional de Energía Atómica, Buenos Aires, Argentina 2017
Lecturer, Neutron reflectometry and small angle neutron scattering, Comisión Nacional de Energía Atómica, Bariloche, Argentina 2017
Lecturer, Introduction to Neutron Scattering, May 2015 Materials Characterization Course, UTK, MS&E
Organizer and lecturer, 5th LANSCE neutron scattering school, 2009
Lecturer, Canadian Neutron Scattering School, Chalk River Canada, 2006.

	Lecturer, 1st LANSCE neutron scattering school, 2004
Workshops	**Organizer,** Emerging opportunities in condensed matter research inspired quantum confinement, workshop ORNL/UTK 2017. https://conference.sns.gov/event/67/overview **Organizer,** Very cold neutrons for the Second Target Station workshop, ORNL 2016. https://conference.sns.gov/event/18/ **Invited Speaker**, SANS Opportunities for Hard Condensed Matter, 4/14 ORNL. **Participant**, Quantum Condensed Matter and neutron scattering, 12/13 Berkeley, CA **Chair**, Neutron optics and polarization techniques for the NIST-NCNR expansion upgrade workshop **Organizer**, Neutron scattering and nanomagnetism, 2004 **Invited Speaker**, Reflectometry at the SNS, ANL, 2000 **Invited Speaker**, Reflectometry at the LPSS, LBNL, 1995 **Invited Speaker**, High power spallation source, ANL, 1993
Proposal Reviewer	Department of Energy, National Science Foundation
Memberships	American Physical Society Materials Research Society Neutron Scattering Society of America

FUNDED PROJECTS

Project/Proposal Title: **High resolution validation of next generation turbulent flow models using neutron beams and laser fluorescence in cryogenic Helium** (M. Fitzsimmons PI)
Source of Support: **ORNL-LDRD**
Total Award Amount: **$190,000** Total Award Period Covered: **2017-18**
Location of Project: **Oak Ridge National Laboratory**

Project/Proposal Title: **Emerging opportunities in condensed matter research inspired by quantum confinement** (M. Fitzsimmons PI)
Source of Support: **ORNL-LDRD**
Total Award Amount: **$25,000** Total Award Period Covered: **2017**
Location of Project: **Oak Ridge National Laboratory**

Project/Proposal Title: **Next generation science enabled by a very cold neutron source for the STS** (M. Fitzsimmons PI)
Source of Support: **ORNL-LDRD**
Total Award Amount: **$25,000** Total Award Period Covered: **2016**

Location of Project: **Oak Ridge National Laboratory**

Project/Proposal Title: **Quantum Condensed Matter and Heterostructures** (M. Fitzsimmons PI)
Source of Support: **ORNL-LDRD**
Total Award Amount: **$25,000** Total Award Period Covered: **2017**
Location of Project: **Oak Ridge National Laboratory**

Project/Proposal Title: **Observing hidden structure underpinning emergent functionality in mesoscale materials** (M. Fitzsimmons PI)
Source of Support: **ORNL-LDRD**
Total Award Amount: **$576,000** Total Award Period Covered: **2016-2017**
Location of Project: **Oak Ridge National Laboratory**

Project/Proposal Title: **Magnetoelectric multiferroic nanocomposites—going beyond complex oxide perovskites** (M. Fitzsimmons PI)
Source of Support: **ORNL-LDRD (strategic hire)**
Total Award Amount: **$400,000** Total Award Period Covered: **2015-2016**
Location of Project: **Oak Ridge National Laboratory**

Project/Proposal Title: **Multiferroic Response Engineering in Mesoscale Oxide Structures** (Q. Jia PI, M. Fitzsimmons, Co-investigator)
Source of Support: **LANL-LDRD**
Total Award Amount: **$6,000,000** Total Award Period Covered: **2014-2016**
Location of Project: **Los Alamos National Laboratory**

Project/Proposal Title: **Spin echo scattering angle measurement technique and Asterix upgrade** (R. Pynn IU and M. Fitzsimmons LANL)
Source of Support: **DOE**
Total Award Amount: **$880,000** Total Award Period Covered: **2008-2012**
Location of Project: **Indiana University and Los Alamos National Laboratory**

Project/Proposal Title: **Control of structure-property relationships in complex oxide films by engineered-strain** (M. Fitzsimmons LANL, PI)
Source of Support: **DOE**
Total Award Amount: **$750,000** Total Award Period Covered: **2008-2011**
Location of Project: **Los Alamos National Laboratory**

Project/Proposal Title: **Novel Physical Behavior of Nanostructured Materials Derived from Interface Atoms** (M. Nastasi PI, M. Fitzsimmons, Co-investigator)
Source of Support: **LANL-LDRD**
Total Award Amount: **$6,000,000** Total Award Period Covered: **2006-2008**
Location of Project: **Los Alamos National Laboratory**

Project/Proposal Title: **Non-equilibrium Electron Spin Transport and Dynamics in Solids** (D. Smith PI, M. Fitzsimmons, Co-investigator)

Source of Support: **LANL-LDRD**
Total Award Amount: **$6,000,000** Total Award Period Covered: **2006-2008**

INVITED TALKS

54. **A scheme to measure fluid flow with neutron beams,** M.R. Fitzsimmons, Dept. of Physics and Astronomy, University of Nebraska*,* Lincoln NE, 2021 (virtual colloquium).
53. **Three means to control interface magnetism,** M.R. Fitzsimmons, Dept. of Materials Science, Seoul National University*,* Seoul, Korea 2018.
52. **Three means to control interface magnetism,** M.R. Fitzsimmons, (Keynote talk) International Conference on Electronic Materials and Nanotechnology for a Green Environment (ENGE 2018), Jeju, Korea 2018.
51. **Three means to control interface magnetism,** M.R. Fitzsimmons, Dept. of Physics and Astronomy New Mexico State University, Las Cruces NM 2018.
50. **Three means to control interface magnetism,** M.R. Fitzsimmons, *Surface X-ray and Neutron Scattering Conference,* Pohang, Korea 2018.
49. **Interface magnetism in complex oxide heterostructures and manufactured magnetoelectric coupling,** M.R. Fitzsimmons (Fitzsimmons received invitation and Guo presented), *American Physical Society* March Meeting, Los Angeles CA 2018.
48. **Applications of polarized neutron scattering to guide development of novel functional heterostructures,** M.R. Fitzsimmons, JCNS Workshop Trends and Perspectives in Neutron Instrumentation: Probing Structure and Dynamics at Interfaces and Surfaces, 10 - 13 October 2017, Tutzing, Germany
47. **Probing planar interfaces with neutron scattering—a 16 hour lecture series,** M.R. Fitzsimmons, *Comision Nacional de Energia Atomica*, Buenos Aires, Argentina 2017.
46. **Electric field control of the magnetic order parameter of magnetic pillars embedded in a ferroelectric matrix,** M.R. Fitzsimmons, *Comision Nacional de Energia Atomica*, Buenos Aires, Argentina 2017.
45. **Influence of stress on interface magnetism,** M.R. Fitzsimmons, *Comision Nacional de Energia Atomica*, Buenos Aires, Argentina 2017.
44. **Routes to synthetic magnetolectric coupling across interfaces,** M.R. Fitzsimmons, *Comision Nacional de Energia Atomica*, Buenos Aires, Argentina 2017.
43. **Routes to synthetic magnetolectric coupling across interfaces,** M.R. Fitzsimmons, *Comision Nacional de Energia Atomica*, Bariloche, Argentina 2017.
42. **Probing planar interfaces with neutron scattering—a 16 hour lecture series,** M.R. Fitzsimmons, *Comision Nacional de Energia Atomica*, Bariloche, Argentina 2017.
41. **Routes to synthetic magnetolectric coupling across interfaces,** M.R. Fitzsimmons, *Competing Interactions and Colossal Responses in Transition Metal Oxides*, Telluride, CO 2017.
40. **Routes to synthetic magnetolectric coupling across interfaces,** M.R. Fitzsimmons, *Department of Physics Michigan State University*, Lansing, MI 2017.
39. **Strain and charge: Routes to synthetic magnetolectric coupling,** M.R. Fitzsimmons, *Workshop on neutron scattering to study magnetic, multiferroic and superconducting materials,* Bariloche, Argentina, February, 2016.
38. **Strain and charge: Routes to perfect synthetic magnetolectric coupling,** M.R. Fitzsimmons, *University of Tennessee Physics Department,* November, 2015.
37. **Enabling use-inspired applications of mesoscale materials,** M.R. Fitzsimmons, *Duke University*, September 2015.

36. **Neutron and resonant x-ray scattering studies of magnetism of complex oxide interfaces—an emergent property or materials science?**, M.R. Fitzsimmons, *Materials Science Department seminar, University of Tennessee*, October 2014.
35. **Studies of interface magnetism in thin films—the next Blue Ocean opportunity for SANS**, M.R. Fitzsimmons, *Physics department seminar, West Virginia University*, August 2014.
34. **Studies of interface magnetism in thin films—the next Blue Ocean opportunity for SANS**, M.R. Fitzsimmons, *New Directions and Opportunities for Small-Angle Neutron Scattering in Condensed Matter Science, Oak Ridge National Laboratory*, July 2014.
33. **Neutron scattering studies of magnetism of complex oxide interfaces—an emergent property or materials science?** M.R. Fitzsimmons, *Neutron Scattering Directorate seminar Oak Ridge National Laboratory*, June 2014.
32. **Influence of applied bending stress to magnetic non-uniformity, saturation magnetization and ordering temperature in $(La_{0.4}Pr_{0.6})_{0.67}Ca_{0.33}MnO_3$ films**, M.R. Fitzsimmons, *Materials Week, Ohio State University*, May 2014.
31. **Influence of applied bending stress to magnetic non-uniformity, saturation magnetization and ordering temperature in $(La_{0.4}Pr_{0.6})_{0.67}Ca_{0.33}MnO_3$ films**, M.R. Fitzsimmons, *UC Davis Physics Department*, May 2014.
30. **Magnetic non-uniformity in $(La_{0.4}Pr_{0.6})_{0.67}Ca_{0.33}MnO_3$ films and measurement of the strain-magnetization coupling coefficient**, M.R. Fitzsimmons, *UC San Diego Physics Department*, 2012.
29. **Magnetic non-uniformity in $(La_{0.4}Pr_{0.6})_{0.67}Ca_{0.33}MnO_3$ films and measurement of the strain-magnetization coupling coefficient**, M.R. Fitzsimmons, Magnetic North III, Banff Canada, June 2012.
28. **Small angle neutron scattering using polarized neutron beams form a user's perspective**, M.R. Fitzsimmons, *tutorial at the American Conference on Neutron Scattering, Washington D.C.,* June 2012.
27. **Upper limit to magnetism in $LaAlO_3/SrTiO_3$ heterostructures,** M.R. Fitzsimmons, *American Physical Society Meeting, Boston MA*, February 2012.
26. **How can polarized neutron reflectometry help us understand phantom magnetism?**, M.R. Fitzsimmons, *International conference on films and surface magnetism, Berlin Germany,* July 2009.
25. **How can polarized neutron reflectometry help us understand phantom magnetism?**, M.R. Fitzsimmons, *Helmholtz-Zentrum Berlin, Germany,* May 2009.
24. **Understanding the novel properties of nanostructured magnetized materials and the role of polarized neutron reflectometry**, M.R. Fitzsimmons, *Plenary Nanoscience Lecture at the SNS/HFIR Users meeting,* October 2007.
23. **Magnetization depth profile of a Laves phase exchange coupled superlattice**, M.R. Fitzsimmons, *Ruhr Universität, Bochum,* June 2007.
22. **Origins of novel properties of nanostructured magnetized materials**, M.R. Fitzsimmons, *Technical Universität Berlin*, May 2007.
21. **Origin of positive and negative exchange bias in Co/FeF_2**, M.R. Fitzsimmons, *American Crystallographic Association, Honolulu Hawaii*, July 2006.
20. **The vector magnetization depth profile of a Laves phase exchange-coupled superlattice obtained using a combined approach of micromagnetic simulation and neutron**

reflectometry, M.R. Fitzsimmons, *American Conference on Neutron Scattering, St. Charles IL,* June 2006.

19. **Vector magnetization depth profiles obtained with polarized neutron reflectometry,** M.R. Fitzsimmons, *The 9th Canadian Summer School on Neutron Scattering, Chalk River Canada,* June 2006.
18. **Novel magnetic behavior and exchange coupling across planar interfaces**, M.R. Fitzsimmons, *The 9th Canadian Summer School on Neutron Scattering, Chalk River Canada*, June 2006.
17. **Depth profile of uncompensated spins in exchange biased Co/FeF_2**, M.R. Fitzsimmons, *University of Western Australia, Perth Australia,* Nov. 2005.
16. **Depth profile of uncompensated spins in exchange biased Co/FeF_2**, M.R. Fitzsimmons, *International Conference on Neutron scattering, Sydney Australia,* Nov. 2005.
15. **Influence of high magnetic fields on the magnetic depth profile of an exchange spring multilayer**, M.R. Fitzsimmons, *International Materials Research Congress, Cancun Mexico,* August 2005.
14. **Test of the LPSS concept and so much more**, M.R. Fitzsimmons, *Next generation neutron source workshop, San Diego, CA USA,* June 2005.
13. **Polarized neutron scattering in very big fields**, M.R. Fitzsimmons, *Probing matter at high magnetic fields with X-rays and neutrons, Tallahassee, FL USA,* May 2005.
12. **Magnetic antiferromagnets and exchange bias**, M.R. Fitzsimmons, *University of California at Santa Barbara Materials Science Colloquium,* November 2004.
11. **Understanding induced magnetization in antiferromagnets and exchange bias with neutron scattering**, M.R. Fitzsimmons, *International Materials Research Congress, Cancun Mexico,* August 2004.
10. **Induced magnetization in antiferromagnets and exchange bias,** M.R. Fitzsimmons, ***Polarized Neutrons in Condensed Matter Investigations, Washington D***.C., June 2004.
9. **Influence of Structural Disorder and Temperature on Magnetization Reversal in Exchange Coupled Bilayers**, M.R. Fitzsimmons, *Polarized Neutrons and Synchrotron X-rays for Magnetism, Venice, Italy,* Aug. 2003.
8. **Quantitative Profiling of Interfacial Magnetism with Neutron Scattering**, M.R. Fitzsimmons, *Meeting of the University of California at Santa Barbara-LANL Campus-Laboratory Collaboration (CLC), Santa Barbara, CA,* June 2003.
7. **Polarized neutron reflectometry of magnetic multilayers, Neutron and Synchrotron X-ray Scattering in Condensed-matter Research**, M.R. Fitzsimmons, *Paul Scherrer Institut, Villigen, Switzerland, Aug*. 2002.
6. **Magnetization reversal in exchange-biased films**, M.R. Fitzsimmons, *The 7th International Conference on Surface X-ray & Neutron Scattering, Lake Tahoe, CA.,* Sep. 2002.
5. **Asymmetric Magnetization Reversal in Exchange Bias Systems**, M.R. Fitzsimmons, *2001 March Meeting of the American Physical Society, Seattle WA.,* March 2001.
4. **Small angle neutron scattering from magnetic materials**, M.R. Fitzsimmons, *3rd LANSCE User Group Meeting*, Jan. 2000.
3. **45° Exchange Coupling Across the Fe-FeF_2 Interface**, M.R. Fitzsimmons, *44th Annual Conference on Magnetism & Magnetic Materials, San Jose, CA,* November 15–18, 1999.

2. **Characterization of the Atomic and Magnetic Structures of Nanocrystalline Materials using Neutron Powder Diffraction**, M.R. Fitzsimmons, *TMS-AIME conference, Las Vegas, NV* 1995.
1. **The Magnetization Density Profile of a Grain Boundary in Nickel**, M.R. Fitzsimmons, *The Magnetism and Magnetic Materials conference, Albuquerque, NM*, June 1994.

PUBLICATIONS

For latest citation list:
http://scholar.google.com/citations?user=5xDFeHsAAAAJ&hl=en&oi=ao

(* denotes impact factor >7)

157. D. Carranza-Celis, E. Skoropata, Amlan Biswas, **M.R. Fitzsimmons**, Ivan K. Schuller and Juan Gabriel Ramirez, **Magnetism dynamics driven by phase separation in Pr-doped manganite thin films: A Ferromagnetic resonance study**, *Phys. Rev. Mat.,* accepted (2021).

*156. Qiao Jin, Zhiwen Wang, Qinghua Zhang, Yonghong Yu, Shan Lin, Shengru Chen, Mingqun Qi, He Bai, Amanda Huon, Qian Li, Le Wang, Xinmao Yin, Chi Sin Tang, Andrew T. S. Wee, Fanqi Meng, Jiali Zhao, Jia-Ou Wang, Haizhong Guo, Chen Ge, Can Wang, Wensheng Yan, Tao Zhu, Lin Gu, Scott A. Chambers, Sujit Das, Timothy Charlton, **Michael R. Fitzsimmons**, Gang-Qin Liu, Shanmin Wang, Kui-juan Jin, Hongxin Yang and Er-Jia Guo, **Room-temperature ferromagnetism at an oxide/nitride interface**, *Phys. Rev. Lett.,* accepted (2021).

155. Amanda Huon, Sangmoon Yoon, **Michael R. Fitzsimmons**, Timothy R. Charlton, Jong Mok Ok, Clarina dela Cruz and Ho Nyung Lee, **Effects of Sn substitution in SrRuO3 epitaxial films**, *Appl. Phys. Lett*., **119**, 112404 (2021). https://doi.org/10.1063/5.0061902

*154. C. Liu, Y. Liu, B. Zhang, C-J Sun, D. Lan, P. Chen, X. Wu, P. Yang, X. Yu, T. Charlton, **M. Fitzsimmons**, J. Ding, J. Chen, M.G. Chow, **Self-polarization Controlled Magnetic Stratification and Magnetic Coupling in Ultrathin $La_{0.67}Sr_{0.3}3MnO_3$,** *ACS Appl. Materials and Interfaces*, **13**(25) 30137 (2021). https://doi.org/10.1021/acsami.1c02300

*153. S. Lin, Q. Zhang, X. Sang, J. Zhao, S. Cheng, A. Huon, Q. Jin, S. Chen, S. Chen, W. Cui, H. Guo, M. He, C. Ge, C. Wang, J-O Wang, **M.R. Fitzsimmons**, L. Gu, T. Zhu, K. Jin and E-J Guo, **Dimensional Control of Octahedral Tilt in $SrRuO_3$ via Infinite-layered Oxides**, *NanoLetters* (2021). https://dx.doi.org/10.1021/acs.nanolett.1c00352

152. A. Addazi, et al., **New high-sensitivity searches for neutrons converting into antineutrons and /or sterile neutrons at the European Spallation Source**, J. Phys. G: Nucl. Part. Phys., **48** 070501 (2021) https://doi.org/10.1088/1361-6471/abf429

*151. Lisha Fan, Xiang Gao, Thomas O. Farmer, Donkyu Lee, Er-Jia Guo, Sai Mu, Kai Wang, **Michael R Fitzsimmons**, Matthew F. Chisholm, Thomas Zac Ward, Gyula Eres, Ho Nyung Lee, **Vertically aligned single-crystalline $CoFe_2O_4$ nanobrush architectures with high magnetization and tailored magnetic anisotropy,** *Nanomaterials* **10**, 472 (2020). https://www.mdpi.com/2079-4991/10/3/472

150. Shan Lin, Qinghua Zhang, Manuel A. Roldan, Sujit Das, Timothy Charlton, **Michael R. Fitzsimmons**, Qiao Jin, Sisi Li, Zhenping Wu, Shuang Chen, Haizhong Guo, Xin Tong, Meng He, Chen Ge, Can Wang, Lin Gu, Kui-juan Jin and Er-Jia Guo, **Switching Magnetic Anisotropy of $SrRuO_3$ by Capping-Layer-Induced Octahedral Distortions**, *Phys. Rev. Applied,* **13** 034033 (2020). https://doi.org/10.1103/PhysRevApplied.13.034033

*149. Dongkyu Lee, Xiang Gao, Lixin Sun, Youngseok Jee, Jonathan Poplawsky, Thomas Farmer, Lisha Fan, Er-jia Guo, Qiyang Lu, William Heller, Yongseong Choi, Daniel Haskel, **Michael Fitzsimmons**, Matthew Chisholm, Kevin Huang, Bilge Yildiz, and Ho Nyung Lee, **Colossal oxygen vacancy formation at a fluorite-bixbyite interface**, *Nature Comm.* **11**, 1371 (2020). https://doi.org/10.1038/s41467-020-15153-8

*148. X. Wen, Shiran Bao, L. McDonald, J. Pierce, G.L. Greene, Lowell Crow, Xin (Tony) Tong, A. Mezzacappa, R. Glasby, W. Guo and **M.R. Fitzsimmons**, **Imaging fluorescence of He_2^* excimers created by neutron capture in liquid He II—a new approach for turbulent flow research**, *Phys. Rev. Letters* **124**, 134502 (2020). https://doi.org/10.1103/PhysRevLett.124.134502

147. Ryan D. Desautels, Lisa M. DeBeer-Schmitt, Sergio Montoya, Julie A. Borchers, Soong-Geun Je, Nan Tang, Mi-Young Im, **Michael R. Fitzsimmons,** Eric E. Fullerton and Dustin A. Gilbert,

Realization of magnetic skyrmions in thin films at ambient conditions, *Phys. Rev. Materials* **3**, 104406 (2019). https://doi.org/10.1103/PhysRevMaterials.3.104406

146. **M.R. Fitzsimmons** and T.R. Charlton, **Strategies to minimize the influence of instrumental bias in neutron scattering**, *Nuclear Instrumentation and Methods A* **941**, 162330 (2019). https://doi.org/10.1016/j.nima.2019.06.071
145. Thomas O. Farmer, Er-Jia Guo, Tianhao Wang, Ryan D. Desautels, Aiping Chen, Quanxi Jia, Julie Borchers, Dustin A. Gilbert, Ben Holladay, Sunil K. Sinha, **Michael R. Fitzsimmons, Nano-scale magnetization inhomogeneity within single phase nanopillars**, *Phys. Rev. Materials* **3** 081401 (R) (2019). https://doi.org/10.1103/PhysRevMaterials.3.081401
*144. Er-Jia Guo, Ryan Desautels, Dongkyu Lee, Zhaoliang Liao, Xiang Gao, Timothy Charlton, Haile Ambaye, Jamie Molaison, Reinhard Boehler, David Keavney, Andreas Herklotz, T. Zac Ward, Ho Nyung Lee and **Michael R. Fitzsimmons**, **Exploiting symmetry mismatch to control magnetism in a ferroelastic heterostructure,** *Phys. Rev. Lett.,* **122**, 187202 (2019). http://dx.doi.org/10.1103/PhysRevLett.122.187202
*143.Er-Jia Guo, Ryan Desautels, David Keavney, Manuel A. Roldan, Brian J. Kirby, Dongkyu Lee, Zhaoliang Liao, Timothy Charlton, Andreas Herklotz, T. Zac Ward, **Michael R. Fitzsimmons** and Ho Nyung Lee, **Nanoscale ferroelastic twins formed in strained $LaCO_3$ films**, *Science Advances* 5:eeav5050 (2019). http://advances.sciencemag.org/content/advances/5/3/eaav5050.full.pdf
*142. Zhaoliang Liao, Elizabeth Skoropata, J. W. Freeland,Er-Jia Guo, Ryan Desautels, Xiang Gao, Changhee Sohn, Tao Zou, Timothy Charlton, T. Zac Ward, **Michael R. Fitzsimmons,** and Ho Nyung Lee, **Large orbital polarization in nickelate-cuprate heterostructures by dimensional control of oxygen coordination,** *Nature Communications*, **10**, 589 (2019). https://doi.org/10.1038/s41467-019-08472-y
141. Er-Jia Guo, Ryan D. Desautels, David Keavney, Andreas Herklotz, T. Zac Ward, **Michael R. Fitzsimmons** and Ho Nyung Lee, **Switchable orbital polarization and magnetization in strained $LaCoO_3$ films,** *Phys. Rev. Mater* **3**, 014407 (2019). http://dx.doi.org/10.1103/PhysRevMaterials.3.014407
140. Er-Jia Guo, Manuel A. Roldan, Xiahan Sang, Satoshi Okamoto, Timothy Charlton, Haile Ambaye, Ho Nyung Lee, and **Michael Fitzsimmons**, **Influence of chemical composition and crystallographic orientation on the interfacial magnetism in $BiFeO_3/La_{1-x}Sr_xMnO_3$ superlattices,** *Phys. Rev. Mater.,* **2**, 114404 (2018). http://dx.doi.org/10.1103/PhysRevMaterials.2.114404
139. J. Walter, T. Charlton, H. Ambaye, **M.R. Fitzsimmons**, P.P. Orth, R.M. Fernandes and C. Leighton, **Giant Electrostatic Modification of Magnetism via Electrolyte-Gate-Induced Cluster Percolation in $La_{1-x}Sr_xCoO_{3-\delta}$**, *Phys. Rev. Mater.,* **2**, 111406 (2018). http://dx.doi.org/10.1103/PhysRevMaterials.2.111406
*138. Er-Jia Guo, Manuel Roldan, Timothy Charlton, Zhaoliang Liao, Qiang Zheng, Haile Ambaye, Andreas Herklotz, Zheng Gai, T. Zac Ward, Ho Nyung Lee, and **Michael R. Fitzsimmons**, **Removal of Magnetic Dead Layer by Geometric Design**, *Adv. Funct. Mater*., **28**, 1800922 (2018). http://dx.doi.org/10.1002/adfm.201800922
*137. E. Guo, Y. Liu, C. Sohn, R.D. Desautels, A. Herklotz, Z. Liao, J. Nichols, J.W. Freeland, **M.R. Fitzsimmons**, H.N. Lee, **Oxygen Diode Formed in Nickelate Heterostructures by Chemical Potential Mismatch**, *Advanced Materials* **30**, 1705904 (2018). http://dx.doi.org/10.1002/adma.201705904
136. Q. Wang A.P. Chen, E.J. Guo, M.A. Roldan, Q.X. Jia and **M.R. Fitzsimmons**, **An upper limit on the influence of elastic bending stress on the saturation magnetization of $La_{0.8}Sr_{0.2}MnO_3$,** *Physical Review B* **97**, 014437(2018). https://doi.org/10.1103/PhysRevB.97.014437
135. T. Wang, C.Y. Jiang, T.O. Farmer, L. Debeer-Schmitt, J.F. Wenzel, L. McDonald, J.L. Robertson, **M.R. Fitzsimmons** and X. Tong, **New polarized small angle neutron scattering capability at**

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