Dr. William Ratcliff II

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Education

2003 Rutgers University, New Brunswick, Ph.D. Physics, Thesis Advisor: Professor Sang W. Cheong

1997 University of Michigan, Ann Arbor, BSE in Engineering Physics

Research Interests

The primary focus of my research has been multiferroic materials. Recently, I have explored geometric ferroelectricity in the $LuFeO_3$ series of compounds in both bulk and thin film samples (see 18,20, and 21) culminating in work with collaborators in the development of superlattices with near room temperature magneto-electric effects. Our neutron scattering work was key in understanding the intrinsic magnetic ordering of the $LuFeO_3$ geometric ferroelectric which templates $LuFe_2O_4$ in the $LuFeO_3$-$LuFe_2O_4$ superlattice to dramatic effect. Currently, I am working on topological materials (see 2,3,4,5,16). Of particular interest is the interplay of magnetism with topological materials. For example in the $MnBi_2Te_4$ system, our measurements of the magnetic structure under applied magnetic fields has direct implications for the band structure. I am also interested in the use of AI to accelerate neutron scattering measurements and analysis.

Career/Experience

2005-Present: Physicst at the NIST Center for Neutron Scattering

2019 - Present: Adjunct Associate Professor, Materials Science and Engineering, University of Maryland, College Park

2023 - Present: Adjunct Associate Professor, Physics, University of Maryland, College Park

2003-2005: National Research Council Postdoc at the NIST Center for Neutron Research at NIST. Primary work concerned neutron scattering experiments on geometrically frustrated magnets and magnetoelectric systems. Also participated in x-ray experiments at Brookhaven and APS. Developed a GUI application for visualization of the resolution ellipsoid for inclusion in the DAVE project.

1997-2003: Worked with Sang W. Cheong in materials physics research including materials synthesis and characterization of novel magnetic systems.

Workshops Organized

2023 AI and Scattering Workshop, University of Maryland

2023 Data Science Education Community of Practice Summer Workshop, University of Maryland

2022 National Society of Black Physicists Conference (Condensed Matter section), University of Virginia

2022 PNCMI,Annapolis

2022 PNCMI School (organizer/lecturer), NIST, Gaithersburg

2021 Data Science Education Community of Practice Workshop

2021 School on Representational Analysis and Magnetic Structure (RAMS), University of Maryland, College Park, Maryland

2018 ACNS Satellite School: 7th School on Representational Analysis and Magnetic Structure (RAMS), University of Maryland, College Park, Maryland

2018 Program Committee International Conference on Magnetism (ICM), San Francisco, CA

2017 Co-organizer of Fundamentals of Ferroelectrics Conference (FERRO), Williamsburg, WV

2015 5th School on Representational Analysis and Magnetic Structure (RAMS), University of Maryland, College Park, Maryland

2012 Workshop on Representational Analysis and Magnetic Structure Determination, BARC, Mumbai, India**

2011 The NIST/Georgetown 2nd School on Representational Analysis and Magnetic Structures Aug1-5, Georgetown, Washington, D.C.

2010 Program Committee MMM Meeting, Atlanta, GA

2007 The NIST Workshop on Representational Analysis of Complex Magnetic Structures, Gaithersburg, MD

Grants

APS Innovation Fund Data Science Education Community of Practice $200,000 for two years (2021)

Selected Honors and Memberships

Secretary Neutron Scattering Society of America (January 2023-present)

Member of American Association for the Advancement of Science

Member of American Physical Society

Fellow of American Physical Society

Associate Editor of Science Advances (2019-present)

Past Chair APS Topical Group on Data Science(March 2024 - March 2025)

Chair-elect APS Topical Group on Magnetism (March 2024- March 2025)

Chair APS Topical Group on Data Science(March 2023 - March 2024)

Vice Chair APS Topical Group on Magnetism (March 2023- present)

Incoming Chair APS Topical Group on Data Science (March 2022 - March 2023)

Vice Chair APS Topical Group on Data Science (March 2020 - March 2022)

Neutron Scattering Society of America Service Award for founding and organizing a national school on solving magnetic structures with neutron diffraction and developing new AI data collection and analysis methods (2022)

Advisory board CREST Center for Research and Education in Quantum Leap Science and Technology at Norfolk State University(2021)

Chair NCNR DEIA Committee (2022)

Member NIST DEIA Strategic planning group (2022)

NIST AI-COI Member at large representing NCNR (2022-present)

NIST Bronze Medal (highest honorary recognition given by the institute) (2021)

Member APS committee to select APS Congressional Fellow (2020-2023)

Member of APS Committee on Informing the Public (2021-2023)

Member of APS Fellowship Committee (2021-2023)

Steering Committee APS-IDEA Program (2020-2023)

Member APS March Meeting Task Force (2020)

Member of APS Committee Task Force (2022-2023)

Member of Organizing committee APS Topical Group on Data Science (2018)

Secretary APS Topical Group on Data Science (May 2019 - 2020)

Chair SNS-HFIR Beam time review committee single crystal instruments (2020-2023)

Mentor NSF Ideas Lab (2019)

Reviewer: NSF, DOE, Swiss National Science Foundation (SNF), German Research Foundation (DFG), Cottrell Scholars, IUSSTF, Army Research Office

Elected Representative to SNS-HIFR User Group Executive Committee (2019-2021)

Chapter Leader DataKind DC (2018-present)

Elected Chair APS Committee on Minorities in Physics (2017-2018)

Member APS Committee on Minorities in Physics (2016-2018)

Elected ACA Neutron Scattering Special Interest Group Chair (2015-2016)

Elected GMAG Member at Large (2013-2016)

APS-IUSSTF U.S.-India Exchange Program (2012)

NIST Bronze Medal (highest honorary recognition given by the institute) (2012)

Minority in Research Science Trailblazer award (24th annual BEYA STEM) (2010)

NRC Postdoctoral Fellowship (2003-2005)

Member Sigma Xi

Member Neutron Scattering Society of America

Publications

H-index

44 see https://scholar.google.com/citations?user=Xly2-LYAAAAJ&hl=en

Citations

> 8000 see https://scholar.google.com/citations?user=Xly2-LYAAAAJ&hl=en

Book Chapter

Multiferroics, William Ratcliff and Jeffrey W. Lynn, Chapter 5 in Neutron Scattering - Magnetic and Quantum Phenomena, Felix Fernandez-Alonso and David L. Price, editors (Academic Press, London, 2015).

Publications

99. "Topological Hall effect induced by chiral fluctuations in ErMn6Sn6" Kyle Fruhling, Alenna Streeter, Sougata Mardanya, Xiaoping Wang, Priya Baral, Oksana Zaharko, Igor I. Mazin, Sugata Chowdhury, William D. Ratcliff, Fazel Tafti Physical Review Materials(accepted)

98. "Data science education in undergraduate physics: Lessons learned from a community of practice" K Shah, J Butler, AV Knaub, A Zenginoğlu, W Ratcliff, M Soltanieh-Ha American Journal of Physics 92 (9), 655-662 (2024) https://doi.org/10.1119/5.0203846

97. "Electric-Field Manipulation of Magnetic Chirality in a Homo-Ferro-Rotational Helimagnet" Junjie Yang, Masaaki Matsuda, Trevor Tyson, Joshua Young, William Ratcliff, Yunpeng Gao, Dimuthu Obeysekera, Xiaoyu Guo, Rachel Owen, Liuyan Zhao, Sang-wook Cheong Advanced Science, 2402048 (2024) https://doi.org/10.1002/advs.202402048.

96. "Effects of dimensionality on the electronic structure of Ruddlesden-Popper chromates Srn+1CrnO3n+1" Spencer Doyle, Lerato Takana, Margaret A Anderson, Dan Ferenc Segedin, Hesham El-Sherif, Charles M Brooks, Xiaoping Wang, Padraic Shafer, Alpha T N'Diaye, Ismail El Baggari, William D Ratcliff, Andrés Cano, Quintin N Meier, Julia A Mundy Physical Review Materials 8 (7), L071602 (2024)

95. "Observation of Deuterated Double-Perovskite Hydroxide CoSn(OH)6 Nanocubes" Menuka Adhikari, Starfari T McClain, Rekha George, Sivasankara Rao Ede, Hui Wu, William D Ratcliff, Liurukara Sanjeewa, Cheng Li, Zhiping Luo Microscopy and Microanalysis 29 (Supplement_1), 1354-1355

94. "Antiferromagnetic metal phase in an electron-doped rare-earth nickelate" Qi Song, Spencer Doyle, Grace A Pan, Ismail El Baggari, Dan Ferenc Segedin, Denisse Córdova Carrizales, Johanna Nordlander, Christian Tzschaschel, James R Ehrets, Zubia Hasan, Hesham El-Sherif, Jyoti Krishna, Chase Hanson, Harrison LaBollita, Aaron Bostwick, Chris Jozwiak, Eli Rotenberg, Su-Yang Xu, Alessandra Lanzara, Alpha T N'Diaye, Colin A Heikes, Yaohua Liu, Hanjong Paik, Charles M Brooks, Betül Pamuk, John T Heron, Padraic Shafer, William D Ratcliff, Antia S Botana, Luca Moreschini, Julia A Mundy Nature Physics 19, 522 (2023) https://doi.org/10.1103/PhysRevMaterials.8.L071602.

93. "ANDiE the Autonomous Neutron Diffraction Explorer" Austin McDannald, Matthias Frontzek, Andrei T Savici, Mathieu Doucet, Efrain E Rodriguez, Kate Meuse, Jessica Opsahl-Ong, Daniel Samarov, Ichiro Takeuchi, William Ratcliff,

A Gilad Kusne Neutron News (2023) https://doi.org/10.1080/10448632.2023.2190714

92. "Fast broadband cluster spin-glass dynamics in PbFe1/2Nb1/2O3" C. Stock, B. Roessli, P. M. Gehring, J. A. Rodriguez-Rivera, N. Giles-Donovan, S. Cochran, G. Xu, P. Manuel, M. J. Gutmann, W. D. Ratcliff, T. Fennell, Y. Su, X. Li, and H. Luo Phys Rev B 106, 144207 (2022)

91. "On-the-fly Autonomous Control of Neutron Diffraction via Physics-Informed Bayesian Active Learning" Austin McDannald, Matthias Frontzek, Andrei Savici, Mathieu Doucet, Efrain Rodriguez, Kate Meuse, Jessica Opsahl-Ong, Daniel Samarov, Ichiro Takeuchi, William Ratcliff, Aaron G Kusne Applied Physics Reviews 9, 021408 (2022)

90. "A Semi-supervised deep-learning based classification of neutron diffraction data into space groups" Satvik Lolla, Haotong Ling, Ichiro Takeuchi, Aaron G. Kusne, William Ratcliff Journal of Applied Crystallography 55 (2022)

89. "Revealing the Symmetry of Materials through Neutron Diffraction" W Ratcliff Symmetry 14, 1215 (2022)

88. "Liberating a hidden antiferroelectric phase with interfacial electrostatic engineering" Julia A. Mundy, Colin A. Heikes3, Bastien F. Grosso, Dan Ferenc Segedin, Zhe Wang, Yu-Tsen Shao, Cheng Dai, Berit H. Goodge, Quintin N. Meier, Christopher T. Nelson, Bhagwati Prasad, Fei Xue, Lena F. Kourkoutis, Long-Qing Chen, William D. Ratcliff, Nicola A. Spaldin, Ramamoorthy Ramesh,& Darrell G. Schlom Science Advances 8, DOI: 10.1126/sciadv.abg5860 (2022)

87. "Informal Science Education and Career Advancement" Michael Smith, Claudia Fracchiolla, Sean Fleming, Arturo Dominguez, Alexandra Lau, Shannon Greco, Don Lincoln, Eleni Katifori, William Ratcliff, Maria Longobardi, Maajida Murdock, Mustapha Ishak arXiv:2112.10623 (2021)

86. "Magnetic field-induced non-trivial electronic topology in FeGeTe2" Juan Macy, Danilo Ratkovski, Purnima P Balakrishnan, Mara Strungaru, Yu-Che Chiu, Aikaterini Flessa, Alex Moon, Wenkai Zheng, Ashley Weiland, Gregory T McCandless, Julia Y Chan, Govind S Kumar, Michael Shatruk, Alexander J Grutter, Julie A Borchers, William D Ratcliff, Eun Sang Choi, Elton JG Santos, Luis Balicas Applied Physics Reviews 8, 041401 (2021)

85. "Synthesis and Characterization of Sr2Co2-xFexO5+d Perovskite Oxides" Sivasankara Rao Ede, Carlos Poasada, Jessa Guffie, William Ratcliff, Hui Wu, Shubo Han, and Zhiping Luo Microsc. Microanal. 27 (Suppl 1) (2021) doi: 10.1017/S1431927621002919

84. "Magnetic ordering and structural distortion in a PrFeAsO single crystal studied by neutron and x-ray scattering" MG Kim, II W Ratcliff, DM Pajerowski, J-W Kim, J-Q Yan, JW Lynn, AI Goldman, A Kreyssig Phys. Rev. B 103, 174405 (2021)

83. "Intermediate Sr2Co1.5Fe0.5O6-delta Tetragonal Structure between Perovskite and Brownmillerite as a Model Catalyst with Layered Oxygen Deficiency for Enhanced Electrochemical Water Oxidation" Sivasankara Rao Ede,Candyce Collins,Carlos Posada,Gibin George,Hui Wu,William D. Ratcliff, Yulin Lin,Jianguo Wen,Shubo Han, and Zhiping Luo ACS Catal. 2021 11, 4327 (https://doi.org/10.1021/acscatal.1c00465)

82. "Control of magnetoelectric coupling in the Co2Y-type hexaferrites" Chang Bae Park, Kwang Woo Shin, Sae Hwan Chun, Jun Han Lee, Yoon Seok Oh, Steven M. Disseler, Colin A. Heikes, William D. Ratcliff, Woo-Suk Noh, Jae-Hoon Park, & Kee Hoon Kim Phys. Rev. Materials 5, 034412 (2021)

81. "Kitaev interactions in Co honeycomb antiferromagnets Na3Co2SbO6 and Na2Co2TeO6" M. Songvilay, J. Robert, J. A. Rodriguez-Rivera, W. D. Ratcliff, F. Damay, V. Baledent, M. Jimenez-Ruiz, P. Lejay, E. Pachoud, A. Hadj-Azzem, V. Simonet, and C. Stock Phys. Rev. B 102 224429 (2020)

80. "Evolution of the magnetic properties in simultaneously Cd and Ir-doped Ce2RhIn8 antiferromagnet" D. S. Christovam, G. S. Freitas, M. M. Piva, J. C. Souza, M. O. Malcolms, J. Leao, W. Ratcliff, J. W. Lynn, C. Adriano, P. G. Pagliuso Phys. Rev. B 102, 195137 (2020)

79. "Large exchange splitting in monolayer graphene magnetized by an antiferromagnet" Yingying Wu, Gen Yin, Lei Pan, Alexander J. Grutter, Quanjun Pan, Albert Lee, Eun Sang Choi,Mingliang Tian, Peng Deng, Qiming Shao, Shin-Hung Tsai,Qinglin He, Dustin A. Gilbert, Julie A. Borchers, William Ratclliff II, Ang Li, Xiao-dong Han, and Kang L. Wang Nature Electronics, https://doi.org/10.1038/s41928-020-0458-0 (2020)

78. "Magnetic phase transitions and spin density distribution in the molecular multiferroic GaV4S8 system" Rebecca L. Dally, William D. Ratcliff II, Lunyong Zhang, Heung-Sik Kim, Markus Bleul, J.W. Kim, Kristjan Haule, David Vanderbilt, Sang-Wook CHeong, and Jeffrey W. Lynn Phys. Rev. B. 102, 014410 (2020)

77. "Termination switching of antiferromagnetic proximity effect in topological insulator" Chao-Yao Yang, Lei Pan, Alexander J. Grutter, Haiying Wang, Xiaoyu Che, Qing Lin, Yingying Wu, D. A. Gilbert, Padraic Shafer, Elke Arenholz, Hao Wu, Gen Yin, Peng Deng, J. A. Borchers, W. Ratcliff II, and Kang L. Wang Science Advances 6, eaaz8463, DOI: 10.1126/sciadv.aaz8463 (2020)

76. "Quantum oscillations from networked topological interfaces in a Weyl semimetal" I-Lin Liu, Colin Heikes, Taner Yildirim, Chris Eckberg, Tristin Metz, ShengRan, William Ratcliff II, Johnpierre Paglione, and Nicholas P. Butch Nature Quantum Materials, 5, Article number 62 (2020) https://doi.org/10.1038/s41535-020-00264-8

75. "Ferromagnetic van der Waals compound MnSb1.8Bi0.2Te4" Yangyang Chen, Ya-Wen Chuang, Seng Huat Lee, Yanglin Zhu, Kevin Honz, Yingdong Guan, Yu Wang, Ke Wang, Zhiqiang Mao, Colin Heikes, P. Quarterman, Pawel Zajdel,

Julie A. Borchers, William Ratcliff II, Jun Zhu Phys Rev. Matt. 4, 064411 (2020)

74. "Electronic and magnetic properties of stoichiometric CeAuBi2" D. S. Christovam, G. S. Freitas, M. M. Piva1, J. C. Souza, M. O.Malcolms, J. Leao, W. Ratcliff, J. W. Lynn, C. Adriano, P. G. Pagliuso M. M. Piva, R. Tartaglia, G. S. Freitas, J. C. Souza, D. S. Christovam, S. M. Thomas, J. Leao, W. Ratcliff, J. W. Lynn, C. Lane, J.-X. Zhu, J. D. Thompson, P. F. S. Rosa, C. Adriano, E. Granado, and P. G. Pagliuso Phys. Rev B 101, 214431 (2020)

73. "Common acoustic phonon lifetimes in inorganic and hybrid lead halide perovskites" M Songvilay, N Giles-Donovan, M Bari, Z-G Ye, JL Minns, MA Green, Guangyong Xu, PM Gehring, K Schmalzl, WD Ratcliff, CM Brown, D Chernyshov, W van Beek, S Cochran, C Stock Physical Review Materials 3, 093602 (2019)

72. "Exchange Bias in Bulk alpha-Fe / gamma-Fe70Mn30 Nanocomposites for Permanent Magnet Applications" Ian J McDonald, Michelle Jamer, Kathryn L Krycka, Elaf Anber, Daniel Foley, Andrew Charles Lang, William Ratcliff, Don Heiman, Mitra L Taheri, Julie A Borchers, Laura H Lewis ACS Appl. Nano Mater., 2, 1940 (2019) DOI: 10.1021/acsanm.8b02319

71. "Spin Scattering and Noncollinear Spin Structure-Induced Intrinsic Anomalous Hall effect in Antiferromagnetic Topological Insulator MnBi2Te4" Seng Huat Lee, Yanglin Zhu, Yu Wang, Leixin Miao, Hemian Yi, Timothy Pillsbury, Susan Kempinger, Jin Hu, Colin A. Heikes, Patrick A. Quarterman, William D. Ratcliff, Julie A. Borchers, H. Zhang, Xianglin Ke, David Graf, Nasim Alem, Cui-Zu Chang, Nitin Samarth, and Zhiqiang Mao Phys. Rev. Research 1, 012011(R) (2019)

70. "Probing Superexchange Interactions in Spin Ice Ho2Ti2O7 Thin Films" Kevin Barry, Naween Anand, Biwen Zhang, Yan Xin, Arturas Vailionis, Colin Heikes, Haidong Zhou, Y. Qiu, William Ratcliff, Christianne Beekman Phys. Rev. Materials 3, 084412 (2019)

69. "Fe2MnGe: A Hexagonal Heusler Analogue" S. Keshavarz, N. Naghibolashra, M.E. Jamer, K. Vinson, D. Mazumdar, C.L. Dennis, W. Ratcliff II, J.A. Borchers, A. Gupta, P. LeClair Journal of Alloys and Compounds, 771, 793 (2019)

68. "Spin Rotation induced by applied pressure in Cd-doped Ce2RhIn8 intermetallic compound" D. S. Christovam, C. Giles, L. Mendonca-Ferreira, J. Leao, W. Ratcliff, J. W. Lynn, S. Ramos, E. N. Hering, H. Hidaka, E. Baggio-Saitovich, Z. Fisk, P. G. Pagliuso1, C. Adriano Physical Review B 100, 165133 (2019)

67. "Mechanical control of crystal symmetry and superconductivity in Weyl semimetal MoTe2" Colin Heikes, I-Lin Liu, Tristin Metz, Chris Eckberg, Paul Neves, Yan Wu, Linda Hung, Phil Piccoli, Huibo Cao, Juscelino Leao, Johnpierre Paglione, Taner Yildirim, Nicholas P. Butch, 1, William Ratcliff II Phys. Rev. Materials 2, 074202 (2018)

66. "reductus: a stateless Python data-reduction service with a browser frontend" Brian Maranville, William Ratcliff II, Paul Kienzle Journal of Applied Crystallography 51, 1500 (2018)

65. "Ordered Magnetism in the Decorated 3D Ising jeff = 1/2 alpha-CoV3O8" P. M. Sarte, A. M. Arevalo-Lopez, M. Songvilay,D. Le, T. Guidi, V. Garcia-Sakai, S. Mukhopadhyay, S. C. Capelli, W. D. Ratcliff, K. H. Hong, G. M. McNally , E. Pachoud , J. P. Attfield, and C. Stock Phys. Rev. B. 98, 224410 (2018)

64. "Lifetime-shortened acoustic phonons and static order at the Brillouin zone boundary in the organic-inorganic perovskite CH3NH3PbCl3" M. Songvilay, C. Stock, Z.-G. Ye, Guangyong Xu, P. M. Gehring, W. D. Ratcliff, K. Schmalzl, F. Bourdarot, and B. Roessli Phys. Rev. Materials 2, 123601 (2018)

62. "Electric-field Induced Reversible Switching of the Magnetic Easy-axis in Co/BiFeO3 on SrTiO3" Tieren Gao, Xiaohang Zhang, William Ratcliff, Shingo Maruyama, Makoto Murakami, Anbusathaiah Varatharajan, Zahra Yamani, Peijie Chen, Ke Wang, Huairuo Zhang, Robert D Shull, Leonid A Bendersky, John Unguris, Ramamoorthy Ramesh, Ichiro Takeuchi, Nano Letters 17, 2825 (2017). doi: 10.1021/acs.nanolett.6b05152

61. "Successive field-induced transitions in BiFeO3 around room temperature" Shiro Kawachi, Atsushi Miyake, Toshimitsu Ito, Sachith E Dissanayake, Masaaki Matsuda, II Ratcliff, Zhijun Xu, Yang Zhao, Shin Miyahara, Nobuo Furukawa, Masashi Tokunaga Phys. Rev. Materials 1, 024408 (2017)

60. "Structural and Magnetic Phase Transitions in Chromium Nitride Thin Films Grown by RF Nitrogen Plasma Molecular Beam Epitaxy" Khan Alam, Steven M Disseler, William D Ratcliff, Julie A Borchers, Rodrigo Ponce-Perez, Gregorio H Cocoletzi, Noboru Takeuchi, Andrew Foley, Andrea Richard, David C Ingram, Arthur R Smith Phys. Rev. B 96, 104433 (2017)

59. "Pressure tuning of collapse of helimagnetic structure in Au2Mn" I-Lin Liu, Maria J. Pascale, Juscelino B. Leao, Craig M. Brown, William D. Ratcliff, Qingzhen Huang, and Nicholas P. Butch Phys. Rev. B 96, 184429 (2017)

58. "Tailoring Exchange Couplings in Magnetic Topological Insulator/Antiferromagnet Heterostructures" Qing Lin He, Xufeng Kou, Alexander J. Grutter, Gen Yin, Lei Pan, Xiaoyu Che, Yuxiang Liu, Tianxiao Nie, Bin Zhang, Steven M. Disseler, Brian J. Kirby, William Ratcliff II, Qiming Shao, Koichi Murata, Xiaodan Zhu, Guoqiang Yu, Yabin Fan, Mohammad Montazeri, Xiaodong Han, Julie A. Borchers & Kang L. Wang , Nature Materials 16, 94(2017). doi:10.1038/nmat4783

57. "Magnetic Structures and Dynamics of Multiferroic Systems Obtained with Neutron Scattering" W. D. Ratcliff, II, Jeffrey W. Lynn, Valery Kiryukhin, Prashant Jain, and Michael R. Fitzsimmons, Nature Partner Journals: Quantum Materials 1, 16003 (2016)

56. "Atomically engineered ferroic layers yield a room temperature magnetoelec-

tric multiferroic" Julia A. Mundy, Charles M. Brooks, Megan E. Holtz, Jarrett A. Moyer, Hena Das, Alejandro F. Rbola, John T. Heron, James D. Clarkson, Steven M. Disseler, Zhiqi Liu, Alan Farhan, Rainer Held, Robert Hovden, Elliot Padgett, Qingyun Mao, Hanjong Paik, Rajiv Misra, Lena F. Kourkoutis, Elke Arenholz, Andreas Scholl, Julie A. Borchers, William D. Ratcliff, Ramamoorthy Ramesh, Craig J. Fennie, Peter Schiffer, David A. Muller, & Darrell G. Schlom , Nature 537, 523 (2016). doi: 10.1038/nature19343

55. "Bayesian method for the analysis of diffraction patterns using BLAND" JE Lesniewski, SM Disseler, DJ Quintana, PA Kienzle, WD Ratcliff, Journal of Applied Crystallography 49, 2201-2209 (2016)

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52. "One Dimensional(1D)-to-2D Crossover of Spin Correlations in the 3D Magnet ZnMn2O4" S. M. Disseler, Y. Chen, S. Yeo, G. Gasparovic, P. M. B. Piccoli, A. J. Schultz, Y. Qiu, Q. Huang, S-W. Cheong, and W. Ratcliff II, Scientific Reports, 5, 17771. http://doi.org/10.1038/srep17771 (2015)

51. "Complex structures of different CaFe2As2 samples" B Saparov, C Cantoni, MH Pan, TC Hogan, W. Ratcliff, SD Wilson, K Fritsch, BD Gaulin, AS Sefat, AS, Scientific Reports, 4120 (2014)

50. "Reflections on the magnetic pair distribution function" W. Ratcliff, Acta Crystallographica A 70, 1 (2014)

49. "Change in the magnetic structure of (Bi,Sm)FeO3 thin films at the morphotropic phase boundary probed by neutron diffraction" Shingo Maruyama, Varatharajan Anbusathaiah, Amy Fennell, Mechthild Enderle, Ichiro Takeuchi, William D. Ratcliff, APL Materials, 2, doi10.1063/1.4901294 (2014)

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47. "Double Focusing Thermal Triple-Axis Spectrometer at the NCNR" Lynn, J.W., Chen, Y., Chang, S., Zhao, Y., Chi, S., W. Ratcliff, II, Ueland, B.G., Erwin, R.W., Journal of Research of the National Institute of Standards and Technology 117, 61 (2012)

46. "Local Weak ferromagnetism in single-crystalline ferroelectric BiFeO3", M. Ramazanoglu, M. Laver, W. Ratcliff II, S.M. Watson, W.C. Chen, A. Jackson, K. Kothapalli, Seongsu Lee, S.-W. Cheong, V. Kiryukhin Phys. Rev. Lett. 107, 207206 (2011)

45. "Antiferromagnetic order and superlattice structure in nonsuperconducting and superconducting Rb(y)Fe(1.6+x)Se2 Phys. Rev. B 84, 094504 (2011)

44. "Giant Effect of Uniaxial Pressure on Magnetic Domain Populations in Multiferroic Bismuth Ferrite" M. Ramazanoglu, W. Ratcliff, H.T. Yi, A.A. Sirenko, SW Cheong, V. Kiryukhin, Phys. Rev. Lett. 107, 067203 (2011)

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42. "Giant Effect of Uniaxial Pressure on Magnetic Domain Populations in Multiferroic Bismuth Ferrite," Ramazanoglu, M., Ratcliff, II, W., Yi, H.T., Sirenko, A.A., Cheong, S.W., Kiryukhin, V., Physical Review Letters 107(6), 067203-1 (2011)

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39. "Antiferromagnetic Order and Superlattice Structure in Nonsuperconducting and Superconducting RbyFe1.6+xSe2" Wang, M., Wang, M., Li, G.N., Huang, Q., Li, C.H., Tan, G.T., Zhang, C.L., Cao, H., Tian, W., Zhao, Y., Chen, Y.C., Lu, X.Y., Sheng, B., Luo, H.Q., Li, S.L., Fang, M.H., Zarestky, J.L., Ratcliff, W.D., Lumsden, M.D., Lynn, J.W., Dai, P., Physical Review B 84, 094504-1 (2011)

38. "Nitrogen contamination in elastic neutron scattering" Songxue Chi, Jeffrey W. Lynn, Ying Chen, William Ratcliff II, Benjamin G. Ueland, Nicholas P. Butch, Shanta R. Saha, Kevin Kirshenbaum, Johnpierre Paglione, Measurement Science and Technology 22, 047001 (2011)

37. "Incommensurate Magnetism in FeAs Strips: Neutron Scattering from CaFe4As3" Yusuke Nambu, Liang L. hao, Emilia Morosan, Kyoo Kim, Gabriel Kotliar, Pawel Zajdel, Mark A. Green, William Ratcliff, Jose A. Rodrigueze-Ruvera, Collin Broholm, Phys. Rev. Lett 106, 037201 (2011)

36. "Interplay of Fe and Nd magnetism in NdFeAsO single crystals" W. Tian, W. Ratcliff II, M. G. Kim, J.-Q. Yan, P.A. Kienzle, Q. Huang, B. Jensen, K.W. Dennis, R.W. McCallum, T.A. Lograsso, R.J. McQueeney, A.I. Goldman, J.W. Lynn, A. Kreyssig, Phys. Rev. B 82, 060514 (2010)

35. "Cd Doping Effects in the heavy-fermion compounds Ce2Min8 (M=Rh and Ir)" C. Adriano, C. Giles, E.M. Bittar, L.N. Coelho, F. De Bergevin, C. Mazzoli, L. Paolasini, W. Ratcliff, R. Bindel, J.W. Lynn, Z. Fisk, P.G. Pagliuso, Phys. Rev. B 81, 245115 (2010)

34. "Magnetic from factor of SrFe2As2: Neutron diffraction measurements" W. Ratcliff II, P.A. Kienzle, Jeffrey W. Lynn, Shiliang Li, Pengcheng Dai, G.F. Chen, N.L. Wang, Phys. Rev B. 81, 140502 (2010)

33. "Evolution of the bulk properties, structure, magnetic order, and superconductivity with Ni doping in CaFe(2-x)NixAs2" N. Kumar, SX Chi, Y. Chen, KG Rana, AK Nigam, A. Thamizhavel, W. Ratcliff, SK Dar, JW Lynn Phys. Rev. B 80, 144524 (2009)

32. "Crossover from incommensurate to commensurate magnetic orderings in CoCr2O4" LJ Chang, DJ Huang, WH Li, SW Cheong, W. Ratcliff, JW Lynn J. Phys. Cond. Matt. 21, 456008 (2009)

31. "Short Range Incommensurate magnetic order near the superconducting phase boundary in Fe(1+delta)Te(1-x)Sex" J.S. Wen, GY Xu, ZJ Xu, ZW Lin, Q. Li, W. Ratcliff, G. Gu, JM Tranquada Phys. Rev. B 80, 104506 (2009)

30. "Spin-Lattice Order in Frustrated ZnCr2O4" S. Ji, SH Lee, C. Broholm, TY Koo, W. Ratcliff, SW Cheong, P. Zschack Phys. Rev. Lett 103, 037201 (2009)

29. "The Magnetic ground state of CaMn2Sb2" W. Ratcliff II, ALL Sharma, AM Gomes, JL Gonzalez, Q. Huang, J Singleton J Mag. Mag. Materials 321, 2612 (2009)

28. "Order by Static Disorder in the Ising Chain Magnet Ca3Co2-xMnxO6" V. Kiryukhin, S. Lee, W. Ratcliff II, Q. Huang, HT Yi, YJ Choi, SW Cheong Phys Rev. Lett. 102, 187202 (2009)

27. "3:1 magnetization plateau and suppression of ferroelectric polarization in an Ising chain multiferroic" YJ Jo, S. Lee, ES Choi, HT Yi, W. Ratcliff II, YJ Choi, V. Kiryukhin, SW Cheong, L. Balicas Phys. Rev. B 79, 012407 (2009)

26. "Low energy spin waves and magnetic interactions in SrFe2As2" Jun Zhao, Dao Xin Yao, Shiliang Li, Tao Hong, Y. Chen, S. Chang, W. Ratcliff I I, J. W. Lynn, H. A. Mook, G. F. Chen, J. L. Luo, N. L. Wang, E. W. Carlson, Jiangping Hu, and Pengcheng Dai Phys. Rev. Lett 101, 167203 (2008)

25. "Spin and Lattice Structure of Single Crystal SrFe2As2" Jun Zhao, W. Ratcliff II, J-W. Lynn, G.F. Chen, J.L. Luo, N.L. Wang, Jiangping Hu, Pengcheng Dai Phys. Rev. B 78, 140504 (2008)

24. "Magnetic order close to superconductivity in the iron-based layered LaO1-xFxFeAs systems" C. dela Cruz, Q. Huang, JW Lynn, JY Li, W. Ratcliff, JL Zaretsky, HA Mook, GF Chen, JL Luo, NL Wang, PC Dai Nature 453, 899 (2008)

23. "Neel to Spin-Glass-Like Transition Versus Dilution in Geometrically Frustrated ZnCr2-2xGa2xO4" S-H. Lee, W. Ratcliff, Q. Huang, T.H. Kim, S-W. Cheong PRB 77, 014405 (2008)

22. "Formation of pancakelike ising domains and giant magnetic coercivity in ferrimagnetic LuFe2O4" W. Wu, V. Kiryukhin, H.-J. Noh, K.-T. Ko, J.-H. Park, W. Ratcliff II, P. A. Sharma, N. Harrison, Y.J. Choi, Y. Horime, S. Lee, S. Park, H.T. Yi, C.L. Zhang, S-W. Cheong PRL 101, 137203 (2008)

21. "Electric field control of the magnetic state in BiFeO3 single crystals" Seoungsu Lee, W. Ratcliff, SW Cheong, V. Kiryukhin APL 92, 192906 (2008)

20. "Single Ferroelectric and chiral magnetic domain of single-crystalline BiFeO3 in an electric field" Seongsu Lee, Taekjib Choi, W. Ratcliff II, R. Erwin, S-W. Cheong, and V. Kiryukhin PRB RC 78, 100101 (2008)

19. "The pressure effect on the magnetic commensurability and ferroelectricity in multiferroic HoMn2O5" CR dela Cruz, B. Lorenz, W. Ratcliff, J. Lynn, MM Gospodinov, C.W. Chu Physica B 403, 1359 (2008)

18. "Observation of a continuous phase transition in a shape-memory alloy" J.C. Lahshley, S.M. Shapiro, B.L. Winn, C.P. Opeil, M.E. Manley, A. Alatas, W. Ratcliff, T. Park, R.A. Fisher, B. Mihaila, P. Riseborough, E. K. H. Salje, J.L. Smith Phys. Rev. Lett 101, 135703 (2008)

17. "Crystal distortions in geometrically frustrated ACr2O4 (A=Zn,Cd)", S.-H. Lee, G. Gasparovic, C. Broholm, M. Matsuda, J-H Chung, YJ Kim, H. Ueda, G. Xu, P Zschack, K. Kakurai, H. Takagi, W. Ratcliff, T-H. Kim, S-W Cheong Journal of Physics Condensed Matter 19, 145259 (2007)

16. "Evidence for strong spin-lattice coupling in multiferroic RMn2O5 (R=Tb, Dy, Ho) via thermal expansion anomalies", CR dela Cruz, F. Yen, B. Lorenz, S. Park, SW Cheong, MM Gospodinov, W. Ratcliff, JW Lynn, CW Chu Journal of Applied Physics 99 08R2103 (2006)

15. "Structural Anomalies at the magnetic and ferroelectric transitions in RMn2O5 (R=Tb, Dy, Ho)", CR dela Cruz, F. Yen, B. Lorenz, MM Gospodinov, CW Chu, W. Ratcliff, JUW Lynn, S. Park, S-W Cheong Phys. Rev. B 73, 100406 (2006)

14. "Conformation of the HIV-1 Gag protein in solution", SAK Datta, JE Curtis, W.Ratcliff, PK Clark, RM Crist, J Lebowitz, S. Krueger, A. Rein Journal of Molecular Biology 365, 812 (2007)

13. "Structural anomalies at the magnetic and ferroelastic transitions in RMn2O5 (R=Tb, Dy, Ho)" C.R. dela Cruz, F. Yen, B. Lorenz, M.M. Gospodinov, C.W. Chu, W. Ratcliff, J.W. Lynn, S. Park, and S-W.Cheong. Phys. Rev. B 73, 100406 (2006)

12. "Pressure-dependent magnetic properties of geometrically frustrated ZnCr2O4" Y. Jo, JG Park, HC Kim, W. Ratcliff, S-W. Cheong, Phys. Rev. B.

72, 184421 (2005)

11. "Magnetic Phase Diagram of the Colossal Magneoelectric, DyMn2O5" W. Ratcliff II, V. Kiryukhin, M.A. Kenzelmann, S-H. Lee, J. Schefer, R. Erwin, N. Hur, S. Park,and S-W. Cheong. Phys Rev. B. (R) 72, 060407 (2005)

10. "Effects of spin-phonon coupling in the magnetic transition in strongly frustrated ZnCr2O4" A. B. Sushkov, H. D. Drew, O. Tchernyshyov, W. Ratcliff, S.W. Cheong, Phys. Rev. Lett. 94, 137202 (2005)

9. "Spin Singlet formation in MgTi2O4: evidence of a chiral dimerization pattern" M. Schmidt, W. Ratcliff II, P.G. Radaelli, K. Refson, N.M. Harrison, S.W. Cheong, Phys. Rev. Lett. 92, 056402 (2004)

8. "First-Order nature of the ferromagnetic phase transition in (La-Ca)MnO3 near optimal doping." C.P. Adams, J.W. Lynn, V.N. Smolyaninova, A. Biswas, R.L. Green, W. Ratcliff II, S.-W. Cheong, Y.M. Mukovskii, D.A. Shulyatev, Phys. Rev. B. 70, 134414 (2004)

7. "Emergent excitations in a geometrically frustrated magnet" S.-H. Lee, C. Broholm, W. Ratcliff, G. Gasparovic, Q. Huang, T.H. Kim and S-W. Cheong. Nature 418, 856-858 (2002)

6. "Fluctuations and Freezing of Spin-Correlated Nanoclusters in a Geometrically Frustrated Magnet" W. Ratcliff II, S.-H. Lee, C. Broholm, S-W. Cheong, Q. Huang Physical Review B: Rapid Communications 65, 220406/1-220406/4 (2002)

5. "Magnetic properties of the frustrated antiferromagnetic spinel ZnCr2O4 and the spin glass Zn1-xCdxCr2O4 (x=0.05,0.10)" H Martinho, NO Moreno,JA Sanjurjo,C Rettori, AJ Garcia-Adeva, DL Huber,SB Oseroff,W Ratcliff,SW Cheong,PG Pagliuso,JL Sarrao,GB Martins Phys. Rev. B. 64, 024408/1-024408/6 (2001).

4. "Studies of the three-dimensional frustrated antiferromagnetic ZnCr2O4" H Martinho, NO Moreno, JA Sanjurjo,C Rettori,AJ Garcia-Adeva, DL Huber,SB Oseroff,W Ratcliff,SW Cheong,PG Pagliuso,JL Sarrao,GB Martins Journal of Applied Physics 89, 7050-7052 (2001)

3. "Muon spin relaxation study of La1-xCaxMnO3" RH Heffner, JE Sonier, DE MacLaughlin, GJ Nieuwenhuys, GM Luke, YJ Uemura, W Ratcliff, SW Cheong, G Balakrishnan Phys. Rev. B. 63, 094408/1-094408/14 (2001)

2. "Local spin resonance and spin-Peierls-like phase transition in a geometrically frustrated antiferromagnet" SH Lee, C Broholm, TH Kim, W Ratcliff, SW Cheong Phys. Rev. Lett. 84, 3718-3721 (2000)

1. "Intergrain magnetoresistance via second-order tunneling in perovskite manganites" S Lee, HY Hwang, BI Shraiman, WD Ratcliff, SW Cheong Phys. Rev. Lett. 82, 4508-4511 (1999)

Selected Conference Talks/Posters

"Single Crystal Diffraction", Neutron X-Ray School (invited) (2024)

"Applications of Artificial Intelligence to Neutron Scattering", Invited, Department of Physics, Johns Hopkins (2024) (invited)

"Experimental Aspects of magnetic structure determinaton", Magnetic Structure School, Kennesaw State University (2024) (invited)

"Incorporating Data Science in the Undergraduate Physics Curriculum" March Meeting of the American Physical Society (2024) (invited)

"Mapping the ICSD" March Meeting of the American Physical Society (2024)

"Neutron Scattering and AI" (and panel) Neutron PI meeting, Rockville, MD (2024) (invited)

"Semi and Self Supervised approaches to Space Group and Bravais Lattice Determination" Electronic Materials and Applications 2024, Denver, CO (2024) (invited)

"Quantum Materials at NIST" Quantum Noir, Harvard University (2024) (invited)

"Applications of Artificial Intelligence to Neutron Scattering", Invited, Department of Physics, Georgetown University (2024) (invited)

"Semi and Self Supervised approaches to Space Group and Bravais Lattice Determination" Machine Learning Conference for X-Ray and Neutron-Based Experiments, FRM2, Garching, Germany (2024)

"Applications of Artificial Intelligence to Neutron Scattering", Bakar Institute of Digital Materials for the Planet, Berkeley (2024) (invited)

"Applications of Artificial Intelligence to Neutron Scattering", Department of Physics, University of Illinois (2024) (invited)

"Adventures in Kagome Flat Band, ErMn6Sn6", Telluride Workshop, Telluride, CO (2024) (invited)

"Applications of AI to crystal structure determination from powder diffraction data", European Crystallography Meeting/European Powder Diffraction meeting, Padova, Italy (2024)

"Integrating Data Science Into the Undergraduate Physics Curriculum" National Society of Black Physicists, Knoxville, TN (2023)

"Semi and Self Supervised approaches to Space Group and Bravais Lattice Determination", Invited, Pittsburgh Diffraction Society, Pittsburgh (2023)

"Semi and Self Supervised approaches to Space Group and Bravais Lattice Determination", March meeting of the American Physical Society, Las Vegas (2023)

"Applications of Artificial Intelligence to Neutron Scattering", Invited, Department of Physics, North Carolina A&T (2023)

"Semi and Self Supervised approaches to Space Group and Bravais Lattice Determination", International Union of Crystallography, Melbourne, Australia (2023)

"Semi and Self Supervised approaches to Space Group and Bravais Lattice Determination", American Chemical Society, San Francisco (Invited) (2023)

"Semi and Self Supervised approaches to Space Group and Bravais Lattice Determination", Strongly Correlated Electronic Systems, Incheon, Korea (Invited) (2023)

"Semi and Self Supervised approaches to Space Group and Bravais Lattice Determination", American Crystallloography Association, Baltimore (2023)

"Single Crystal Diffraction", Neutron X-Ray School (invited) (2023)

"DEI Panel: Fermilat Collaboration" Virtual (2023)

"Panelist: The Evolution of Data Science Conference", Georgetown (2023)

"Applications of Artificial Intelligence to Neutron Scattering", Invited, Department of Physics, University of Connecticut (2022)

"Neutron Investigations of Mn(Bi,Sb)2Te4", MRS Meeting, Honolulu (2022)

"Using AI to Determine Space Group from Neutron Powder Diffraction Data" ACNS Meeting, Boulder(2022)

"Reinforcement Learning and Neutron Scattering", APS March Meeting, Chicago (2022)

"APS Inclusion, Diversity, and Equity Alliance (IDEA), Transforming the Culture of Physics", APS March Meeting, Chicago (2022) Invited

"Inelastic Neutron Scattering" : APS March Meeting, Chicago (2022), Invited DMP Short Course Lecture

Opening Plenary speaker, APS-IDEA workshop (2021)

"ORNL Postdoc Career Panel", Invited, Oak Ridge National Laboratory (2021)
"Investigations of the first intrinsic topological insulator: MnBi2Te4", Invited, University of Maryland, College Park (virtual) (2021)

"Investigations of the first intrinsic topological insulator: MnBi2Te4", Invited, UC Santa Cruz (virtual) (2021)

"Reinforcement Learning to optimize crystal structure determination" March Meeting of the American Physical Society, Nashville , TN (virtual) (2021)

"Investigations of the first intrinsic topological insulator: MnBi2Te4", Invited, Fayetteville State University (virtual) (2020)

"DPOLY Short course Machine Learning for Polymer Physicists: Neural Networks" March Meeting of the American Physical Society, Denver, CO (2020)

"Red Cross Fire Risk" JSM 2020 Virtual Conference (2020)

"Experimental Aspects of magnetic structure determinaton", Virtual Workshop on Magnetic Structures, Oak Ridge National Laboratory (virtual) (2020

"Neutron Investingations of the Multiferroic Skyrmion GaV4S8" March Meeting of the American Physical Society, Boston, MA (2019)

"Neutron Investingations of the Multiferroic Skyrmion GaV4S8" Strongly Correlated Electronic Systems Conference, Okayama, Japan (2019) .. 2018 .. ~~~~ "Neutron Investigations of Thin Film Ho2Ti2O7" March Meeting of the American Physical Society, Los Angeles, CA (2018) "Mechanical control of the band structure of MoTe2" Telluride , Telluride, Colorado (2018)

"Using neutron scattering to understand solid state materials" Corning Research, Sunnyvale, CA (2018) (invited)

"Neutron Investigations of the Multiferroic Skyrmion GaV4S8" International Conference on Magnetism, San Francisco, CA (2018)

“Multiferroic LuFeO3: Adventures in Neutron Scattering” Howard University, Department of Chemistry (2018) (invited)

"Effects of Electric Field on the magnetic structure of multiferroic (Sm,Bi)FeO3 films" March Meeting of the American Physical Society, New Orleans, LA (2017)

"Magnetic structures and dynamics of multiferoic systems obtained with neutron scattering", Mid-Atlantic Sectional Meeeting, Newark, NJ (2017) (invited)

"Multiferroic h-LuFeO3--adventures in Neutron Scattering", Pittsburgh Diffraction Society, Indiana, PA (2017), (invited)

"Neutron Investigations of thin film Ho2Ti2O7", Quantum Materials Symosium 2017, Berlin, Germany (2017)

"Bayesian Library for the Analysis of Neutron Diffraction Data" March Meeting of the American Physical Society, Baltimore, MD (2016)

"Bayesian Library for the Analysis of Neutron Diffraction Data(BLAND)" American Conference on Neutron Scattering (2016)

"Bayesian Library for the Analysis of Neutron Diffraction Data" American Crystallography Association, Denver (2016)

"Atomically engineered ferroic layers yield a room temperature magnetoelectric multiferroic" Gordon Conference on Multiferroics, Lewiston, Maine (2016)

"Atomically engineered ferroic layers yield a roomtemperature magnetoelectric multiferroic" Quantum Materials Synthesis Conference, New York Academies of Science, New York, New York (2016)

Invited Lecturer Magnetic Structure Determination from Neutron Data, Florida State University, Tallahassee, FL(2016)

"Neutron scattering investigations of bulk and thin film multiferroic LuFeO3" International Conference on Magnetism, Barcelona, Spain (2015)

"Neutron investigations of multiferroic LuFeO3" American Crystallography Association, Philadelphia (2015)

"The intrinsic magnetic structure and ordering of multiferoic h-LuFeO3 Films" March Meeting of the American Physical Society, San Antonio, TX (2015)

"Neutron Investigations of Multiferroic LuFeO3" Gordon Research Conference, Biddeford, ME (2014)

"Neutron diffraction investgations of BiFeO3" Polarized Neutrons for Condensed Matter Investigations, U. Sydney, Sydney, Australia (2014) (invited)

Invited Lecturer Magnetic Structure Determination from Neutron Data Oak Ridge National Lab, Knoxville, TN (2014)

"Neutron Investigations of Multiferroic LuFeO3 Thin Films" American Conference on Neutron Scattering, Knoxville, TN (2014)

"Neutron Investigations of Multiferroic LuFe1-xMnxO3" March Meeting of the American Physical Society 2014 (Denver)

"Neutron Investigations of Multiferroic LuFe1-xMnxO3" Magnetic North IV, Victoria, British Columbia, Canada (2014)

"Evolution of the magnetic structure in (Sm,Bi)FeO3 Thin Films" March Meeting of the American Physical Society 2013 (Baltimore)

"Neutron Investigations of Multiferroic LuFeO3" Magnetism and Magnetic Materials, Denver, Co (2013)

"Neutron Diffraction Investigations of Electric-Field Control of Antiferromagnetic Domains in Epitaxial BiFeO3 Thin Films" Fundamental Physics of Ferroelectrics and Related Materials, Ames, IA (2013)

Invited Lecturer Magnetic Structure Determination from Neutron Data Oak Ridge National Lab, Oakridge, TN (2012)

"Neutron Diffraction Investigations of Magnetism in BiFeO3 Epitaxial Films" American Conference on Neutron Scattering 2012 (invited)

"Investigation of Electric Field Control Antiferromagnetic Domains in Epitaxial BiFeO3 Thin Films Using Neutron Diffraction" March Meeting of the American Physical Society 2012

"Neutron Diffraction Investigations of Magnetism in BiFeO3 Epitaxial Films" DAE Solid State Physics Symposium (2012) (invited), IIT Bombay

"Neutron Diffraction Investigations of Magnetism in BiFeO3 Epitaxial Films"" MMM 2011, Desert Ridge, Arizona (invited)

"Neutron diffraction investigations of the BiFeO3 thin films" European Spallation Source, Lundt, Sweden 2011 (invited)

"The Renaissance of Multiferroics" Missouri University Science Technology, Sep. 2011 (invited).

"The Renaissance of Multiferroics" Howard University, April 2011 (invited).

"The Magnetic Form factor of SrFe2As2" March Meeting of the American Physical Society 2011 (Dallas, Texas) (talk was presented by Pengcheng Dai due to budgetary constraints)

"The Magnetic Form Factor in SrFe2As2" MMM 2010 (Atlanta, Georgia)

"Neutron investigations of BiFeO3 Films" March Meeeting of the American Physical Society 2010 (Portland, Oregon)

"Introduction to SPINAL (Spinwave Analyzer), A program for Calculating and Analyzing Spinwaves" American Conference on Neutron Scattering 2010 (Ottawa, Canada)

"BiFeO3" Flipper, International Workshop on Single Crystal Diffraction with Polarized Neutrons, 2010 (Grenoble, France)

"BiFeO3" Aspen Winter Conference on Fundamental Physics of Ferroelectrics, 2010 (Aspen, Colorado)

"Neutron Scattering Studies of the Fe-Based Superconductors" National Conference of Black Physicists, 2009 (Nahville) W. Ratcliff II, Jun Zhao, J.W. Lynn, G.F. Chen, J.L. Luo, N.L. Wang, Jiangping Hu, Pengcheng Dai (Invited Talk)

"Dimensional Crossover in ZnMn2O4" William Ratcliff , Ying Chen , Goran Gasparovic , Yiming Qiu , Qing Huang , Jeffrey Lynn , Sunmog Yeo , Sang Cheong , Paula Piccoli , Arthur Schultz. March Meeting of the American Physical Society 2008 (New Orleans, Louisiana).

Dimensional Crossover in ZnMn2O4 William Davis Ratcliff, Ying Chen, Yiming Qiu, S. Yeo, G. Gasparovic, Q. Huang, J. Lynn, Sang Cheong, Paula Piccoli, and Arthur Schultz ACNS 2008 (Santa Fe, New Mexico)

"BiFeO3" PNCMI, 2008 (Mito, Japan). W. Ratcliff, Y.Chen, S. Yeo, G. Gasparovic, A. Schultz, P. Piccoli, Q. Huang, Y. Qiu, S-W. Cheong (Invited Talk)

"Elucidation on the effects of hydrostatic pressure on multiferroic, HoMn2O5", William Ratcliff, C.R. dela Cruz, B. Lorenz, Q. Huang, S. Park, S-W. Cheong. March Meeting of the American Physical Society 2007 (Denver).

"A New Magnet, ZnMn2O4" National Conference of Black Physicists, 2007 (Boston). (Invited Talk)

"The low dimensional magnet, ZnMn2O4" Contributed talk, March Meeting 2006 of the American Physical Society (APS), Baltimore, Maryland

"The Giant Magnetoelectric, DyMn2O5" Contributed talk, March Meeting 2005 of the American Physical Society (APS), Los Angeles, California

"The Giant Magnetoelectric, DyMn2O5" Contributed talk, American Conference on Neutron Scattering (ACNS), June 2004 College Park, Maryland

"The Magnetic Structure of ZnCr2O4" Contributed talk, March Meeting 2004 of the American Physical Society (APS), Montreal, Canada

"Frustration in Flatland Revisited" Poster, Boulder Summer School for Condensed Matter Physics, July 2003, Boulder Colorado

"Magnetism of Sr(Ti,Co)O3" Poster, Gordon Research Conference on Strongly Correlated Electrons, June 2002, Maine.

"Magnetism of Sr(Ti,Co)O3" Contributed talk, March Meeting 2002 of the American Physical Society (APS), Indianapolis, Indiana

"Site-vs-Bond disorder in the geometrically frustrated magnet, ZnCr2O4" Poster, SCES2001, August 2001, University of Michigan, Ann Arbor

"Site-vs-Bond disorder in the geometrically frustrated magnet, ZnCr2O4" Contributed talk, March Meeting 2001 of the APS, March 12-16, Seattle, Washington

"The geometrically frustrated magnet, ZnCr2O4" Poster, Gordon Research Conference Strongly Correlated Electrons, June 2000. New Hampshire.

Instruction Experience

- Conducted numerous summer schools at the NCNR
- Summer High School Intern Program (SHIP) mentor for high school students
- Summer Undergraduate Research Fellowship (SURF) mentor for undergraduate students
- Outreach through Adventures in Science
- Part time lecturer Physics 205 Employer Rutgers Inclusive Dates 6/1/2003-7/1/2003
- Curriculum development and teaching of 6th and 9th graders in 6th grade math and earth science at South Brunswick Upper Elementary School and 9th grade physical science at East Brunswick Churchill Middle School through the NSF GK-12 fellowship Inclusive dates 8/99-6/01
- Part time lecturer Physics 203 Employer Rutgers Inclusive Dates 6/1/99 - 7/1/99
- Part time lecturer Physics of Sound Employer Rutgers Inclusive Dates 1/1/99 - 6/1/99

- Part time lecturer, Physics 204 Employer Rutgers Inclusive Dates 1/1/99 - 6/1/99
- Part time lecturer Honors Modern Physics Employer Rutgers Inclusive Dates 9/1/98 - 1/1/99
- Part time lecturer Physics 204 Employer Rutgers Inclusive Dates 6/1/98-7/1/98
- Part time lecturer Physics 203 Employer Rutgers Inclusive Dates 7/1/98-8/1/98

Students and Postdocs

- Colin Heikes (now Northrop-Grumman)
- Ahbhishek Shetty (Berkeley) 2025
- Jasmol Singh Dhesi (Berkeley) 2025
- Vanellsa Acha (Berkeley) 2025
- Harshita Dwarcherla (Berkeley) 2025
- Derrick Chan-Sew (Berkeley) 2025
- Dan Luu Nguyen (Berkeley) 2024,2025
- Nick Lemoff (Berkeley) 2025
- Will Kuan Coomans (Berkeley) 2025
- Brian Chu (Berkeley) 2024
- Elizabeth Baggett (Boston College) 2024
- Robert Huarcaya (U. Maryland) 2023
- Justin Wang (Johns Hopkins) 2023
- Shriya Haravu (UNC) 2022
- Kate Meuse (Cornell) 2021
- Jessica Opsahl-Ong (Rice University) 2021
- Joseph Rath (Rowan University) 2019
- Abigail Wilson (Tufts) 2018
- Rohit Mandavia (University of Maryland) 2017
- Nathan Super (Williams and Mary College) 2016
- Joseph Lesniewski (graduate school Georgetown) 2014,2015
- Alex Yee (University of Maryland)2013
- Dylan Quintana (Carnegie Mellon University) 2012
- Andrew Tracer (Princeton) 2011
- Joseph Redmon (Middlebury College, now graduate school in CS at U. Washington) 2010
- Thomas Sarvey (University of Maryland, now graduate school at Georgia Tech)
- William Flynn (American University, now graduate school in Physics at Rutgers)
- Ed Schwartz (Millersville University, now staff at Carnegie Mellon)
- Man Kit Patrick Lee (intern from U. Maryland)
- Edward Friedman (Wheaton High School) 2024
- Karen Cao (Montgomery Blair High School) 2023

- Dylan Zhang (Thomas Whooton High School) 2022, 2023
- Satvik Lolla(Poolesville High School) 2020,2021
- Kate Meuse(Montgomery Blair High School) 2019, 2020
- Jessica Opsahl-Ong (McClean High School) 2019,2020
- Ryan Cho (Montgomery Blair High School) 2018
- Telon Yan (Montgomery Blair High School) 2018
- Michael Yang (Thomas Jefferson High School) 2017
- Nayman Leung (Montgomery Blair High School) 2016
- Cynthia Liu (Montgomery Blair High School) 2015, 2016
- Alexander Zhang (Montgmery Blair) 2013, 2014
- Erica Peng (Thomas Wooton High School) 2013
- Esther Wang (Thomas Jefferson High School) 2012
- Priyanka Patel (Poolesville High School) 2012
- Elakian Kanakaraj (Northwest High School) 2011
- Ophir Lifshitz (Walter Johnson High School) 2010, 2011
- Alex Yee (Poolesville High School) 2010,2011
- George Curtis (high school intern)