Dustin A. Gilbert

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Google Scholar: https://scholar.google.com/citations?user=gtU1kf0AAAAJ
Researcher ID: http://www.researcherid.com/rid/G-1683-2011

Highlights

Institute of Physics, Nanotechnology Young Researcher Runner-Up, 2016
NRC Postdoctoral fellowship at NIST Center for Neutron Research
Ph.D. Physics, 2014 UC Davis, "Physics on the Nanoscale - a Study of Nanomagnetic Phenomena"
B.S. Physics with Subject Honors and Honors Thesis, 2008 UC Santa Cruz
40 refereed journal publications, 13 as first author, including 4 in *Nature Communications*
39 Invited talks, including a APS, symposium at MMM2016 and keynote at 2016 FORC Workshop
28 Contributed talks, 3 filed patent applications

Education

Ph.D. (2014), M.S. (2010), Physics, University of California, Davis
B.S. (2008), Physics, University of California, Santa Cruz; Subject Honors, Honors Thesis

Experience

Assistant Professor	2018-	Materials Science and Engineering, University of Tennessee Konxville
Research Physicist	2016-2018	National Institute of Standards and Technology
Postdoctoral Research Fellow	2014-2016	NIST Center for Neutron Research with Dr. Julie Borchers, funded by the NRC RAP
Graduate Student Researcher	2009-2014	U.C. Davis Physics Department, with Prof. Kai Liu
Research Intern	2010	Seagate Technology, with Dr. Jan-Ulrich Thiele
Teaching Assistant	2008-09	U.C. Davis Physics Department
Research Assistant	2008-11	Naval Postgraduate School, with Prof. William Maier
Summer Intern	2008	Naval Postgraduate School, organized by California Homeland Security Consortium
Learning Assistant	2007-08	U.C. Santa Cruz Academic Resource Center
Technical Assistant	2005	CUBIC Defense Applications

Honors and Awards

- University of Tennessee, MSE Faculty of Excellence in Teaching 2019
- IOP Publishing "Nanotechnology Young Researchers Award" 2016 Runner-up
- National Research Council Research Associateship Program Postdoctoral Fellowship (2014-16)
- 1st Prize Margaret Burbidge Award for Best Experimental Research by a Graduate Student – APS Far West Section Meeting, Sonoma, CA November 2013
- Selected Participant of IEEE Summer School on Magnetism – Chennai, India Summer 2012
- UC Davis Graduate Program Fellowship – Winter 2012, Summer 2012
- UC Davis Summer Graduate Student Researcher Award, Summer 2011

- National Science Foundation Graduate Student Fellowship Program "Honorable Mention", 2010
- Academic honors in Physics from UC Santa Cruz, 2008
- Honors Thesis "Design, Modeling, Construction and Testing of a One Meter Parallel Rail Accelerator", UC Santa Cruz, 2008

Outreach Activity

Instructor for the 2018 NCNR Summer School (Hard CMP SANS experiment)
Santa Cruz Institute for Particle Physics Tesla Coil Outreach Team 2006-2008
Santa Cruz Institute for Particle Physics Balloonfest Mentor 2006, 2007, 2010-2012
UC Davis - GRE Bootcamp Graduate Instructor 2010, 2011
Lab Representative 'Physics Day' California Professoriate for Access to Physics Careers (CPAPC) 2010

Teaching Activity

Introduction to Materials Science (MSE 201) Section 5, Fall 2018 - University of Tennessee
Student Evaluation: Contributed to Understanding 4.53/5; Avalable for Outside Help 4.64/5; Responsiveness 4.63/5; Respectful 4.68/5; Feedback 4.38; Learn Something New 4.53/5
Introduction to Materials Science (MSE 201) Section 5, Fall 2019 - University of Tennessee

Laboratory Members

Nan Tang	2018 -	Ph.D. Student, MSE
Namila Liyanage	2018-	Ph.D. Student, Physics
Cameron Jeorgenson	2019-	Ph.D. Student, MSE
Lizabeth Quigley	2019-	Undergraduate, MABE
Joshua Norton	2019-	Undergraduate, MABE
James Lee	2019	Undergraduate, MSE

Professional Activity and Service

Member, American Physical Society (APS), Institute of Electrical and Electronics Engineers (IEEE), American Society for Engineering Educators (ASEE).
Refereed articles for Nature Materials, Physical Review Letters, Physical Review Applied, Physical Review Materials, Physical Review B, Journal of Applied Physics, Scientific Reports, IEEE Transactions on Magnetics, Journal of Magnetism and Magnetic Materials, Physica B, Journal of Materials Science, Spin, and Applied Physics A
Chaired conference sections at MMM 2019, 2017, 2016, 2014, Joint MMM-Intermag 2015, EMN Open-Access Week 2015, APS March Meeting 2016, International Conference of Asian Union of Magnetics Societies 2016, International Conference on Neutron Scattering 2017, International Conference on Magnetism 2018, American Conference on Neutron Scattering 2018, International Conference on Small Angle Scattering 2018
APS March Meeting - GMAG Focus-Topic (10.1.1) Lead Organizer 2020, Co-Organizer 2019; Program Committee for 2017 MMM; Sorter for APS March Meeting 2016;

Refereed Journal Publications

1. **Dustin A. Gilbert,** Alexander J. Grutter "Hydrogen finds a home in ionic devices" *Nature Materials* **18**, 7 (2019).

2. **Dustin A. Gilbert***, Alexander J. Grutter, Paul Neves, Guo-Jiun Shu, Gergely Zimanyi, Brian B. Maranville, Fang-Cheng Chou, Kathryn Krycka, Nicholas Butch, Sunxiang Huang, Julie A. Borchers "Precipitating Ordered Skyrmion Lattices from Helical Spaghetti" *Physical Review Materials*, **3**, 014408 (2019).

3. Qiming Shao, Alexander Grutter, Yawen Liu, Guoqiang Yu, Chao-Yao Yang, **Dustin A. Gilbert**, Elke Arenholz, Padraic Shafer, Xiaoyu Che, Chi Tang, Aryan Navabi, Qing Lin He, Brian J. Kirby, Jing Shi, Kang L. Wang "Exploring interfacial exchange coupling and sublattice effect in heavy-metal/ferrimagnetic-insulator heterostructures using Hall measurements, x-ray magnetic circular dichroism, and neutron reflectometry" *Physical Review B* **99,** 014401 (2019).

4. 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 "Nanoscale magnetization inhomogeneity within single phase nanopillars" *Physical Review Materials* **3**, 081401(R) (2019).

5. Geoffery Rippy, Lacey Trinh, Alexander M. Kane, Aleksey L. Ionin, Michael S. Lee, Rajesh V. Chopdekar, Joyce M. Christiansen-Salameh, **Dustin A. Gilbert**, Alexander J. Grutter, Peyton D. Murray, Martin Holt, Zhonghou Cai, Kai Liu, Yayoi Takamura, Roopali Kukreja "X-ray nanodiffraction studies of ionically-controlled nanoscale phase separation in cobaltites" *Physical Review Materials* 3, 082001(R) (2019)

6. L. Herrera Diez, Y.T. Liu, **D. A. Gilbert**, M. Belmeguenai, J. Vogel, S. Pizzini, E. Martinez, A. Lamperti, J. B. Mohammedi, A. Laborieux, Y. Roussign´e, A. J. Grutter, E. Arenholtz, P. Quarterman, B. Maranville, S. Ono, M. Salah El Hadri, R. Tolley, E. Fullerton, L. Sanchez-Tejerina, A. Stashkevich, S. M. Ch´erif, A. D. Kent, D. Querlioz, J. Langer, B. Ocker, and D. Ravelosona, "Non-volatile ionic modification of the Dzyaloshinskii Moriya Interaction" *Physical Review Applied* **12**, 034005 (2019).

7. Brianna Musico, Quinton Wright, T. Zac Ward, Alexander Grutter, Elke Arenholz, **Dustin Gilbert**, David Mandrus, Veerle Keppens "Tunable magnetic ordering through cation selection in entropic spinel oxides" *Physical Review Materials* **3**, 104416 (2019).

8. Lisa M. DeBeer-Schmitt, Ryan D. Desautels, Sergio Montoya, Nan Tang, Julie A. Borchers, Soong-Geun Je, Mi-Young Im, Michael R. Fitzsimmons, Eric E. Fullerton, **Dustin A. Gilbert**, "Realization of magnetic skyrmions in thin films at ambient conditions" *Physical Review Materials* **3**, 104406 (2019) **(**arxiv 1904.13274**)**

9. Jacob J. Wisser, Alexander J. Grutter, Brian J. Kirby, **Dustin A. Gilbert**, Alpha T. N'Diaye, Christoph Klewe, Padraic Shafer, Elke Arenholz, Yuri Suzuki, and Satoru Emori "Giant damping enhancement in coherent ferrite/insulating-paramagnet bilayers", **Accepted, Physical Review Materials (**https://arxiv.org/abs/1908.08629**)**

10. Peyton D. Murray, **Dustin A. Gilbert**, Alexander J. Grutter, Brian J. Kirby, David Hernandez-Maldonado, Maria Varela, Zachary E. Brubaker, Rajesh V. Chopdekar, Valentin Taufour, Rena Zieve, Jason R. Jeffries, Elke Arenholz, Yayoi Takamura, Julie Borchers, Kai Liu "Interfacial-Redox-Induced Tuning of Superconductivity in $YBa_2Cu_3O_{7-\delta}$" **Under Review**

11. J. Trastoy, A. Camjayi, J. del Valle, Y. Kalcheim, J.-P. Crocombette, J. A. Borchers, **D. A. Gilbert**, J. E. Villegas, D. Ravelosona, M. J. Rozenberg, and Ivan K. Schuller "Magnetic-field frustration reveals the nature of the metal-insulator transition in V_2O_3" **Under Review**

12. Sa Tu, Timothy Ziman, Guoqiang Yu, Caihua Wan, Junfeng Hu, Hao Wu, Hanchen Wang, Mengchao Liu, Chuanpu Liu, Chenyang Guo, Jianyu Zhang, Marco A. Cabero Z., Youguang Zhang, Peng Gao, Dapeng Yu, Xiufeng Han, **Dustin A. Gilbert**, Kang L. Wang, Jean-Philippe Ansermet, Sadamichi Maekawa, and Haiming Yu, "Record thermopower found in an IrMn-based spintronic device" **Under Review**

13. Zhangzhang Cui, Xiaofang Zhai, Yi-Sheng Liu, Alexander J. Grutter, **D. A. Gilbert**, Jinghua Guo, Elke Arenholz, Haoliang Huang, Yalin Lu "Two-dimensional Ferromagnetism with Controllable Spin Anisotropy in $SrRuO_3/(SrTiO_3)_N$ Superlattices" **Under Review**

14. 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 "Large exchange splitting in monolayer graphene magnetized by an antiferromagnet" **Under Review**

15. Sina Mayr, Jingfan Ye, Jochen Stahn, Birgit Knoblich, Oliver Klein, **Dustin A. Gilbert**, Manfred Albrecht, Amitesh Paul, Peter Boni, and Wolfgang Kreuzpaintner "Indications for Dzyaloshinskii-Moriya Interaction at the Pd/Fe Interface Studied by In Situ Polarized Neutron Reflectometry" **Under Review (**https://arxiv.org/abs/1906.11532**)**

16. Chao-Yao Yang, Lei Pan, Alexander J. Grutter, Haiying Wang, Xiaoyu Che, Qing Lin He, **D. A. Gilbert**, Padraic Shafer, Elke Arenholz, Hao Wu, Yingying Wu, Gen Yin, Peng Deng, J. A. Borchers, W. Ratcliff II, and Kang L. Wang "Interface-Termination Control of Antiferromagnetic Proximity Effects in Topological Insulators" **Under Review**

17. Colin R. Rementer, Michelle E. Jamer, **Dustin A. Gilbert**, K. Fitzell, Julie A. Borchers, Brian J. Kirby, Gregory P. Carman, and Jane P. Chang, "Determining reversal mechanisms in FeGa/FeNi Heterostructures on Silicon" **Under Review**

18. Paul M. Neves, **Dustin A. Gilbert**, Sheng Ran, I-Lin Liu, Shanta Saha, John Collini, Johnpierre Paglione, Markus Bleuel, Julie A. Borchers, and Nicholas P. Butch, "Effect of chemical substitution on the skyrmion phase in Cu_2OSeO_3" **Under Review**

19. Lei Pan, Alexander Grutter, Xiaoyu Che, Tomohiro Nozaki, Alex Stern, Mike Street, Bing Zhang, Brian Casas, Qing Lin He, Eun Sang Choi, Steven M. Disseler, **Dustin A. Gilbert**, Gen Yin, Qiming Shao, Peng Zhang, Peng Deng, Yingying Wu, Xiaoyang Liu, Xufeng Kou, Sahashi Masashi, Xiaodong Han, Christian Binek, Scott Chambers, Jing Xia, Kang L. Wang "Quantum anomalous Hall insulator/antiferromagnet Heterostructure" **Under Review**

20. Jingfan Ye, Alexander Book, Sina Mayr, Henrik Gabold, Fankai Meng, Helena Schafferer, Ryan Need, **Dustin Gilbert**, Thomas Saerbeck, Jochen Stahn, Peter Boni, Wolfgang Kreuzpaintner "Design and Realization of a Sputter Deposition System for the in situ and in operando Use in Polarized Neutron Reectometry Experiments: Novel Capabilities" **Under Review**

21. Zhongling Wang, Xiangdong Xue, Hongwei Lu, Yixuan He, Ziwei Lu, Ye Yuan, Zhijie Chen, Na Tang, Courtney A. Dreyer, Lizabeth Quigley, Nicholas Curro, Kit S. Lam, Jeffrey H. Walton, Tzu-yin Lin, Angelique Louie, **Dustin A. Gilbert**, Kai Liu, Katherine W. Ferrara, Yuanpei "Two-way Magnetic Resonance Tuning Nanoprobe Enhanced Subtraction Imaging for in vivo Molecular Target Quantification and Small Tumour Visualization" **Under Review**

22. **Dustin A. Gilbert,*** Alexander J. Grutter, Peyton D. Murray, Rajesh V. Chopdekar, Alexander M. Kane, Aleksey L. Ionin, Michael S. Lee, Steven R. Spurgeon, Brian J. Kirby, Brian B. Maranville, Alpha T. N'Diaye, Apurva Mehta, Elke Arenholz, Kai Liu, Yayoi Takamura, and Julie A. Borchers "Ionic Tuning of Cobaltites at the Nanoscale", *Physical Review Materials* **2**, 104402 (2018).

23. Q. L. He, G. Yin, A. J. Grutter, C. Zheng, L. Pan, X. Che, G. Yu, **D. A. Gilbert**, S. M. Disseler, Y. Liu, P. Shafer, B. Zhang, Y. Wu, Q. Shao, B. J. Kirby, E. Arenholz, R. K. Lake, X. Han, X. Kou, K. L. Wang, "Exchange-biasing topological charges by antiferromagnetism", *Nature Communications* **9**, 2767 (2018).

24. Alexander J. Grutter, Steve Disseler, Un-Jun Moon, **Dustin A. Gilbert**, Elke Arenholz, Steven J. May "Strain induced magnetoelectronic phase separation and antiferromagnetism in Europium Strontium Manganite" *Physical Review Materials* **2**, 094402 (2018).

25. R. F. Need, P. B. Marshall, E. Weschke, A. J. Grutter, **D. A. Gilbert**, E. Arenholz, P. Shafer, S. Stemmer, and S. D. Wilson " Resolving interfacial charge transfer in titanate superlattices using resonant x-ray reflectometry" *Physical Review Materials* **2**, 093801 (2018).

26. Alberto Quintana, Enric Menéndez, Maciej Oskar Liedke, Maik Butterling, Andreas Wagner, Veronica Sireus, Pau Torruella, Sònia Estradé, Francisca Peiró, Jolien Dendooven, Christophe Detavernier, Peyton Murray, **Dustin A. Gilbert**, Kai Liu, Eva Pellicer, Josep Nogués, Jordi Sort "Voltage-controlled ON-OFF ferromagnetism at room temperature in a single metal oxide film" *ACS Nano* **12**, 10291 (2018).

27. **D. A. Gilbert**, E. C. Burks, S. Ushakov, Randy Dumas, Patricia Abellan Baeza, Ilke Arslan, Thomas Felter, Alexandra Navrotsky, and Kai Liu, "Tunable Low Density Palladium Nanowire Foams", *Chemistry of Materials* **29**, 9814 (2017)**.** Covered by *EurekAlert*, (Altmetric Score of 83)

28. **Dustin A. Gilbert**, J. G. Ramirez, S. Wang, I. K. Schuller, Kai Liu, J. de la Venta, "Growth-Induced In-Plane Uniaxial Anisotropy V_2O_3/Ni films revealed by FORC measurements", *Scientific Reports*, **7**, 13471 (2017).

29. M. Frampton, J. Crocker, **D. A. Gilbert**,* N. Curro, Kai Liu, J. A. Schneeloch, G. Gu, and R. J. Zieve,* "First Order Reversal Curve of the Magneto-Structural Phase Transition in FeTe", *Physical Review B*, **95**, 214402 (2017). *Corresponding authors.

30. **Dustin A. Gilbert**,* Alexander. J Grutter, Elke Arenholz, Kai Liu, Brian J. Kirby, Julie Borchers, Brain B. Maranville "Structural and Magnetic Depth Profiles of Magneto-Ionic Heterostructures Beyond the Interface", *Nature Communications* **7**, 12264 (2016). (Altmetric Score of 27)

Featured by MRS Bulletin

31. **Dustin A. Gilbert,** J. Olamit, R. K. Dumas, B. J. Kirby, A. J. Grutter, B. B. Maranville, E. Arenholz, J. A. Borchers, and Kai Liu, "Tunable Positive Exchange Bias via Redox-Driven Oxygen Migration", *Nature Communications*, **7**, 11050 (2016).

32. **Dustin A. Gilbert**, Jung-Wei Liao, Brian J. Kirby, Michael Winklhofer, Chih-Huang Lai, Kai Liu "Magnetic Yoking and Tunable Interactions in FePt-Based Hard/Soft Bilayers" *Scientific Reports*, **6**, 32842 (2016).

33. **Dustin A. Gilbert**, Alexander J. Grutter, Elke Arenholz, Kai Liu, Brain B. Maranville, Julie Borchers, Brian J. Kirby "Reversible Control of Magnetism in $La_{0.67}Sr_{0.33}MnO_3$ Through Chemically-Induced Oxygen Migration" *Applied Physics Letters* **108**, 082405 (2016).

34. Eric P. Vetter, Liwei Geng, Priya Ghatwai, **Dustin A. Gilbert**, Yongmei Jin, William A. Soffa and Jerrold A. Floro, "Lengthscale effects on exchange coupling in Co-Pt $L1_0$+$L1_2$ nanochessboards" *APL Materials*, **4,** 096103 (2016).

35. I. Hallsteinsen, M. Moreau, A. Grutter, M. Nord, P.-E. Vullum, **D. A. Gilbert**, T. Bolstad, J. K. Grepstad, R. Holmestad, S. M. Selbach, A. T. N'Diaye, B. J. Kirby, E. Arenholz, T Tybell, "Structurally driven magnetic reconstructions at the interface of (111)-oriented $La_{0.7}Sr_{0.3}MnO_3$/$LaFeO_3$", *Physical Review B (Rapid)* **94**, 201115(R) (2016).

36. L. Yu, Z. Y. Yan, H. C. Yang, X. Z. Chai, B. Q. Li, S. Moeendarbari, Y. W. Hao, D. Zhang, G. Feng, P. Han, **D. A. Gilbert**, Kai Liu, K. S. Buchanan, and X. M. Cheng, "Magnetization reversal of three-dimensional nickel anti-sphere arrays" *IEEE Magnetics Letters*, **8**, 4100104 (2016).

37. **Dustin A. Gilbert**, Brian B. Maranville, Andrew L. Balk, Brian J. Kirby, Peter Fischer, Daniel T. Pierce, John Unguris, Julie A. Borchers, and Kai Liu, "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature", *Nature Communications*, **6**, 8462 (2015).

    Featured on over a dozen popular science news sources, including IEEE Spectrum (Oct. 13, 2015), and NSF and NIST websites. (Altmetric Score of 85)

38. **D. A. Gilbert**, Li Ye, A. Varea, S. Agramunt-Puig, N. Del-Valle, C. Navau, A. Sanchez, J. F. Lopez-Barbera, K. S. Buchanan, A. Hoffmann, J. Sort, Kai Liu, and J. Nogues, "A New Reversal Mode in Exchange Coupled Antiferromagnetic/Ferromagnetic Disks: Distorted Viscous Vortex", *Nanoscale* 7, 9878 (2015)

39. **D.A. Gilbert**, G.T. Zimanyi, R.K. Dumas, M. Winklhofer, A. Gomez, N. Eibagi, J.L. Vincent, and Kai Liu, "Quantitative Decoding of Interactions in Tunable Nanomagnet Arrays Using First Order Reversal Curves", *Scientific Reports* **4**, 4204 (2014).

    Thomson Reuters Web of Science Highly Cited Paper ("top 1% of the academic field of Physics based on a cited threshold for the field and publication year")

40. **D. A. Gilbert**, J. W. Liao, L. W. Wang, J. W. Lau, T. J. Klemmer, J. U. Thiele, C. H. Lai, and Kai Liu, "Probing the A1 to $L1_0$ Transformation in FeCuPt Using the First Order Reversal Curve Method", *APL Materials* **2**, 086106 (2014).

41. L. Ma, **D. A. Gilbert**, V. Neu, R. Schafer, J. G. Zheng, X. Q. Yan, Z. Shi, Kai Liu, and S. M. Zhou, "Magnetization reversal in perpendicularly magnetized $L1_0$ FePd/FePt heretostructures", *Journal of Applied Physics* **116**, 033922 (2014).

42. R. K. Dumas, P. K. Greene, **D. A. Gilbert**, Li Ye, C. Zha, J. Åkerman, and Kai Liu "Accessing Different Spin-Disordered States using First Order Reversal Curves", *Physical Review B*, **90**, 104410 (2014).

43. **Dustin A. Gilbert**, Liang-Wei Wang, Chih-Huang Lai, Timothy Klemmer, Jan-Ulrich Thiele, Kai Liu, "Tuning magnetic anisotropy in (001) oriented $L1_0$ $(Fe_{1-x}Cu_x)_{55}Pt_{45}$ films", *Applied Physics Letters*, **102**, 132406 (2013). (Altmetric Score of 64)

    Featured in APL 'Research Highlights', 'Top Stories', and top 15 most accessed articles in APL, 2013. Carried by over 16 popular science news outlets including Eureka Alert, Phys.org, R&D Magazine, and Science Daily.

44. J.E. Davies, **D. A. Gilbert,** M. Mohseni, R.K. Dumas, J. Akerman, and Kai Liu, "Reversal mode instability and magnetoresistance in perpendicular (Co/Pd)/Cu/(Co/Ni) pseudo-spin-valves", *Applied Physics Letters*, **103**, 022409 (2013).

45. A. Gomez, **D. A. Gilbert**, E. M. Gonzalez, Kai Liu and J. L. Vicent, "Control of dissipation in superconducting films by magnetic stray fields", *Applied Physics Letters*, **102**, 052601 (2013).

46. A. Gomez, E. M. Gonzalez, **D. A. Gilbert**, M. V. Milosevic, Kai Liu and J. L. Vicent, "Probing the dynamic response of antivortex, interstitial and trapped vortex lattices on magnetic periodic pinning potentials", *Superconductor Science and Technology*, **26**, 085018 (2013).

47. R. Brandt, R. Ruckriem, **D. A. Gilbert,** F. Ganss, T. Senn, Kai Liu, M. Albrecht, and H. Schmidt, "Size dependence of the switching characteristics and spin wave modes of single FePt nanocaps", *Journal of Applied Physics*, **113**, 203910 (2013).

48. Jeong C. Park, **Dustin A. Gilbert**, Kai Liu, Angelique Y. Louie, "Microwave enhanced silica encapsulation of magnetic nanoparticles", *Journal of Materials Chemistry*, **22**, 8449 (2012).

49. Ray M. Wong, **Dustin A. Gilbert**, Kai Liu, Angelique Y. Louie, "Rapid Size-Controlled Synthesis of Dextran-Coated, Copper-Doped Iron Oxide Nanoparticles", *ACS Nano*, **6**, 3461 (2012).

50. Elizabeth A Osborne, Tonya Atkins, **Dustin Gilbert**, Susan Kauzlarich, Kai Liu, and Angelique Y Louie "Rapid microwave-assisted synthesis of dextran-coated iron oxide nanoparticles for magnetic resonance imaging", *Nanotechnology*, **23,** 215602 (2012).

51. B.F. Valcu, **D. A. Gilbert**, K. Liu, "Fingerprinting Inhomogeneities in Magnetic Recording Media using the First Order Reversal Curve Method", *IEEE Transactions on Magnetics*, **47**, 2988 (2011).

52. R.K. Dumas, **D. A. Gilbert**, N. Eibagi, K. Liu, "Chirality control and vortex manipulation in asymmetric Co dots" *Physical Review B*, **83**, 060415(R) (2011).

Manuscripts in Preparation

53. **Dustin A. Gilbert,** Randy K. Dumas, Joseph Davies, Kai Liu, "Building Bridges from FORC to phase-resolved major loops" **In Preparation**.

54. **Dustin A. Gilbert**, Thomas Schrefl, Kai Liu, Gergely Zimanyi "Identifying Multidomain Reversal Behavior Using First Order Reversal Curves" **In Preparation**.

55. **Dustin A. Gilbert,** Randy K. Dumas, Joseph Davies, Kai Liu, "Experimental Investigations of reversibility in the FORC distribution" **In Preparation**.

Other Publications

1. **Dustin A. Gilbert**, Alexander. J Grutter, Elke Arenholz, Kai Liu, Brian J. Kirby, Julie Borchers, Brain B. Maranville "Structural and Magnetic Depth Profiles of Magneto-Ionic Heterostructures Beyond the Interface" NIST Center for Neutron Research Annual Highlights, 2016

2. **Dustin A. Gilbert**, Brian B. Maranville, Andrew L. Balk, Brian J. Kirby, Peter Fischer, Daniel T. Pierce, John Unguris, Julie A. Borchers, and Kai Liu, "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature" NIST Center for Neutron Research Annual Highlights, 2016

3. **D. A. Gilbert**, J. W. Liao, L. W. Wang, J. W. Lau, T. J. Klemmer, J. U. Thiele, C. H. Lai, and Kai Liu, "Magnetometry-based order parameter to probe the A1 to $L1_0$ transformation in FeCuPt for heat-assisted magnetic recording media", IEEE International Magnetics Conference Digest, AA-06, DOI:10.1109/INTMAG.2015.7156496 (2015).

4. **D. A. Gilbert** G.T. Zimanyi, R.K. Dumas, M. Winklhofer, A. Gomez, N. Eibagi, J.L. Vincent, and Kai Liu, "Distinguishing Nearest Neighbor and Mean Field Interactions in Nanomagnet Arrays Using the FORC Technique", 2014 IEEE International Magnetics Conference Digest, FH-05 (2014).

5. **D. A. Gilbert**, Jung-Wei Liao, Liang-Wei Wang, Chih-Huang Lai, Timothy Klemmer, Jan-Ulrich Thiele, Kai Liu, "Probing the A1 to L10 Transformation in FeCuPt Using the First Order Reversal Curve Method", 2014 IEEE International Magnetics Conference Digest, BB-11 (2014).

6. Jung-Wei Liao, Unai Atxitia, **Dustin Gilbert**, Richard Evans, Brian Kirby, Kai Liu, Roy Chantrell, Chih-Huang Lai, "Magnetization reversal modes in $L1_0$ FePt based exchange spring magnets with magnetically soft layers of varied Curie temperature", 2014 IEEE International Magnetics Conference Digest, ES-08 (2014).

7. **D. A. Gilbert** and Kai Liu, "Probing magnetic configurations and interactions in embedded multilayered Co/Pd nanowires", 2011 IEEE International Magnetics Conference Digest, FB-03 (2011).

8. Jeffrey Colvin, Supakit Charnvanichborikarn, Tom Felter, Chad Flores, Kevin Fournier, **Dustin Gilbert**, Sergei Kucheyev, Kai Liu, "On Optimizing K-Shell X-ray Conversion Efficiencies with New Nano-structured Laser Targets", Bulletin of the American Physical Society, 56, 259 (2011).

Patents

- D. A. Gilbert and Kai Liu, *Ground State Artificial Skyrmion Lattices at Room Temperature*, US Patent No. 10,312,436 B2, June 4, 2019
- E. Burks, D. A. Gilbert, Kai Liu, S. Kucheyev, T. Felter, and J. Colvin, *Low density interconnected metal foams*, U.S. Provisional Patent Application 62,261,211 (2015).
- Kai Liu, J. De Rojas, and D. A. Gilbert, *Synthesis of tetrataenite thin films via rapid thermal annealing,* US Provisional Patent Application 62,343,531, May 31, 2016.

Presentations

Invited talks

1. Pittsburgh Diffraction Conference, Oak Ridge, TN, October 20, 2019
2. "Hybrid Skyrmions in Gd/Fe Multilayers" SNS/HFIR Users Group (SHUG) Meeting in the Quantum Materials, Oak Ridge National Laboratory, June 5, 2019
3. "Exchange-biasing topological charges by antiferromagnetism" Advanced Light Source User's Meeting, Berkeley, CA October 4, 2018

4. "Ionic Control of Materials Beyond Interfaces" International Workshop on Magneto-electric actuation, magneto-ionics and related phenomena in high-surface area materials, Gavà, Spain May 28-30, 2018
5. "Ionic Control of Materials Beyond Interfaces" German Physical Society, Berlin, Germany March 12-16, 2018
6. "Ionic Control of Materials Beyond Interfaces" University of Tennessee, Knoxville, TN, February 26, 2018
7. "Artificial Skyrmions and Helical Spaghetti" California State University, San Jose, CA February 20, 2018
8. "Artificial Skyrmions and Helical Spaghetti" University of Colorado, Colorado Springs, CO, February 12, 2018
9. "Artificial Skyrmions and Helical Spaghetti" Hofstra University, Hempstead NY, February 7, 2018
10. "Artificial Skyrmions and Helical Spaghetti" Louisiana State University Physics LaCNS seminar, Baton Rouge, LA, January 22, 2018
11. "Controlling Materials at the Nanoscale with Ion Migration" Physics Colloquium, Colorado State University, Fort Collins, CO, Sept. 25, 2017
12. "Mapping inside magneto-ionic devices with neutron reflectometry" International Conference on Neutron Scattering (ICNS), Daejeong, Korea, July 9-13, 2017.
13. "Future Opportunities in Spintronics: Magnetic Skyrmions and Magneto-Ionics" HRL Laboratory, Malibu, CA May 17, 2017.
14. "Probing depth-dependent spin textures in artificial skyrmions and HAMR media" American Physical Society March Meeting, New Orleans, LA, Mar. 13, 2017.
15. "Designing and Controlling Magnetic Materials with Electric Fields" École Polytechnique Fédérale de Lausanne, Materials Science Department Colloquium, Lausanne, Switzerland, Mar. 3, 2017.
16. "Designing and Controlling Magnetic Materials with Electric Fields" Virginia Polytechnic Institute and State University Physics Department Colloquium, Blacksburg, VA, Feb. 16, 2017.
17. "Designing and Controlling Magnetic Materials with Electric Fields" Boston College Physics Department Colloquium, Boston, MA, Feb. 08, 2017.
18. "Artificial Magnetic Skyrmion Lattices Stable at Ambient Conditions" 37th REIMEI Workshop on Frontiers of Correlated Quantum Matter and Spintronics, Tokai, Japan, Jan 14, 2017.
19. "Symposium: Beyond the Interface: Structural and Magnetic Depth Profiles of Magneto-Ionic Heterostructures", Magnetism and Magnetic Materials (2016 MMM), New Orleans, LA, Oct. 31 - Nov. 4, 2016.
20. "Keynote: How I learned to stop worrying and love the FORC method"**,** Second Annual FORC Workshop (FORCw), New Orleans, LA, Oct. 30, 2016.
21. "Oxygen Migration and Nanophases", Advanced Light Source Users Meeting, Workshop on Ordering Phenomena in Functional Complex Oxides, Berkeley, CA, Oct. 04, 2016.
22. " Symposium: Future Opportunities in Spintronics: Magnetic Skyrmions and Magneto-Ionics", Brazilian Physics Society 50th Anniversary Meeting, Natal, Brazil, Sept. 3-7, 2016.
23. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature", International Conference of Asian Union of Magnetics Societies, Tainan, Taiwan, Aug. 1-5, 2016.
24. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature", American Conference on Neutron Scattering, Long Beach, CA July 10-14, 2016.

25. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature", International Conference on Polarized Neutrons for Condensed Matter Investigations, Munich, Germany, July 4-7, 2016.
26. "Future Opportunities in Spintronics: Magnetic Skyrmions and Magneto-Ionics", Physics Department Condensed Matter Seminar, University of Delaware, Newark, Delaware, May 31, 2016.
27. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature", 'Low-Q' seminar, National Institute of Standards and Technology, Gaithersburg, MD, May 27, 2016.
28. "Future Opportunities in Spintronics: Magnetic Skyrmions and Magneto-Ionics", Physics Department Condensed Matter Seminar, University of California, Davis, May 12, 2016.
29. "Future Opportunities in Spintronics: Magnetic Skyrmions and Magneto-Ionics", Physics Department Condensed Matter Seminar, Tsinghua University, Beijing, China, May 5 2016.
30. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature", Inaugural Meeting for the Fert Spintronics Center at Beihang University, Beijing, China, April 30-May 3, 2016.
31. "Designing Nanomaterials by Controlling Oxygen Distributions", Naval Postgraduate School, Monterey, CA, Jan 29, 2016.
32. "Experimental Realization of Artificial Skyrmion Lattices", "Future Directions in Magnetism" Workshop, Tsinghua Sanya International Mathematics Forum, Sanya, Hainan, China, December 14, 2015.
33. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature", University of Maryland, Condensed Matter Physics Colloquium, College Park, MD, November 19, 2015.
34. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature", Center for Memory and Recording Research, University of California, San Diego, CA, October 08, 2015.
35. "Designing Functional Magnetic Interfaces through Oxygen Migration", University of Virginia, Materials Science and Engineering Colloquium, Charlottesville, VA October 05, 2015.
36. "Designing Functional Magnetic Interfaces through Oxygen Migration", Energy Materials Nanotechnology Open 2015, Chengdu, China, September 22, 2015.
37. "Experimental Realization of Artificial Skyrmion Lattices", Magnetics Group Meeting, National Institute of Standards and Technology, Gaithersburg, MD, July 7, 2015.
38. "Traversing the Minor-Loop Landscape with the FORC Technique", NIST Center for Neutron Research, Gaithersburg, MD, February 6, 2014.
39. "Tuning magnetic anisotropy in (001) oriented $L1_0$ $(Fe_{1-x}Cu_x)_{55}Pt_{45}$ films", IEEE Santa Clara Valley Magnetics Society Monthly Meeting, Santa Clara, CA, November 19, 2013.

Contributed Presentations

1. "Precipitating Ordered Skyrmion Lattices from Helical Spaghetti" **Dustin A. Gilbert**, Alexander J. Grutter, Paul M. Neves, Guo-Jiun Shu, Gergely Zimanyi, Brian B. Maranville, Fang-Cheng Chou, Kathryn L. Krycka, Nicholas P. Butch, Sunxiang Huang, Julie A. Borchers, International Conference on Magnetism, San Francisco, CA July 9-13, 2018

2. "Precipitating Ordered Skyrmion Lattices from Helical Spaghetti" **Dustin A. Gilbert**, Alexander J. Grutter, Paul M. Neves, Guo-Jiun Shu, Gergely Zimanyi, Brian B. Maranville, Fang-Cheng Chou, Kathryn L. Krycka, Nicholas P. Butch, Sunxiang Huang, Julie A. Borchers, American Conference on Neutron Scattering, College Park, MD, June 24-28, 2018

3. "Ionic tuning of cobaltates at the nanoscale" **Dustin Gilbert,** Alexander J. Grutter, Peyton D. Murray, Rajesh V. Chopdekar, Alexander M. Kane, Aleksey L. Ionin, Michael S. Lee, Steven R. Spurgeon, Brian J. Kirby, Brian B. Maranville, Alpha T. N'Diaye, Apurva Mehta, Elke Arenholz, Kai Liu, Yayoi Takamura, and Julie A. Borchers, MMM 2017, Pittsburgh, PA, Nov. 10, 2017

4. "Structural and Magnetic Depth Profiles of Magneto-Ionic Heterostructures Beyond the Interface Limit" **Dustin A. Gilbert**, Alexander Grutter, Elke Arenholz, Kai Liu, B. J. Kirby, Julie Borchers, Brian B. Maranville, Fundamental Physics of Ferroelectrics and related materials workshop, Williamsburg, VA Jan. 29, 2017.

5. "Room Temperature Planar Artificial Skyrmion Lattices" **Dustin A. Gilbert**, Brian B. Maranville, Andrew L. Balk, B. J. Kirby, Peter Fischer, Daniel T. Pierce, John Unguris, Julie Borchers, Kai Liu, MMM 2016, New Orleans, LA, Oct. 31 - Nov. 4, 2016

6. "Controlling Magnetism by Electric Field Moderated Forced Oxygen Migration" **Dustin A. Gilbert**, Alexander Grutter, Elke Arenholz, Kai Liu, B. J. Kirby, Julie Borchers, Brian B. Maranville, Sigma-Xi Poster Conference, Gaithersburg, MD, Feb. 19, 2016

7. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature" **Dustin A. Gilbert**, Brian B. Maranville, Andrew L. Balk, B. J. Kirby, Peter Fischer, Daniel T. Pierce, John Unguris, Julie Borchers, Kai Liu, Joint Intermag-MMM Conference, San Diego, CA, Jan. 11-15, 2016

8. "Controlling Magnetism by Electric Field Moderated Forced Oxygen Migration" **Dustin A. Gilbert**, Alexander Grutter, Elke Arenholz, Kai Liu, B. J. Kirby, Julie Borchers, Brian B. Maranville, Joint Intermag-MMM Conference, San Diego, CA, Jan. 11-15, 2016

9. "Probing Buried Magnetic Interfaces with PNR" **Dustin A. Gilbert**, Alexander Grutter, B. J. Kirby, Brian B. Maranville, Julie Borchers, University of Delaware Neutron Day, Nov. 4, 2015

10. "Tunable Positive/Negative Exchange Bias in Gd_xFe_{1-x}/NiCoO Thin Films" **Dustin Gilbert**, Justin Olamit, Brian J. Kirby, Randy K. Dumas, Elke Arenholz, Kai Liu, American Physical Society March Meeting, San Antonio, TX, March 2-6, 2015

11. "Experimental Realization of Artificial Skyrmion Lattices" **Dustin Gilbert**, Brian Maranville, Andrew L. Balk, Brian J. Kirby, Peter Fischer, Daniel T. Pierce, John Unguris, Julie A. Borchers, Kai Liu, American Physical Society March Meeting, San Antonio, TX, March 2-6, 2015

12. "Realization of Ground State Artificial Skyrmion Lattices at Room Temperature" **Dustin A. Gilbert**, Brian B. Maranville, Andrew L. Balk, B. J. Kirby, Peter Fischer, Daniel T. Pierce, John Unguris, Julie Borchers, Kai Liu, Sigma-Xi Poster Conference, Gaithersburg, MD, Feb. 18, 2015

13. "Magnetic Yoking and Enhanced Interactions in Perpendicular $L1_0$-FePt based Hard/Soft Bilayers" **Dustin A. Gilbert,** Jung-Wei Liao, Michael Winklhofer, Chih-Huang Lai, Kai Liu MMM 2014, Honolulu, Hawaii, November 5, 2014

14. "Experimental Realization of Artificial Skyrmion Lattices" **Dustin A. Gilbert,** Brian Maranville, Brian Kerby, Andrew Balk, John Unguris, Peter Fischer, Julie Borchers, Kai Liu MMM 2014, Honolulu, Hawaii, November 8, 2014

15. "Distinguishing Nearest Neighbor and Mean Field Interactions in Nanomagnet Arrays Using the FORC Technique" **D.A. Gilbert** G.T. Zimanyi, R.K. Dumas, M. Winklhofer, A. Gomez, N. Eibagi, J.L. Vincent, and Kai Liu, 2014 IEEE International Magnetics Conference, Intermag, Dresden, Germany May 7, 2014.

16. "Probing the A1 to $L1_0$ Transformation in FeCuPt Using the First Order Reversal Curve Method" **Dustin A. Gilbert**, Jung-Wei Liao, Liang-Wei Wang, Chih-Huang Lai, Timothy Klemmer, Jan-Ulrich Thiele, Kai Liu, 2014 IEEE International Magnetics Conference, Intermag, Dresden, Germany May 5, 2014.

17. "Quantitative Decoding of Interactions in Tunable Nanomagnet Arrays Using First Order Reversal Curves" **D.A. Gilbert**, G.T. Zimanyi, R.K. Dumas, M. Winklhofer, A. Gomez, N. Eibagi, J.L. Vincent, and Kai Liu, MMM 2013, Denver, CO, November 8, 2013.

18. "Multiple Phased Gd_xFe_{1-x}/NiCoO Thin Films with Field-Tunable Exchange Bias", **Dustin A. Gilbert**, Justin Olamit, Randy K. Dumas, Elke Arenholz, Kai Liu, MMM 2013, Denver, CO, November 5, 2013.

19. "Tilted vortex and mixed reversal modes in exchange biased nano-dots and nano-ellipses" **Dustin A. Gilbert**, Li Ye, Kai Liu, A. Varea, S. Agramunt-Puig, N. del Valle, C. Navau, A. Sánchez, J.F. Lopez-Barbera, Kristen S. Buchanan, Axel Hoffmann, Jordi Sort, Josep Nogues MMM 2013, Denver, CO, November 7, 2013.

20. "Tuning magnetic anisotropy in (001) oriented L10 $(Fe_{1-x}Cu_x)_{55}Pt_{45}$ films" **Dustin Gilbert**,* Liang-Wei Wang, Timothy Klemmer, Jan-Ulrich Thiele, Chih-Huang Lai, Kai Liu, American Physical Society Far West Section Meeting, Sonoma, CA, November 2, 2013.

    ***Received Margaret Burbidge award for Best Experimental Research by a Graduate Student.**

21. "Tailoring anisotropy in (001) oriented $(Fe_{1-x}Cu_x)_{55}Pt_{45}$ films" **Dustin Gilbert**, Liang-Wei Wang, Timothy Klemmer, Jan-Ulrich Thiele, Chih-Huang Lai, Kai Liu, American Physical Society March Meeting 2013, Baltimore, MD, March 19, 2013.

22. "Magnetization Reversal in Graded Anisotropy Co/Pd Nanodots" **Dustin A.Gilbert**, Peter K. Greene, Chih-Huang Lai, Kai Liu, MMM 2011, Scottsdale, AZ, November 2, 2013.

23. "Probing magnetic configurations and interactions in embedded multilayered Co/Pd nanowires" **D.A. Gilbert**, K. Liu, INTERMAG 2011, in Taipei, Taiwan, April, 28, 2011.

24. "Fingerprinting Inhomogeneities in Magnetic Recording Media using the First Order Reversal Curve Method" B.F. Valcu, **D.A. Gilbert**, K. Liu, INTERMAG 2011, in Taipei, Taiwan, April, 27, 2011.

25. "Quantitative evaluation of magnetic interactions in arrays of elliptical nanomagnets" **D.A. Gilbert**, R.K. Dumas, Michael Winklhofer, N. Eibagi, K. Liu, 55^{th} Annual Magnetism and Magnetic Materials (MMM) conference, 2010, Atlanta, GA, November 17, 2010.

26. "Chirality control via double-vortex nucleation and coalescence in asymmetric Co dots" **D.A. Gilbert**, R.K. Dumas, N. Eibagi, K. Liu, 55^{th} Annual Magnetism and Magnetic Materials (MMM) conference, 2010, Atlanta, GA, November 17, 2010.

27. "Design, Modeling, Construction and Testing of a One Meter Parallel Rail Accelerator", **Dustin Gilbert**, Dave Belanger, Poster Presentation, Jack Baskin Undergraduate Research Poster Symposium, University of California at Santa Cruz, Santa Cruz, CA, June 05, 2008.

28. “Design, Modeling, Construction and Testing of a One Meter Parallel Rail Accelerator”, **Dustin Gilbert**, Dave Belanger, Society of Physics Students Regional Zone (18) Meeting – CA, NV, HI - University of California at Santa Cruz, Santa Cruz, CA, May 03, 2008.