Xuemei (May) Cheng, Ph.D.

(updated 01/07/2025)

Professor of Physics, Dean of Graduate Studies, and
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Education

Ph.D. in Physics, Johns Hopkins University 2006
Dissertation Supervisor: Prof. Chia-Ling Chien
"Magnetization reversal and magnetotransport properties of Co/Pt multilayers with perpendicular magnetic anisotropy"

M. A. in Physics, Johns Hopkins University 2004

M. S. in Microelectronics and Solid-State Electronics, Nanjing University, China 2000

B. S. in Physics, Nanjing University, China 1997

Appointments

Bryn Mawr College	Dean of Graduate Studies	2021-present
Bryn Mawr College	Professor of Physics	2021-present
Bryn Mawr College	Physics Department Chair	2016-2018, 2020-2021
Bryn Mawr College	Associate Professor of Physics	2015-2021
University of Pennsylvania	Visiting Assistant Professor	2012-2013
Bryn Mawr College	Assistant Professor of Physics	2009-2015
Argonne National Laboratory	Postdoctoral Fellow	2006-2009

Research Interests

- Magnetic nanomaterial fabrication, characterization, and applications for Spintronics and biological applications
- Topological spin textures (skyrmions, vortices, and domain walls) in magnetic nanomaterials
- Interface magnetism, 2D materials, and multiferroic materials
- Synchrotron x-ray techniques for characterizing and imaging nanomaterials

Grants and Honors

Rachel C. Hale Professor in the Sciences and Mathematics (2023-current)

NSF ExpandQISE- 2427091 (2024-2029), $5,000,000 (PI)
"Track 2: Research and Education Center for Quantum Materials and Sensing at a Women's College"

NSF DMR- 2242796 (2023-2026), $504,816 with $130,000 to Bryn Mawr College (co-PI)
"Magnetism, Spin Texture and Magnetotransport Phenomena in Covalent 2D Magnets"

NSF MRI, ENG-CBET-2018852 (2020-2023), $523,333 (co-PI)
"MRI: Acquisition of a Confocal Raman Microscope System for Nano-Bio-Chemical-Thermal Research"

NSF DMR-1708790 (2017-2022), $350,850 (PI)
"Collaborative Research: The effects of Dzyaloshinskii Moriya interactions on magnetization dynamics in layered thin films"

NSF STC, CMMI-1548571 (2016-2026), $478,098 (sub-awardee)
"Science and Technology Center for Engineering Mechano-Biology"

NSF MRI, DMR-1428500 (2014-2017), $412,106 (co-PI)
"MRI: Acquisition of Atomic Layer Deposition Device for Nanoscale Materials Development Research"

NSF DMR-1207085 (2012-2016), $92,374 (PI)
"Collaborative Research: Hollow Nanoparticle Synthesis – Templating Electrochemically Evolved Hydrogen Nanobubbles"

NSF MRI, DMR-1126656 (2011-2013), $239,550 (PI)
"MRI: Acquisition of a UHV multi-source sputtering system for multidisciplinary material research"

NSF **CAREER**, DMR-1053854 (2011-2017), $500,000
"CAREER: Magnetic bubble dynamics in nanodisks with perpendicular magnetic anisotropy"

APS Professional Skills Development Workshop Travel Grant (2009)

NSF-funded Women in Science Workshop Travel Grant (2005)

APS Opportunities in Biology Conference Travel Grant (2004)

Rowland Prize for Innovation and Excellence in Teaching (2001)

Motorola Fellowship for Excellence in Research (1999)

Guanghua Scholarship for Excellence in Research (1999, 1998)

Chien-Shiung Wu & Luke Chia-Liu Yuan Scholarship (1995)

Overview of Professional Activities

Research Accomplishments:
77 publications in refereed journals, such as *Science, Nature Physics, Reports on Progress in Physics, Physical Review Letters, Nano Letters, Advanced Materials, Physical Review B, and Applied Physics Letters*. h-index 28 and citations 5253 (based on Google Scholar as of 1/7/2025)
2 patents
35 invited talks and 68 contributed conference presentations

Service to the Department
Research mentor: 47 undergraduate students, 7 graduate students, and 3 postdoctoral fellows
Chair of the Physics Department (2016-2018, 2020-2021)
Director of Graduate Studies in Physics, Bryn Mawr College (2010-12, 2013-14, 2018-2019)
Web steward for multiple years

Service to the College
Dean of Graduate Studies (2021-present)
STEMLA faculty mentor (2022-present)
Committee on the Undergraduate Curriculum, (2018-2020)
Committee on Nominations (Spring 2021)
Graduate Council, Bryn Mawr College, (2011-2014, 2018-2019)

Service beyond the College
Elected Board Member, the Advanced Laboratory Physics Association (ALPhA) (2018-2020)
Elected Users' Executive Committee Member, the Center for Nanoscale Materials, Argonne National Laboratory (2017-2020)

Elected Steering Committee Member, the Advanced Photon Source Users Organization, Argonne National Laboratory (2014-2017)
Co-organizer, 2018 AALAC Workshop "Digital fabrication and making at Liberal Arts Colleges", Wellesley College
Session Chair, APS March Meeting (2018, 2017, 2014), MMM (2016)
Session Chair, Joint MMM/Intermag (2024)
Panelist and Reviewer for NSF, DOE, and AAAS since 2011
Reviewer for journals: Physical Review Letters, Physical Review Applied, Applied Physics Letters, Scientific Reports, Journal of Applied Physics, Journal of Magnetism and Magnetic Materials, Applied Surface Science, Journal of Electroanalytical Chemistry, Journal of Physics and Chemistry of Solids
Reviewer for general user proposals for the Center for Nanoscale Materials of Argonne National Laboratory (2016-present)
Textbook Reviewer for Cambridge University Press
Co-organizer for "BRYN UP", a science education program with a mission of bringing science to young people through the BRYN UP YouTube channel, as well as class visits to local middle schools. (2020-current)
Organizer for an educational outreach exhibit for the Philadelphia "Science in the Park" with Bryn Mawr graduate and undergraduate students involved (Clark Park, April 2019)
Organizer for an educational outreach exhibit booth in the Philadelphia "Science Carnival" with Bryn Mawr undergraduate students involved (Penn's Landing, April 2017)
Invited speaker for "Physics Wonder Girls Camp" organized for Philadelphia middle school girls (2016)
Workshop Leader for "Extend Your Horizon" and "Catalyst" for Philadelphia middle school girls (2010-13)
Member, American Physical Society (APS), American Association of Physics Teachers (AAPT)

Teaching Experience

Bryn Mawr College
Phys 101-2: Introductory Physics for non-majors I (Fall 2016)
Phys 102-1 Introductory Physics II for postbaccalaureate premedical students (Spring 2014, Spring 2012)
Phys 102-2: Introductory Physics for non-majors (Spring 2011)
Introductory Physics Laboratory (Spring 2012, Fall 2011, Fall 2014, Spring 2015, Spring 2018, Fall 2020)
Phys 105: Design and Making for All (Fall 2018)
Phys 121: Modern Physics (Fall 2024)
Phys 121Lab: Modern Physics Laboratory (Fall 2016, Fall 2017, Fall 2018, Fall 2019)
Phys 122: Introductory Classical Mechanics (Spring 2010, Spring 2019, Spring 2022, Spring 2023, Spring 2024)
Phys 201: Electromagnetism (Fall 2013, Fall 2011, Fall 2010, Fall 2009)
Phys 201Lab: Analog and Digital Electronics (Fall 2011)
Phys 214Lab: Modern Physics Laboratory (Spring 2012, Spring 2011, Spring 2010, Spring 2015)
Phys 306: Mathematical Methods for Physical Sciences (Fall 2010, Fall 2014, Fall 2019, Fall 2020)
Phys 308: Advanced Classical Mechanics (Fall 2009)
Phys 322/522: Solid State Physics (Fall 2013, Spring 2018)
Phys 331: Advanced Experimental Physics (Spring 2015, Spring 2017, Spring 2019, Spring 2021)
Phys 398/399: Physics Senior Seminar (Spring 2014, Fall 2017, Fall 2019-2021, Fall 2023-2024)
Phys 403: Supervised Research (Fall 2009-Spring 2022)
Phys 507: Graduate Statistical Mechanics (Fall 2017)
Phys 701: Supervised Graduate Work (Fall 2012-Spring 2025)

Johns Hopkins University
Nanostructured Magnetic Materials (Winter 2006)

Patents

"Magneto-Patterned-Cell-Laden Hydrogel Materials and Methods of Making and Using Same"

Hannah M. Zlotznick, Adrew T. Clark, Robert L. Mauck, and Xuemei Cheng, (Patent #: US 12138366)

"Spin Memory Encryption"
Xuemei Cheng, Kristen Buchanan, and Xiao Wang (Application #: US 17/579,048)

Peer-Reviewed Journal Publications

(77 published, * for correspondence author and # for Bryn Mawr students)

77. Liang Zhao, Lingyi Bi, Jiayue Hu, Guanhui Gao, Danzhen Zhang, Yun Li, Aidan Flynn, Teng Zhang, Ruocun Wang, **Xuemei M Cheng**, Ling Liu, Yury Gogotsi, Bo Li
"Universal salt-assisted assembly of MXene from suspension on polymer substrates"
Nat Commun 15, 10027 (2024). https://doi.org/10.1038/s41467-024-53840-y

76. R. J. Warzoha, A. A. Wilson, B. F. Donovan, **A. Clark**[#], **X. M. Cheng**, L. An, and G. Feng
"Measurements of Thermal Resistance Across Buried Interfaces with Frequency-Domain Thermoreflectance and Microscale Confinement"
ACS Appl. Mater. Interfaces (2024). https://doi.org/10.1021/acsami.4c05258

75. C. Mellinger, **X. Wang**[#], A. Subedi, **A. T. Clark**[#], T. Komesu, R. Rosenberg, P. A. Dowben, **X. M. Cheng**, and X. Xu
"Interfacial and Surface Magnetism in Epitaxial NiCo2O4(001)/MgAl2O4 Films"
Journal of Applied Physics 133, 195301 (2023). https://doi.org/10.1063/5.0152539

74. Y. Wang, Y.-T. Chan, **X. Wang**[#], T. Wang, **X. M. Cheng**, W. Wu, and J. Q. Xiao
"Second-Harmonic Signature of Chiral Spin Structures in W/Pt/Co Heterostructures with Tunable Magnetic Anisotropy"
J. Phys. D: Appl. Phys. **56**, 205002 (2023). https://doi.org/10.1088/1361-6463/acc40f

73. **Andy T. Clark**[#]**, X. Wang**[#]**,** A. R. Stuart, Q. Wang, W. Jiang, J. E. Pearson, S. G. E. te Velthuis, A. Hoffmann**, X. M. Cheng*,** K. S. Buchanan*
"The effects of field history on magnetic skyrmion formation in $[Pt/Co/Ir]_3$ multilayers"
J. Magn. Magn. Mater., 563, 169951 (2022). https://doi.org/10.1016/j.jmmm.2022.169951

72. **Xiao Wang**[#], Alexandra R. Stuart, Mitchell S. Swyt, Carla M. Quispe Flores, **Andy T. Clark**[#], **Adzo Fiagbenu**[#], Rajesh V. Chopdekar, Pavel N. Lapa, Zhuyun Xiao, Dava Keavney, Richard Rosenberg, Michael Vogel, John E. Pearson, Suzanne G. E. te Velthuis, Axel Hoffmann, Kristen S. Buchanan*, and **Xuemei M. Cheng***
"Topological spin memory of antiferromagnetically coupled skyrmion pairs in Co/Gd/Pt multilayers"
Phys. Rev. Materials 6, 084412 (2022). (Editor's suggestion)
https://doi.org/10.1103/PhysRevMaterials.6.084412

71. Xuanyuan Jiang, **Xiao Wang**[#], Pratyush Buragohain, **Andy T. Clark**[#], Haidong Lu, Shashi Poddar, **Le Yu**[#], Anthony D. DiChiara, Alexei Gruverman, **Xuemei Cheng**, and Xiaoshan Xu
"Persistent opto-ferroelectric responses in molecular ferroelectrics"
Phys. Rev. Materials 6, 074412 (2022). https://doi.org/10.1103/PhysRevMaterials.6.074412

70. **Andy T Clark**[#], David Marchfield, Zheng Cao, **Tong Dang**[#], Nan Tang, Dustin Gilbert, Elise A. Corbin, Kristen S. Buchanan, and **Xuemei M. Cheng***
"The effect of polymer stiffness on magnetization reversal of magnetorheological elastomers"
APL Materials 10, 041106 (2022). https://doi.org/10.1063/5.0086761

69. Mengying Bian, Liang Zhu, **Xiao Wang**[#], Junho Choi, Rajesh V. Chopdekar, Sichen Wei, Lishu Wu, Chang Huai, Austin Marga, Qishuo Yang, Yuguang C. Li, Fei Yao, Ting Yu, Scott A. Crooker, **Xuemei M. Cheng**, Renat F. Sabirianov, Shengbai Zhang, Junhao Lin, Yanglong Hou, and Hao Zeng
"Dative Epitaxy of Commensurate Monocrystalline Covalent van der Waals Moire Supercrystal"

Advanced Materials, 34 (17), 2200117, (2022). https://doi.org/10.1002/adma.202200117

68. **Andy T Clark**[#], Alexander Bennett, Emile Kraus, Katarzyna Pogoda, Andrejs Cēbers, Paul Janmey, Kevin T Turner, Elise A Corbin, **Xuemei Cheng**
"Magnetic field tuning of mechanical properties of ultrasoft PDMS-based magnetorheological elastomers for biological applications"
Multifunct. Mater. 4, 035001, (2021). https://doi.org/10.1088/2399-7532/ac1b7e

67. Yang Wang, **XiaoWang**[#], **Andy T. Clark**[#], Hang Chen, **Xuemei M. Cheng**, John W. Freeland, and John Q. Xiao
"Probing exchange bias at the surface of a doped ferrimagnetic insulator"
Physics Review Materials, 5, 074409, (2021). https://doi.org/10.1103/PhysRevMaterials.5.074409

66. Kiet A. Tran, Emile Kraus, **Andy T. Clark**[#], Alex Bennett, Katarzyna Pogoda, **Xuemei Cheng**, Andrejs Cēbers, Paul A. Janmey, and Peter A. Galie
"Dynamic Tuning of Viscoelastic Hydrogels with Carbonyl Iron Microparticles Reveals the Rapid Response of Cells to Three-Dimensional Substrate Mechanics"
ACS Appl. Mater. Interfaces 13, 18, 20947, (2021). https://doi.org/10.1021/acsami.0c21868

65. Hannah M. Zlotnick, **Andy T. Clark**[#], Sarah E. Gullbrand, James L. Carey, **Xuemei M. Cheng**, Robert L. Mauck
"Magneto-Driven Gradients of Diamagnetic Objects for Engineering Complex Tissues"
Advanced Materials, (cover) 32, 48, 2005030, (2020). https://doi.org/10.1002/adma.202005030

64. Binquan Luan, Tien Huynh, **Xuemei Cheng**, Ganhui Lan, and Hao-Ran Wang
"Targeting Proteases for Treating COVID-19"
J. Proteome Res. 19, 11, 4316 (2020). https://doi.org/10.1021/acs.jproteome.0c00430

63. Dong Zhou, Ji Hao, **Andy Clark**[#], Kyung Hoon Kim, Long Zhu, Jun Liu, **Xuemei Cheng**, and Bo Li
"Sono-assisted surface energy driven assembly of 2D materials on flexible polymer substrates: A green assembly method using water"
ACS Appl. Mater. Interfaces, 11, 33458 (2019). https://doi.org/10.1021/acsami.9b10469

62. Elise Corbin, Alexia Vite, Eliot G Peyster, Myan Bhoopalam, Jeffrey Brandimarto, Xiao Wang, Alexander I Bennett, **Andy T Clark**[#], **Xuemei Cheng**, Kevin T. Turner, Kiran Musunuru, and Kenneth Margulies
"Tunable and Reversible Substrate Stiffness Reveals Dynamic Mechanosensitivity of Cardiomyocytes"
ACS Appl. Mater. Interfaces, 11, 20603 (2019). https://doi.org/10.1021/acsami.9b02446

61. Xuanyuan Jiang, Guanhua Hao, **Xiao Wang**[#], Aaron Mosey, Xin Zhang, **Le Yu**[#], Andrew J Yost, Xin Zhang, Anthony D DiChiara, Alpha T N'Diaye, **Xuemei Cheng**, Jian Zhang, Ruihua Cheng, Xiaoshan Xu and Peter A Dowben
"Tunable spin-state bistability in a spin crossover molecular complex"
J. Phys. Condens. Matter 31, 315401 (2019). https://doi.org/10.1088/1361-648X/ab1a7d

60. Wanjun Jiang, Sheng Zhang, **Xiao Wang**[#], Charudatta Phatak, Qiang Wang, Wei Zhang, Matthias Benjamin Jungfleisch, John E. Pearson, Yizhou Liu, Jiadong Zang, **Xuemei Cheng**, Amanda Petford-Long, Axel Hoffmann, and Suzanne G. E. te Velthuis
"Quantifying chiral exchange interaction for Néel-type skyrmions via Lorentz transmission electron microscopy"
Phys. Rev. B 99, 104402 (2019). https://doi.org/10.1103/PhysRevB.99.104402

59. Kishan Sinha, Haohan Wang, **Xiao Wang**[#], Liying Zhou, Yuewei Yin, Wenbin Wang, **Xuemei Cheng**, David J. Keavney, Huibo Cao, Yaohua Liu, Xifan Wu, and Xiaoshan Xu
"Tuning the Néel Temperature of Hexagonal Ferrites by Structural Distortion"
Phys. Rev. Lett. 121, 237203 (2018). https://doi.org/10.1103/PhysRevLett.121.237203

58. Wanjun Jiang, Xichao Zhang, Guoqiang Yu, Wei Zhang, **Xiao Wang**[#], Matthias Jungfleisch, **Xuemei Cheng**, John Pearson, Olle Heinonen, Kang L. Wang, Yan Zhou, Axel Hoffmann, and Suzanne te Velthuis
"Direct Observation of the Skyrmion Hall Effect"
Nature Physics, 13, 162 (2017). https://doi.org/10.1038/NPHYS3883

57. Shi Cao, Kishan Sinha, Xin Zhang, Xiaozhe Zhang, **Xiao Wang**[#], Yuewei Yin, Alpha T. N'Diaye, Jian Wang, David J. Keavney, Tula R. Paudel, Yaohua Liu, **Xuemei Cheng**, Evgeny Y. Tsymbal, Peter A. Dowben, and Xiaoshan Xu
"Electronic structure and direct observation of ferrimagnetism in multiferroic hexagonal $YbFeO_3$"
Phys. Rev. B 95, 224428 (2017). https://doi.org/10.1103/PhysRevB.95.224428

56. Ty Newhouse-Illige, Yaohua Liu, Meng Xu, Danielle Reifsnyder Hickey, Anirban Kundu, Hamid Almasi, Chong Bi, **Xiao Wang**[#], John Freeland, David Keavney, Chenjun Sun, Yiheng Xu, Marcus Rosales, **Xuemei Cheng**, Shufeng Zhang, K. Andre Mkhoyan, and Weigang Wang
" Voltage controlled interlayer coupling in perpendicularly magnetized magnetic tunnel junctions "
Nature Communications, 8, 15232 (2017). https://doi.org/10.1038/ncomms15232

55. Kishan Sinha, Yubo Zhang, Xuanyuan Jiang, Hongwei Wang, **Xiao Wang**[#], Xiaozhe Zhang, Philip J. Ryan, Jong-Woo Kim, John Bowlan, Dmitry A Yarotski, Yuelin Li, Anthony D. DiChiara, **Xuemei Cheng**, Xifan Wu, Xiaoshan Xu
" Effects of biaxial strain on the improper multiferroicity in h-LuFeO3 films studied using the restrained thermal expansion method "
Phys. Rev. B, 95, 094110 (2017). https://doi.org/10.1103/PhysRevB.95.094110

54. **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, **X. M. Cheng***
" Magnetization Reversal of Nickel Three-Dimensional Anti-sphere Arrays "
IEEE Magnetic Letters, 8, 1 (2017). https://doi.org/10.1109/LMAG.2016.2616325

53. **Le Yu**[#]**, Zhongying Yan**[#]**,** Zhonghou Cai, Dongtang Zhang, Ping Han, **Xuemei Cheng***, and Yugang Sun*
" Quantitatively in Situ Imaging Silver Nanowire Hollowing Kinetics "
Nano Letters, 16(10), 6555 (2016). https://doi.org/10.1021/acs.nanolett.6b03218

52. Li Ma, Heng-An Zhou, Lei Wang, Xiao-Long Fan, Wei-Jia Fan, De-Sheng Xue, Ke Xia, Zhe Wang, Ru-Qian Wu, Guang-Yu Guo, Li Sun, **Xiao Wang**[#], **Xue-Mei Cheng** and Shi-Ming Zhou
" Spin Orbit Coupling Controlled Spin Pumping and Spin Hall Magnetoresistance Effects "
Advanced Electronic Materials, 2, 1 (2016). https://doi.org/10.1002/aelm.201600112

51. Xuanyuan Jiang, Haidong Lu, Yuewei Yin, Xiaozhe Zhang, **Xiao Wang**[#], **Le Yu**[#], Z. Ahmadi, P. Costa, Anthony D. DiChiara, **Xuemei Cheng**, A. Gruverman, A. Enders, Xiaoshan Xu
" Room Temperature Ferroelectricity in Continuous Croconic Acid Thin Films"
Appl. Phys. Lett. 109, 102902 (2016). https://doi.org/10.1063/1.4962278

50. Daniel J. Magagnsoc, Gang Feng, **Le Yu**[#], **Xuemei Cheng**, Daniel S. Gianola
"Isochemical Control over Structural State and Mechanical Properties in Pd-based Metallic Glass by Sputter Deposition at Elevated Temperatures"
APL Mater. 4, 086104 (2016). https://doi.org/10.1063/1.4960388

49. Gyuseok Kim, **Xuzhao Chai**[#], **Le Yu**[#], **Xuemei Cheng**, Daniel S. Gianola
" Interplay between grain boundary segregation and electrical resistivity in dilute nanocrystalline Cu alloys "
Scripta Materialia, 123, 113, (2016). https://doi.org/10.1016/j.scriptamat.2016.06.008

48. Shi Cao, Xiaozhe Zhang, Tula R Paudel, Kishan Sinha, **Xiao Wang**[#], Xuanyuan Jiang, Wenbin Wang, Stuart Brutsche, Jian Wang, Phillip J Ryan, Jong-Woo Kim, **Xuemei Cheng**, Evgeny Y Tsymbal, Peter A Dowben, Xiaoshan Xu

"On the structural origin of the single-ion magnetic anisotropy in $LuFeO_3$"
Journal of Physics: Condensed Matter 28, 156001 (2016). http://dx.doi.org/10.1088/0953-8984/28/15/156001

47. Di Zhang, Lei Zhang, Daeyeon Lee, **Xuemei Cheng**, Gang Feng
"Reinforcing nanocolloidal crystals by tuning interparticle bonding via atomic layer deposition"
Acta Materialia, 95, 216-223 (2015). https://doi.org/10.1016/j.actamat.2015.05.039

46. D. Zhang, L. Zhang, **X. M. Cheng**, D. Lee, and G. Feng
"Suppressing unstable deformation of nanocolloidal crystals with atomic layer deposition"
Mater. Sci. Eng. A, 639, 514 (2015). https://doi.org/10.1016/j.msea.2015.04.061

45. Martin Asmat-Uceda, **Xuemei Cheng**, **Xiao Wang**[#], David Clarke, Oleg Tchernyshyov, and Kristen S. Buchanan
"A comparison of numerical simulations and analytical theory of the dynamics of interacting magnetic vortices "
Journal of Applied Physics, 117, 123916 (2015). http://dx.doi.org/10.1063/1.4916610

44. **Xiao Wang**[#], D. J. Keavney, M. Asmat, K. Buchanan, A. Melikyan, and **X. M. Cheng***
"Time-resolved photoemission electron microscopy imaging of mode coupling between three interacting magnetic vortices "
Appl. Phys. Lett. 105, 102408 (2014). https://doi.org/10.1063/1.4895070

43. Hongwei Wang, Igor V. Solovyev, Wenbin Wang, **Xiao Wang**[#], Philip J. Ryan, David J. Keavney, Jong-Woo Kim, Thomas Z. Ward, Leyi Zhu, Jian Shen, **X. M. Cheng**, Lixin He, Xiaoshan Xu, and Xifan Wu
"Structural and electronic origin of the magnetic structures in hexagonal $LuFeO_3$"
Phys. Rev. B, 90, 014436 (2014). https://doi.org/10.1103/PhysRevB.90.014436

42. E. J. Moon, P. V Balachandran, B. J. Kirby, D. J. Keavney, R. J. Sichel-Tissot, C. M. Schlep¨utz, E. Karapetrova, **X. M. Cheng**, J. M. Rondinelli, and S. J. May
"Effect of interfacial octahedral behavior in ultrathin manganite films"
Nano Letters, 14, 2509, (2014). https://doi.org/10.1021/nl500235f

41. Lisa Y. Chen, **Soraya Terrab**[#], Kathryn F. Murphy, John P. Sullivan, **Xuemei Cheng**, and Daniel S. Gianola
"Temperatuer controlled tensile testing of individual nanowires"
Review of Scientific Instruments, 85, 013901 (2014). https://doi.org/10.1063/1.4858815

40. Wenbin Wang, Jun Zhao, Wenbo Wang, Zheng Gai, Nina Balke, Miaofang Chi, Ho Nyung Lee, Wei Tian, Leyi Zhu, **Xuemei Cheng**, David J. Keavney, Jieyu Yi, Thomas Z. Ward, Paul C. Snijders, Hans M. Christen, Weida Wu, Jian Shen, and Xiaoshan Xu
"Room-Temperature Multiferroic Hexagonal LuFeO3 Films"
Phys. Rev. Lett. 110, 237601 (2013). https://doi.org/10.1103/PhysRevLett.110.237601

39. Y. M. Lu, Y. Choi, C. M. Ortega, **X. M. Cheng**, J. W. Cai, S. Y. Huang, L. Sun, and C. L. Chien
"Pt Magnetic Polarization on Y3Fe5O12 and Magnetotransport Characteristics"
Phys. Rev. Lett., 110,147207 (2013). https://doi.org/10.1103/PhysRevLett.110.147207

38. Marta Z. Cieplak, Z. Adamus, M. Konczykowski, L. Y. Zhu, **X. M. Cheng**, and C. L. Chien
"Tuning vortex confinement by magnetic domains in a superconductor/ferromagnet bilayer"
Phys. Rev. B, 87, 014519 (2013). https://doi.org/10.1103/PhysRevB.87.014519

37. Wenbin Wang, Hongwei Wang,Xiaoying Xu, Leyi Zhu, Lixin He, **Elizabeth Wills**[#], **Xuemei Cheng**, David J. Keavney, Jian Shen, Xifan Wu, and Xiaoshan Xu
"Crystal field splitting and optical bandgap of hexagonal $LuFeO_3$ films"
Appl. Phys. Lett. 101, 241907 (2012). https://doi.org/10.1063/1.4771601

36. **X. M. Cheng** and D. J. Keavney

"Studies of nanomagnetism using synchrotron-based x-ray photoemission electron microscopy"
Reports on Progress in Physics, 75, 026501 (2012) (**Invited Review Paper**). https://doi.org/10.1088/0034-4885/75/2/026501

35. Wenbin Wang, Zheng Gai, Miaofang Chi, Jason D. Fowlkes, Jieyu Yi, Leyi Zhu, **Xuemei Cheng**, David J. Keavney, Paul C. Snijders, Thomas Z. Ward, Jian Shen, and Xiaoshan Xu
"Growth diagram and magnetic properties of hexagonal $LuFe_2O_4$ thin films"
Phys. Rev. B. 85, 155411 (2012). https://doi.org/10.1103/PhysRevB.85.155411

34. Ling Fei, Leyi Zhu, **Xuemei Cheng***, Haiyan Wang, Stacy M. Baber, Joshua Hill, Qianglu Lin, Yun Xu, Shuguang Deng, Hongmei Luo*
"Structure and magnetotransport properties of epitaxial nanocomposite $La_{0.67}Ca_{0.33}MnO_3$:$SrTiO_3$ thin films grown by a chemical solution approach"
Appl. Phys. Lett. 100, 082403 (2012). https://doi.org/10.1063/1.3688048

33. **X. M. Cheng**, K. S. Buchanan, R. Divan, K.Y. Guslienko and D. J. Keavney
"Nonlinear vortex dynamics and transient domains in ferromagnetic disks "
Phys. Rev. B, 79, 172411 (2009). https://doi.org/10.1103/PhysRevB.79.172411

32. D. J. Keavney, **X. M. Cheng***, and K. S. Buchanan
"Polarity reversal of a magnetic vortex core by a unipolar, nonresonant in-plane pulsed magnetic field"
Appl. Phys. Lett. 94, 172506 (2009). https://doi.org/10.1063/1.3111430

31. D. S. Gianola, C. Eberl, **X. M. Cheng**, and K. J. Hemker
"Stress-driven surface topography evolution in nanocrystalline Al thin films"
Advanced Materials, 20, 303 (2008). https://doi.org/10.1002/adma.200701607

30. Y. L. Iunin, Y. P. Kabanov, V. I. Nikitenko, **X. M. Cheng**, C. L. Chien, A. J. Shapiro, and R. D. Shull
"Magnetic field dependence of asymmetry in the magnetization reversal of ultrathin Co films and Co/Pt multilayers with perpendicular anisotropy "
Journal of magnetism and magnetic materials, **320**, 2044 (2008). https://doi.org/10.1016/j.jmmm.2008.02.186

29. Y. L. Iunin, Y. P. Kabanov, V. I. Nikitenko, **X. M. Cheng**, A. J. Shapiro, C. L. Chien, and R. D. Shull, "On the nature of asymmetry of nucleation centers in ultrathin Co films and Co/Pt multilayers"
Functional Materials 15, 51 (2008). http://dspace.nbuv.gov.ua/handle/123456789/137227

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Presentations (35 invited talks and 64 contributed conference presentations with Bryn Mawr authors bolded and presenter marked by *)

Invited Talks:

35. "Magnetic skyrmions for data storage and quantum computing"
Physics Colloquium, Villanova University, November 4, 2024

34. "Magnetic skyrmions for data storage and quantum computing"

Physics Colloquium, Denison University, November 4, 2024

33. "Topological spin memory of antiferromagnetically-coupled skyrmions"
Physics Colloquium, The Hong Kong University of Science and Technology, June 19, 2024

32. "Topological spin memory of antiferromagnetically-coupled skyrmion pairs"
2023 IEEE International Magnetic Conference (Intermag), Sendai, Japan, May 16, 2023

31. "Topological spin memory of antiferromagnetically-coupled skyrmion pairs"
Physics Colloquium, Drexel University, June 2, 2022

30. "Topological spin memory across a spin reorientation transition"
Physics Colloquium, Kenyon College, April 15, 2022

29. "Nanomaterials and Spintronics"
Invited lecture for Kuang Yaming Honors School, Nanjing University, August 23, 2020

28. "Nanomagnetic Materials: Fabrication, Characterization, and Application"
Invited lecture for Kuang Yaming Honors School, Nanjing University, August 25, 2020

27. "Magnetic Nanostructures for Data Storage and Biomedical Applications"
Physics Seminar, Bard College, May 2018.

26. "Room Temperature Magnetic Skyrmions in Multilayers with Interfacial Dzyaloshinskii-Moriya Interaction"
NCMN Seminar, University of Nebraska Lincoln, Jan. 2018.

25. "Magnetic skyrmions: a topological phase"
Kuang Yaming Honors School, Nanjing University, Dec. 2017.

24. "Room-temperature magnetic skyrmions in multilayers"
Condensed Matter Seminar, Shandong University, Dec. 2017.

23. "Fabrication, characterization and simulation of magnetic-vortex microdiscs for biological applications"
3rd International Symposium on Mechanobiology, Dec. 2017 Singapore.

22. "Room-temperature magnetic skyrmions in multilayers with perpendicular magnetic anisotropy"
Physics Colloquium, Amherst College, Oct. 17, 2017

21. "Tuning Magnetic Skyrmions in Multilayers with Perpendicular Magnetic Anisotropy"
Condensed Matter Seminar, National Taiwan University, June 29, 2017.

20. " Time-resolved XMCD-PEEM imaging: vortex dynamics in magnetic disks"
Condensed Matter Seminar, National Taiwan University, June 29, 2017.

19. "Room-temperature magnetic skyrmions in multilayers"
CAMP Seminar, Penn State University, April 4, 2017.

18. "Room-temperature magnetic skyrmions in multilayers"
2016 Mid-Atlantic Section meeting of American Physical Society, October 2016, University of Delaware.

17. "Probing Nanomagnetism using Synchrotron X-ray based Imaging"
Physics Colloquium, Saint Joseph University, September 30, 2015.

16. "Probing Nanomagnetism using Synchrotron X-ray based Imaging"
Physics Colloquium, Dickinson College, September 24, 2015.

15. "Nanomagnetic Materials: Fabrication, Characterization, and Application"
Summer school of Nanjing University Kuang Yaming Honors School, July 2014, Nanjing, China

14. "Time-resolved imaging of vortex dynamics in magnetic disks"
Physics Colloquium, Rowan University, April 25, 2014.

13. "Time-resolved PEEM imaging of Magnetic Vortex Dynamics"
Institute of Physics Chinese Academy of Sciences, August 12, 2013, Beijing, China.

12. "Imaging spin dynamics in magnetic nanostructures"
Physics Colloquium, Villanova University, November 30, 2012.

11. "Imaging spin dynamics in magnetic nanostructures"
Physics Colloquium, Nanjing Normal University, June 25, 2012, Nanjing, China.

10. "Imaging spin dynamics in magnetic nanostructures"
Physics Colloquium, Fudan University, June 21, 2012, Shanghai, China.

9. "Imaging spin dynamics in magnetic nanostructures"
Physics Colloquium, Shanghai Jiaotong University, June 19, 2012, Shanghai, China.

8. "Imaging spin dynamics in magnetic nanostructures"
Physics Colloquium, Nanjing University, June 11, 2012, Nanjing, China.

7. "Imaging spin dynamics in magnetic nanostructures"
Physics Colloquium, Central China Normal University, May 22, 2012, Wuhan, China.

6. "Imaging of spin dynamics in magnetic nanostructures"
Condensed Matter Physics seminar, August 11, 2011, Colorado State University.

5. "Time-resolved PEEM studies of nonlinear vortex dynamics"
X. M. Cheng* and D. J. Keavney, IEEE International Magnetics Conference, April 25-29, 2011, Taipei, Taiwan.

4. "Spin dynamics in magnetic nanostructures"
Mechanical Engineering Department seminar, September 30, 2010, Villanova University.

3. " Vortex dynamics in an equilateral triangular arrangement of three magnetic disks"
Argonne National Laboratory, Advanced Photon Source User Seminar, October 15, 2010, Argonne, IL.

2. "Spin dynamics in magnetic nanostructures"
Condensed Matter Seminar, Feb. 18, 2010, University of Connecticut.

1."Capturing spin dancing in magnetic nanostructures"
Condensed Matter Seminar, Feb. 2009, Johns Hopkins University.

Contributed Conference Presentations:

68. **Yiling Hou***, **Eva K. Carmona-Rogina**, Kristen S. Buchanan, and **Xuemei M Cheng**
"Micromagnetic Simulations of Field-Driven Antiferromagnetically Coupled Skyrmions Pairs"
2024 Annual Meeting of the APS Mid-Atlantic Section, Philadelphia, PA.

67. **Eva K. Carmona-Rogina***, **Andy T Clark**, Kristen S. Buchanan, and **Xuemei M Cheng**
"Micromagnetic Simulations of Antiferromagnetically Coupled Bubble Skyrmions"
2024 American Physical Society March Meeting, Minneapolis, MN.

66. **Yingxiao Liao***, **Andy T Clark**, **Monica A Scotto**, **Adam P Williamson**, and **X. M. Cheng**
"Fabrication and Characterization of Gold Microdisks for Cancer Treatment"
2024 American Physical Society March Meeting, Minneapolis, MN.

65. **Yuqi Zhang***, **Andy T Clark**, Mitchell Swyt, Kristen S. Buchanan, and **X. M. Cheng**
"Deposition of Pt/Co/Ir Multilayer Films with Interfacial Dzyaloshinskii-Moriya Interactions"
2023 American Physical Society March Meeting, Las Vegas, NV.

64. **Xiao Wang***, Yongseong Choi, Andy T. Clark, Jie Li, **Ardzo Fiagbenu**, Kristen S Buchanan, Ruqian Wu, and **Xuemei Cheng**
"Proximity-induced magnetic moments in Pt by Co and Gd in $[Co/Gd/Pt]_n$ multilayers"
2022 American Physical Society March Meeting, Chicago, IL.

63. Mengying Bian, Liang Zhu, **Xiao Wang**, Junho Choi, Rajesh V Chopdekar, Sichen Wei, Lishu Wu, Chang

Huai, Austin Marga, Fei Yao, Ting Yu, Scott A Crooker, **Xuemei Cheng**, Renat Sabirianov, Junhao Lin, Yanglong Hou and Hao Zeng
"Cr_5Te_8/WSe_2 heterostructures by van der Waals epitaxy"
2022 American Physical Society March Meeting, Chicago, IL.

62. Corbyn D Mellinger, **Xiao Wang**, Richard Rosenberg, **Xuemei Cheng**, Xiaoshan Xu
"Interfacial Magnetization in Ultrathin NiCo2O4 Thin Films"
2022 American Physical Society March Meeting, Chicago, IL.

61. Ronald J. Warzoha, Adam A. Wilson, Brian F. Donovan, **Andy Clark**, **Xuemei Cheng**, Lu An, Ezra Lee, Xiaosong Liu, and Gang Feng
"Confined transducer geometries to enhance sensitivity to thermal boundary conductance in frequency-domain thermoreflectance measurements"
ASME 2021 International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK 2021), October 27 - 29, 2021, Virtual Conference, USA.

60. **A.T. Clark***, **X. Wang**, A. Stuart, W. Jiang, S.G. te Velthuis, A. Hoffmann, K. Buchanan, and **X. M. Cheng**
"The Effects of Field History on Magnetic Skyrmion Formation in [Pt/Co/Ir]n Multilayers."
2021 IEEE International Magnetics Virtual Conference, April 26-30, 2021.

59. Corbyn Mellinger, Guanhua Hao, **Xiao Wang, Xuemei Cheng**, Rajesh Chopdekar, and Xiaoshan Xu
"Domain Structure and Wall Dynamics in High-PMA NiCo2O4 Thin Films"
2021 American Physical Society March Meeting, Virtual, March 15-19, 2021.

58. Alexandra R. Stuart, **Xiao Wang**, **Adzo Fiagbenu**, Kristen S. Buchanan, and **Xuemei Cheng**
"Role of interlayer interactions in the recovery of synthetic ferrimagnetic skyrmions in [Co/Gd/Pt]n multilayers after cycling through the spin reorientation transition"
2021 American Physical Society March Meeting, Virtual, March 15-19, 2021.

57. **Mallory Yu***, **Xiao Wang**, **Andy T Clark**, Rajesh Chopdekar, Pavel Lapa, John Pearson,Suzanne G.E. te Velthuis, Axel Hoffmann, and **Xuemei Cheng**
"Fabrication and characterization of ultra-soft PDMS based magnetorheological elastomers"
2021 American Physical Society March Meeting, Virtual, March 15-19, 2021.

56. **A.T. Clark***, **J. Li**, **T. Dang**, E.A. Corbin, D.A. Gilbert, K. Buchanan, X. Jin and **X. M. Cheng**
"Magnetization Reversal of Ultra-soft PDMS-based Magnetorheological Elastomers"
64th Conference on Magnetism and Magnetic Materials, Nov. 2019, Las Vegas, Nevada.

55. **X. Wang***, **A.T. Clark**, P.N. Lapa, R.V. Chopdekar, Z. Xiao, C.M. Quispe Flores, **A. Fiagbenu**, M. Vogel, J. Pearson, K. Buchanan, S.G. te Velthuis, A. Hoffmann and **X.M. Cheng**
"Persistence of chiral domain walls in synthetic ferrimagnetic skyrmions through spin reorientation transition in $[Co/Gd/Pt]_{10}$ multilayers"
64th Conference on Magnetism and Magnetic Materials, Nov. 2019, Las Vegas, Nevada.

54. Hannah Zlotnick, **Andy Clark**, **Xuemei Cheng**, and Robert Mauck
"Engineering spatial gradients of diamagnetic particles and cells in hydrogels using negative magnetophoresis"
Summer Biomechanics, Bioengineering, and Biotransport Conference (SB^3C), June 2019, Seven Springs, PA.

53. **Andy Clark***, **Jiajia Li**, **Lila Hernandez**, **Vidya Ramaswamy**, Elise Corbin, Alexander Bennet, **Xuemei Cheng**
"Fabrication and characterization of ultra-soft PDMS based magnetorheological elastomers"
2019 American Physical Society March Meeting, Boston, Massachusetts.

52. **Zainab Batool***, **Ralitsa Mihaylova***, **Andy Clark**, Josh Javor, **Xuemei Cheng**, David J. Bishop
"Fabrication of Sensitive MEMS-based Magnetometer for Biomagnetic Applications"
2019 American Physical Society March Meeting, Boston, Massachusetts.

51. **Georgia Nelson***, **Meredith Xu**, **Xiao Wang**, **Andy Clark**, David Keavney, Ralu Divan, Dafei Jin, and

Xuemei Cheng
"Magnetic vortex disks for magneto-mechanotransduction"
2019 American Physical Society March Meeting, Boston, Massachusetts.

50. **Baiyi Kong***, **Zhongying Yan**, **Xiao Wang**, **Andy Clark**, Kui-Hon Ou Yang, Minn-Tsong Lin, Yongseong Choi, Axel Hoffmann, Suzanne te Velthuis, **Xuemei Cheng**
"Room Temperature Magnetic Skyrmions in Multilayers with Interfacial Dzyaloshinskii-Moriya Interaction"
2018 American Physical Society March Meeting, Los Angeles, California.

49. **Baiyi Kong***, **Cassie Wang**, **Andy Clark**, **Zhongying Yan,** and **Xuemei Cheng**
"Fabrication and characterization of magnetic-vortex microdiscs for applying force in mechanobiological systems"
2018 American Physical Society March Meeting, Los Angeles, California.

48. **A. Clark***, **L. Yu**, **X. Wang**, **A. Kong**, K. Buchana, A. Hoffmann, S. G. E. te Velthuis, and **X.M. Cheng**
"Micromagnetic simulation study of magnetic skyrmions in multilayers with interfacial Dzyaloshinskii-Moriya interaction"
62th Conference on Magnetism and Magnetic Materials (MMM), Nov. 2017, Pittsburgh, PA.

47. **X. Wang***, **A. Clark**, W. Jiang, S. Zhang, Q. Wang, K. Buchanan, J. E. Pearson, C. Phatak, A. Petford-Long, A. Hoffmann, S. G. E. te Velthuis,and **X.M. Cheng**
"Tuning magnetic skyrmions in multilayers with perpendicular magnetic anisotropy"
61th Conference on Magnetism and Magnetic Materials (MMM), Nov. 2016, New Orleans, Louisiana.

46. W. Jiang, X. Zhang, G. Yu, W. Zhang, **X. Wang**, M. Jungfleisch, J.E. Pearson, **X. M. Cheng**, O. Heninonen, K. L. Wang, Y. Zhou, A. Hoffmann, and S. te Velthuis
"Experimental observation of the Skyrmion Hall Effect"
61th Conference on Magnetism and Magnetic Materials (MMM), Nov. 2016, New Orleans, Louisiana.

45. **Andy Clark***, **Le Yu**, **Cassie Wang**, Kristen Buchanan, **X. M. Cheng**
"Micromagnetic simulated magnetization reversal of nickel three-dimensional anti-sphere arrays"
2016 Mid-Atlantic Section meeting of American Physical Society, October 2016, University of Delaware.

44. **Le Yu**, **Zhongying Yan**, **Bingqing Li**, **Xuzhao Chai**, **Han-chang Yang**, Sina Moeendarbari, Yaowu Hao, Di Zhang, Gang Feng, Ping Han, Dustin A. Gilbert, Kai Liu, **X. M. Cheng***
"Magnetization Reversal of Nickel Three-Dimensional Antidot Arrays "
4th International Conference of Asian Union of Magnetics Societies, August, 2016, Tainan.

43. **Le Yu***, **Zhongying Yan**, Yuxin Wang, Zhonghou Cai, Ping Han, **X. M.Cheng** and Yugang Sun
" In-situ Transmission X-ray Microscopy Study of Photon-induced Oxidation of Silver Nanowires "
2016 Advanced Photon Source Users Meeting, May, 2016, Argonne National Laboratory, IL.

42. **Xiao Wang***, **Zhongying Yan**, **Le Yu**, Sina Moeendarbari, Aaron Chiu, Yaowu Hao, Zhouhou Cai, and **X. M.Cheng**
"Synchrotron x-ray study of Au nanoparticle synthesis"
2016 Advanced Photon Source Users Meeting, May, 2016, Argonne National Laboratory, IL.

41. **Xiao Wang***, Kishan Sinha, Xiaoshan Xu, Yaohua Liu, David Keavney, and **X. M. Cheng**
"X-ray magnetic circular dichroism study of hexagonal YbFeO3 thin films "
2016 American Physical Society March Meeting, Baltimore, Maryland.

40. **Zhongying Yan***, **Xiao Wang**, **Le Yu**, Sina Moeendarbari, Yaowu Hao, Zhonghou Cai, and **X. M. Cheng**
"Study of gold nanoparticle synthesis by synchrotron x-ray diffraction and fluorescence "
2016 American Physical Society March Meeting, Baltimore, Maryland.

39. **Le Yu***, Yugang Sun, Yuxin Wang, Zhonghou Cai, Ping Han, and **X. M.Cheng**
" In-situ transmission x-ray microscopy study of photon-induced oxidation of silver nanowires"
2016 American Physical Society March Meeting, Baltimore, Maryland.

38. **Xiao Wang***, Yaohua Liu, **Zhuyun Xiao**, Xiaoshan Xu, Kishan Sinha, Wenbin Wang, Jian Shen, David

Keavney, and **X. M. Cheng**
"Magnetic exchange interaction between Fe3+ and R3+ ions in hexagonal RFeO3 (R = Ho, Yb) thin films "
2016 Joint MMM/InterMag, January, 2016, San Diego, California.

37. **Xiao Wang***, Yaohua Liu, **Zhuyun Xiao**, Xiaoshan Xu, Wenbin Wang, Jian Shen, David Keavney, and **X. M. Cheng**
"Magnetic exchange interaction between Fe^{3+} and Ho^{3+} ions in hexagonal $HoFeO_3$ thin films "
2015 Advanced Photon Source Users Meeting, May, 2015, Argonne National Laboratory, IL. (**Student Poster Winner**)

36. Kishan Sinha , Xuanyuan Jiang , **Xiao Wang** , Anthony DiChiara , **Xuemei Cheng** , Yuelin Li , Xiaoshan Xu
"Time-resolved x-ray diffraction study of photoinduced strains in h-$LuFeO_3$ thin film"
2015 American Physical Society March Meeting, San Antonio, Texas.

35. **Xiao Wang***, Yaohua Liu, **Zhuyun Xiao**, Xiaoshan Xu, Wenbin Wang, Jian Shen, David Keavney, and **X. M. Cheng**
"X-ray magnetic circular dichroism study of hexagonal $HoFeO_3$ thin film"
59th Conference on Magnetism and Magnetic Materials (MMM), Nov. 2014, Honolulu, Hawaii.

34. **Alena Klindziuk***, **Xiao Wang**, Y. Choi, C.M. Ortega, L. Sun, J. W. Cai, **X. M. Cheng**
"X-ray magnetic linear dichrosim study of Pt/CoO bilayers"
Conference for Undergraduate Women in Physical Sciences, Nov. 2014, University of Nebraska–Lincoln.

33. **Yilun Tang***, **Alena Klindziuk**, **Leqi Liu**, **Xuzhao Chai**, **Xiao Wang**, **Zhuyun Xiao**, **Le Yu**, and **X. M. Cheng**
"Fabrication of magnetic disks with perpendicular magnetic anisotropy"
Conference for Undergraduate Women in Physical Sciences, Nov. 2014, University of Nebraska–Lincoln.

32. **Zhuyun Xiao***, **Xiao Wang**, Xiaoshan Xu, Wenbin Wang, David Keavney, Yaohua Liu and **X. M. Cheng**
"Magnetic properties of epitaxial hexagonal $HoFeO_3$ thin films"
2014 Annual Meeting of the Mid-Atlantic Section of the American Physical Society, October 2014, University Park, PA.

31. **Xiao Wang***, **Zhuyun Xiao**, Xiaoshan Xu, Wenbin Wang, David Keavney, Yaohua Liu and **X. M. Cheng**
"Magnetic properties of epitaxial hexagonal $HoFeO_3$ thin films"
American Physical Society March Meeting, 2014, Denver, CO.

30. **Bingqing Li***, **Xuzhao Chai**, Sina Moeendarbari, Di Zhang, Gang Feng, Ping Han, Dustin A. Gilbert, Kai Liu, Yaowu Hao, and **X. M. Cheng**
"First order reversal curve study of the dipolar interaction in Ni three-dimensional antidot arrays"
American Physical Society March Meeting, 2014, Denver, CO.

29. **Shuoying Yang***, Weifeng Zhang, Aakash Pushp, Timothy Phung, See-hun Yang, **X. M. Cheng**, and Stuart S.P. Parkin
"Temperature Dependence of the Spin Hall Effect in Perpendicularly Magnetized Magnetic Materials "
American Physical Society March Meeting, 2014, Denver, CO.

28. Xiaoshan Xu, Wenbin Wang, **Xiao Wang**, Leyi Zhu, Jong-Woo Kim, Phillip Ryan, David J. Keavney, Thomas Z. Ward, Jian Shen, and **Xuemei Cheng**
"Low-temperature structure transition in hexagonal $LuFeO_3$"
American Physical Society March Meeting, 2014, Denver, CO.

27. Xifan Wu, Hongwei Wang, Igor Solovyev, Jian Shen, Wenbin Wang, **Xiao Wang**, **Xuemei Cheng**, Lixin He, and Xiaoshan Xu
"Origin of room-temperature multiferroism in hexagonal $LuFeO_3$"
American Physical Society March Meeting, 2014, Denver, CO.

26. **Xiao Wang***, D. J. Keavney, D. J. Clarke, O. Tchernyshyov, M. Asmat-Uceda, K. S. Buchanan, A.

Melikyan, and **X. M. Cheng**
" Time-resolved PEEM imaging of vortex dynamics in an equilateral triangular arrangement of three magnetic disks"
58th Annual Conference on Magnetism and Magnetic Materials (MMM) 13, Nov. 2013, Denver, CO.

25. E. Moon, B. Kirby, D. Keavney, P. Balachandran, R. Sichel-Tissot, C. Schlepütz, E. Karapetrova, **X. M. Cheng**, J. Rondinelli and S. May.
"The effects of interfacial octahedral coupling on magnetic properties in ultrathin manganite films"
58th Annual Conference on Magnetism and Magnetic Materials (MMM) 13, Nov. 2013, Denver, CO.

24. M.A. Asmat-Uceda, **X.M. Cheng**, **X.Wang**, D.J. Keavney, D.J. Clarke, O. Tchernyshyov and K.S. Buchanan.
"Micromagnetic simulations of the dynamics of three interacting magnetic vortices in a triangular arrangement"
58th Annual Conference on Magnetism and Magnetic Materials (MMM) 13, Nov. 2013, Denver, CO.

23. **X. M. Cheng***, Y. Choi, C. M. Ortega, L. Sun, Y. M. Lu, J. W. Cai, and C. L. Chien
"X-ray Magnetic Circular Dichroism Study of Induced Pt Magnetic Moment in $Pt/Y_3Fe_5O_{12}$ Bilayers"
Gordon Research Conference on Spin Dynamics in Nanostructures, August 2013, Hong Kong.

22. **Xiao Wang***, D. J. Keavney, D. J. Clarke, O. Tchernyshyov, M. Asmat, K. Buchanan, A. Melikyan, and **X.M. Cheng**
"Time-resolved PEEM imaging of vortex dynamics in an equilateral triangular arrangement of three magnetic disks"
Gordon Research Conference on Spin Dynamics in Nanostructures, August 2013, Hong Kong.

21. **Bingqing Li***, Kathryn F. Murphy, Daniel S. Gianola, and **X. M. Cheng**
"Study of Thermal Conductivity of Si Nanowires with micro-Raman Spectroscopy"
American Physical Society March Meeting, 2013, Baltimore, MD.
(Outstanding Undergraduate Presentation Award)

20. **Xilei Kuang**, **Zhuyun Xiao***, Eun Ju Moon, Steven May, David Keavney, Yaohua Liu, and **X.M. Cheng**
"X-ray Magnetic Circular Dichroism Study of La(1-x)SrxMnO3 Thin Films"
American Physical Society March Meeting, 2013, Baltimore, MD.

19. **Zhuyun Xiao***, **Xiao Wang**, Yaohua Liu, Suzanne G.E. te Velthuis, Daniel Rosenmann, Ralu Divan, and **X. M. Cheng**
"Magnetization reversal of patterned disks with perpendicular magnetic anisotropy"
American Physical Society March Meeting, (poster), 2013, Baltimore, MD.

18. **Jiabin Liu***, **Han-Chang Yang**, and **Xuemei Cheng**
"Magnetic Properties of Ordered Nanoporous Nickel Films"
American Physical Society March Meeting, 2012, Boston, MA.

17**. Han-Chang Yang***, **Stephanie I. Lim**, **Jiabin Liu**, **Qian Wu**, and **Xuemei Cheng**
"Templated Electrodeposition of Highly Porous Nanostructured Materials "
American Physical Society March Meeting, 2011, Dallas, TX.

16**. Stephanie I. Lim**, Karine Namur, Florie Martineau, **Jiabin Liu***, **Qian Wu***, **Han-Chang Yang***, Jérémy Mallet, and **Xuemei Cheng**
"Templated electrodeposition of nanoporous silicon for battery applications "
American Physical Society March Meeting, (poster), 2011, Dallas, TX.

15. **X. M. Cheng***, D. J. Keavney, D. J. Clarke, O. Tchernyshyov, **M. Mahoney***, and A. Melikyan
" Vortex dynamics in an equilateral triangular arrangement of three magnetic disks "
American Physical Society March Meeting, 2010, Portland, OR.

14. **X. M. Cheng***, D. J. Keavney, and K. S. Buchanan
"Polarity reversal of magnetic vortex core by in-plane non-resonant pulsed magnetic field "
American Physical Society March Meeting, 2009, Pittsburgh, PA.

13. **X. M. Cheng***, D. J. Keavney, and K. S. Buchanan
"Polarity reversal of a magnetic vortex core by an in-plane pulsed magnetic field "
International Conference on Magnetism and Magnetic Materials (MMM) 08, Nov. 2008, Austin, TX.

12. **X. M. Cheng***, D. J. Keavney, K. S. Buchanan, and R. Divan,
"The influence of excitation fields on vortex core dynamics in micron-sized magnetic disks "
International Conference on Magnetism and Magnetic Materials (MMM) 07, Nov. 2007, Tampa, FL.

11. **X. M. Cheng***, V.I. Nikitenko, A.J. Shapiro, R.D. Shull, and C. L. Chien,
"Unusual magnetization reversal in $[Co/Pt]_4$ multilayers with perpendicular anisotropy"
8^{th} International Conference on Nanostructured Materials, Aug. 2006, Bangalore, India.

10. **X. M. Cheng***, L.Y. Zhu, C.L. Chien, Marta Z. Cieplak, Z. Adamus, A. Abal'oshev, and M. Berkowski,
"Magnetic pinning in Nb and YBCO thin films by $[Co/Pt]_n$ multilayers with perpendicular magnetic anisotropy
"
American Physical Society March Meeting, 2006, Baltimore, MD.

9. Marta Z. Cieplak, Z. Adamus, A. Abal'oshev, M. Berkowski, M. Konczykowski, **X.M. Cheng**, L.Y. Zhu and C.L. Chien
"Flux penetration in a ferromagnetic/superconducting bilayer utilizing perpendicular magnetic anisotropy "
American Physical Society March Meeting, 2006, Baltimore, MD.

8. **X. M. Cheng***, V.I. Nikitenko, A.J. Shapiro, R.D. Shull, and C. L. Chien,
"Unusual magnetic reversal in $[Co/Pt]_4$ multilayers with perpendicular anisotropy"
International Conference on Magnetism and Magnetic Materials, Nov. 2005, San Jose, CA.

7. L.Y. Zhu, **X.M. Cheng** and C.L. Chien
"Magnetic and electrical transport properties of 1D quasiperiodic Co/Pt multilayers"
International Conference on Magnetism and Magnetic Materials (MMM) 05, Nov. 2005, San Jose, CA

6. **X. M. Cheng***, S. Urazhdin, O. Tchernyshyo, C. L. Chien, V.I. Nikitenko, A.J. Shapiro and R.D. Shull
"Antisymmetric magnetoresistance in magnetic multilayers with perpendicular anisotropy"
International Conference on Magnetism and Magnetic Materials, (poster) Nov. 2004, Jacksonville, FL

5. **X. M. Cheng***, B. Q. Luan and C. L. Chien
"Probing magnetization reversal in Co/Pt multilayers with perpendicular anisotropy by magnetoresistance, Hall resistance and magnetic force microscopy "
9TH Joint INTERMAG - MMM Conference, Jan. 2004, Anaheim, CA

4. M.Z. Cieplak, **X. M. Cheng**, A. Byczuk, H. Sang, A. Wisniewski, M. Konczykowski and C. L. Chien
"Asymmetric vortex pinning in a ferromagnet-superconductor bilayer"
9TH Joint INTERMAG - MMM Conference, Jan. 2004, Anaheim, CA

3. **X. M. Cheng*** and C. L. Chien
"Magnetic properties of Epitaxial Mn doped ZnO thin films"
International Conference on Magnetism and Magnetic Materials, Nov. 2002, Tampa, FL

2. **X. M. Cheng*,** X. K. Zhang, D. Z. Zhang, S. H. Lee, A. Duckham, T. P. Weihs, R. C. Cammarata, John. Q. Xiao and C. L. Chien
"Magnetic core loss of ultrahigh strength FeCo alloys"
International Conference on Magnetism and Magnetic Materials, Nov. 2002, Tampa, FL

1. **X. M. Cheng,** Youdou Zheng, Lan Zang, Xiabing Liu, et al.
"Room temperature ultraviolet luminescence from 800^0C thermally oxidized $Si_{1-x-y}Ge_xC_y$ thin films on Si (100) substrates"
Materials Research Society (poster), 1999 Fall Meeting, Boston, MA

Post-Doctoral Associates Supervised

Andy Clark, Ph.D. (2022-current)

Xiao Wang, Ph.D. (2020-2022)
Eun Ju Moon, Ph.D. (2016-2017)
Stephanie Lim, Ph.D. (2010-2011)

Graduate Students Supervised

- Jennifer Rittenhouse (2023-current)
- Andy Clark, Ph.D. (2020)
  "Magnetic and mechanical properties of ultrasoft magnetorheological elastomers"
- Xiao Wang, Ph.D. (2020)
  "Magnetic skyrmions in multilayers with interfacial Dzyaloshinskii-Moriya interactions"
- Le Yu, Ph.D. (2016): dissertation completed at BMC and degree conferred by Nanjing University
  "Diffusion and magnetization process in hollow nanostructures"
- Liang Zhao (2021-current): Villanova graduate student co-supervised with Prof. Bo Li at Villanova
- Jiajia Li (2018-2019): visiting graduate student from Fudan University
- Xuzhao Chai (2013-2014): visiting graduate student from Nanjing University

Undergraduate Theses Supervised

17. Yingxiao (Thea) Liao (2024) "Fabrication and characterization of gold microdisks for cancer treatment"

16. Xingrui Wang (2024) "Investigation of morphology and orientation of 5,6-Dichloro-2-methylbenzimidazole by Raman spectroscopy"

15. Mallory Yu (2022) "Micromagnetic simulation study of magnetic skyrmions in antiferromagnetically coupled [Co/Gd/Pt]10 multilayers"

14. Halcyon Hu (2022) "Accuracy of dipole approximation for iron particles in magnetorheological elastomers"

13. Georgia Nelson (2021) "Anomalous magnetic hysteresis loops of ultrasoft magnetorheological elastomers"

12. Tong Dong (2020) "Computational modeling of magnetorheological Elastomers"

11. Merrilyn Mercy Adzo Fiagbenu (2020) "Magnetometry characterization of [Co/Gd/Pt]n=10 multilayered thin film"

10. Zhongying Yan (2018) "Thermal Hall effect and interface magnetism of magnetic multilayers with Dzyaloshinskii-Moriya interactions"

One of the six finalists for the LeRoy Apker Award, the highest honor awarded by American Physical Society to undergraduate physicists in the United States for "outstanding achievements in physics"

9. Alena Klindziuk (2017) " Interlayer diffusion in Ta/CoFeB/MgO magnetic tunnel junctions "

8. Brittney Beidelman (2017) "Enhanced optical absorption in SiO2/AgBr Composites "

7. Zhuyun (Maggie) Xiao (2015) " Magnetic and ferroelectric properties of epitaxial hexagonal rare earth thin films "

6. Shuoying (Elias) Yang (2014) " Temperature dependence of the Spin Hall Effect in perpendicularly magnetized magnetic materials "

5. Bingqing Li (2014) " Magnetic characterization of nickel three-dimensional antidot arrays "

4. Soraya Terrab (2013) " Development of a temperature-controlled system for nanomechanical tensile testing"

3. Han-Chang (Cathy) Yang (December 2011) "Fabrication and magnetic characterization of nanoporous nickel structures"

2. Stonyana Alexandrova (2010) "Atomic force microscopy of DNA repeats"

1. Meghan Mahoney (2010) "Spin dynamics of magnetic nanostructures"

Undergraduate Researchers Supervised

1. Meghan Mahoney ('10, 2009-2010)
2. Stonyana Alexandrova ('10, 2009-10)
3. Tonima Tasnim Ananna ('13, 2010-11)
4. Cathy Yang ('12, 2010-12)
5. Ying Pan (Fall 2010)
6. Holly Brunner ('12, Summer 2010)
7. Qian Wu ('13, 2010-11)
8. Jiabin Liu ('14:CalTech 3+2, 2010-12)
9. Ana Cordova ('12, Summer 2011)
10. Val Galstad ('12, Summer 2011-2012, NSF)
11. Elizabeth J. Wills (BMC alum, 2011- 13, NSF)
12. Soraya Terrab ('13, 2012-13)
13. Danqi Luo ('14, Spring 2013)
14. Bingqing Li ('14, 2012-14)
15. Shuoying Yang ('14, Summer 2013-14, NSF)
16. Xilei Kuang, ('14, Summer 2012, Fall 2012, NSF)
17. Zhuyun Xiao ('15, 2012-15)
18. Leqi Liu ('17, Summer 2014-2015, NSF)
19. Ji Yoon Ahn ('17, Summer 2014)
20. Yilun Tang ('17, Summer 2014-Fall 2014)
21. Alena Klindziuk ('17, Summer 2014-2017)
22. Tianyi Hu (Haverford '16, 2014-15)
23. Lindsey Marinello ('17, Spring 2015)
24. Brittney Beidelman ('17, Summer 2016-2017)
25. Cassie Wang ('18, 2015-2018)
26. Zhongying Yan ('18, Summer 2015-2018, NSF)
27. Raina Crawford ('18, Summer 2017-2018, NSF)
28. Baiyi Kong (Columbia 3+2, 2017-2018, NSF)
29. Xiran Xu ('19, Summer 2018, NSF)
30. Vidya Ramaswamy ('20, Summer 2018-2019)
31. Tong Dang ('20, Spring 2018-2020, NSF)
32. Adzo Fiagbenu, ('20, Summer 2019-20)
33. Lila Hernandez (Summer 2018-2019, NSF)
34. Ralitsa Mihaylova (Summer 2018-2019, NSF)
35. Zainab Batool (Summer 2018, NSF)
36. Georgia Nelson (2018-2020)
37. Mallory Yu (Summer 2020-2022, NSF)
38. Lily Li (Summer 2020)
39. Alex Toyryla (College of William & Mary, Summer 2020)
40. Halcyon Hu (Summer 2021-2022)
41. Yuqi Zhang (Summer 2022)
42. Thea Liang (Spring 2023-present)
43. Eva Carmona-Rogina (Spring 2023-present)
44. Xinrui Wang (Fall 2023-Spring 2024)
45. Yiling Hou (Spring 2024-present)
46. Jessica Johnson (Summer 2024)
47. Madeline A. Rehwinkel (Fall 2024-present)