Xia Hong

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Education

Ph.D.	Engineering and Applied Science, Yale University Advisor: Charles Ahn	2006
B.S.	Electronics, Peking University	1998

Professional Preparation and Appointment

Professor	Physics and Astronomy, University of Nebraska-Lincoln	08/2022-present
Associate Professor	Physics and Astronomy, University of Nebraska-Lincoln	08/2016-08/2022
Assistant Professor	Physics and Astronomy, University of Nebraska-Lincoln	01/2011-08/2016
Postdoctoral Associate	Physics, The Pennsylvania State University Advisor: Jun Zhu	09/2006-12/2010

Awards and Achievements

- Nebraska EPSCoR *EQUATE* program, Focused Research Group 1 leader (2021-2026)
- *Research Leaders Program*, University of Nebraska-Lincoln (2021)
- *DOE Early Career Award* (2016)
- *NCMN Ambassador Award,* Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln (2015)
- *Achievement Award for Outstanding Service in Educational Outreach,* Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln (2014)
- *NSF Career Award* (2012)
- *Research Development Fellow,* University of Nebraska-Lincoln (2011)
- *Nebraska EPSCoR First Award* (2011)
- *Albert P. Gagnebin Fellowship,* Yale University (1999)
- *Graduate School Fellowship*; *Faculty of Engineering Fellowship*, Yale University (1998)
- *Outstanding Graduate Award*, City of Beijing (1998)
- *Outstanding Graduate Award*, Peking University (1998)

Research Interests

- Growth of van der Waals materials and epitaxial complex oxide thin films and heterostructures using physical and chemical vapor deposition techniques
- Nanofabrication

- Transport phenomena in nanoscale and two-dimensional systems, including strongly correlated oxides and layered van der Waals materials
- Scanning probe microscopy studies of nanoscale ferroic materials

Professional Activities

- Panelist: NSF (ECCS 2012, 2020; CMP 2013, 2016, 2018, 2020; EPM 2021), Nebraska EPSCoR (First Award 2012); *ad hoc* reviewer: NSF (CMP 2013, 2014, 2020, 2022), DOE (BES 2018, 2019; Office of Science Graduate Fellowship 2012, 2019), ACS (Petroleum Research Fund 2015, 2016)
- Sandia National Lab CINT External Proposal Review Committee (2018-present)
- Journal reviews for over 30 journals, including *Physical Review Letters, Science, Science Advances, Nature Materials, Nature Nanotechnology, Nature Electronics, Nature Communications, Applied Physics Letters, Nano Letters, ACS Nano, Advanced Materials, etc.*
- Editorial board: *Scientific Reports*; guest editor: *Journal of Applied Physics* special topic: "*2D Piezoelectrics, Pyroelectrics and Ferroelectrics*"
- Session chairs: *APS March meetings* (2009, 2010, 2014-2016, 2019, 2021); *ACerS Electronic Materials and Applications conference* (2017, 2018); *MMM Conference* (2017); *Intermag* (2021); *Conference for Undergraduate Women in Physical Sciences* (2011, 2013-2018, 2021)
- Conference organizers: *2021 APS March Meeting* Focus Topic "*2D Materials: Semiconductors*"; *2020 MRS Spring Symposium* Topic "*Topological and Quantum Phenomena in Oxides and Oxide Heterostructures*"; *2016 APS March Meeting* Focus Topic "Devices from 2D materials: function, fabrication and characterization"; *APS March meeting* sorter: 2009, 2015, 2020

Department, College, and University Services

- Committee chair: *Physics Department Junior Faculty Search Committee* (2018)
- Departmental committee member: *Physics Department Junior Faculty Search Committee* (2012, 2016, 2021); *Graduate Admission Committee* (2014-2019); *Physics Department Undergraduate advisory Committee* (2017-present)*; Physics Department Faculty Advisory Committee* (2015, 2018-2020)*; Grade Appeals/Graduate Exam Committee* (2020-present); *Publications (Spectrum) Committee* (2020-present)
- University/college committee member: *NCMN Graduate Research Fellowship Committee* (2015); *NCMN Advisory Committee* (2017-present)*; UNL Association for Women In Science Steering Committee* (2018-present); *CAS Curriculum and Advising Committee* (2021-present)
- *UNL GSA Graduate Travel Award* reviewer (2017, 2018)

Teaching

- PHYS 212H *General Physics II: E&M (Honor)* (Fall 2011, Spring 2012, Fall 2012, Fall 2013, Fall 2017, Fall 2021)
- PHYS 212 *General Physics II: E&M (Regular)* (Spring 2013, Fall 2015)
- PHYS/EECS 422/822 *Introduction to Physics and Chemistry in Solids* (Spring 2014, Spring 2016, Spring 2017)
- PHYS 213 *General Physics III: Modern Physics* (Fall 2014, Spring 2015)
- PHYS 927 *Introduction to Solid State Physics* (Fall 2016, 2018, 2020)
- PHYS 461 *Quantum Mechanics I* (Spring 2018-2022)

Publications

Preprints

1. Hanying Chen, Tianlin Li, Yifei Hao, Anil Rajapitamahuni, Zhiyong Xiao, Stefan Schoeche, Mathias Schubert, and Xia Hong*, "Remote Surface Optical Phonon Scattering in Ferroelectric $Ba_{0.6}Sr_{0.4}TiO_3$ Gated Graphene", submitted.
2. Qiuchen Wu, Dawei Li, Kun Wang, Yifei Hao, and Xia Hong*, "Nonvolatile Modulation of MoS_2 Transistor via Free-Standing $PbZr_{0.2}Ti_{0.8}O_3$ Membrane Top-Gate", submitted.
3. Dawei Li, Xi Huang, Qiuchen Wu, Le Zhang, Yongfeng Lu, and Xia Hong*, "Ferroelectric Domain Control of Light Polarization via $MoS_2/PbZr_{0.2}Ti_{0.8}O_3$ Heterostructures", submitted.
4. Jia Wang, Zahra Ahmadi, David Lujan, Xiaoqin Li, Jeffrey E. Shield, and Xia Hong*, "Physical Vapor Transport Growth of Antiferromagnetic $CrCl_3$ Flakes Down to Monolayer Thickness", submitted.
5. Jingfeng Song, Yubo Qi, Zhiyong Xiao, Seung-Hyun Kim, Angus. I. Kingon, Andrew M. Rappe, and Xia Hong*, "Domain Wall Enabled Hysteresis-Free Steep Slope Switching in MoS_2 Transistors", *arXiv: 1909.00113*, submitted.

Journal Publications

6. Xiaoshan Xu*, Corbyn Mellinger, Zhigang Cheng, Xuegang Chen, and Xia Hong*, "(Perspective) Epitaxial $NiCo_2O_4$ Film as an Emergent Spintronic Material: Magnetism and Transport Properties", *Journal of Applied Physics*, in press (2022). Featured article.
7. Xuegang Chen, Qiuchen Wu, Myung-Geun Han, Yimei Zhu, and Xia Hong*, "Anomalous Hall Effect and Perpendicular Magnetic Anisotropy in Ultrathin Ferrimagnetic $NiCo_2O_4$ Films", *Applied Physics Letters* **120**, 242401 (2022). Featured article.
8. Tianlin Li, Le Zhang, Xia Hong*, "(Review) Anisotropic Magnetoresistance and Planar Hall Effect in Correlated and Topological Materials", *Journal of Vacuum Science & Technology A* **40**, 010807 (2022).
9. Xia Hong*, "(Perspective) Nitride Perovskite Becomes Polar", *Science* 374, 1445 (2021).
10. Dawei Li, Shuo Sun, Zhiyong Xiao, Jingfeng Song, Ding-Fu Shao, Stephen Ducharme, Evgeny Tsymbal, and Xia Hong*, "Giant Transport Anisotropy in ReS_2 Revealed via Nanoscale Conducting Path Control", *Physical Review Letters* **127**,136803 (2021).
11. Yifei Hao, Tianlin Li, Yu Yun, Xin Li, Xuegang Chen, Jingfeng Song, Zahra Ahmadi, Jeffrey E. Shield, Xiaoshan Xu, and Xia Hong, "Tuning Negative Capacitance State in $PbZr_{0.2}Ti_{0.8}O_3/SrTiO_3$ Heterostructures via Layer Thickness Ratio", *Physical Review Applied* **16**, 034004 (2021).
12. Alexey Lipatov, Michael J. Loes, Nataliia S. Vorobeva, Saman Bagheri, Jehad Abourahma, Hanying Chen, Xia Hong, Yury Gogotsi, and Alexander Sinitskii, "High Breakdown Current Density in Monolayer $Nb_4C_3T_x$ MXene", *ACS Materials Letters* **3**, 1088 (2021).
13. Kun Wang, Yifei Hao, Le Zhang, Yuanyuan Zhang, Xuegang Chen, and Xia Hong*, "Effect of Correlated Oxide Electrodes on Disorder Pinning and Thermal Roughening of Ferroelectric Domain Walls in Epitaxial $PbZr_{0.2}Ti_{0.8}O_3$ Thin Films", *Physical Review Materials* **5**, 074402 (2021).
14. Dawei Li, Shuo Sun, Kun Wang, Zahra Ahmadi, Jeffrey E. Shield, Stephen Ducharme, and Xia Hong*, "Assembly of close-packed ferroelectric polymer nanowires via interface-epitaxy with ReS_2", *Advanced Materials* **33**, 2100214 (2021).
15. Archit Dhingra, Takashi Komesu, Shiv Kumar, Kenya Shimada, Le Zhang, Xia Hong, and Peter A. Dowben, "(Review) Electronic band structure of iridates", *Materials Horizons* **8**, 2151 (2021).

16. Xiang Zhang, Fei Wang, Zhipeng Wu, Yongfeng Lu, Xueliang Yan, Michael Nastasi, Yan Chen, Yifei Hao, Xia Hong, Bai Cui, "Direct Selective Laser Sintering of Hexagonal Barium Titanate Ceramics", *Journal of the American Ceramic Society* **104**, 1271 (2021).
17. Hojoon Ryu, Kai Xu, Dawei Li, Xia Hong, and Wenjuan Zhu, "(Perspective) Empowering 2D Nanoelectronics via Ferroelectricity", *Applied Physics Letters* **117**, 080503 (2020).
18. Yuewei Yin, Xuanyuan Jiang, M. A. Koten, J. E. Shield, Xuegang Chen, Yu Yun, Alpha T. N'Diaye, Xia Hong, and Xiaoshan Xu, "Spin Rectification and Electrically Controlled Spin Transport in Molecular-Ferroelectrics-Based Spin Valves", *Physical Review Applied* **13,** 064011 (2020).
19. L. Zhang, X. Jiang, X. Xu, and X. Hong*, "Abrupt enhancement of spin–orbit scattering time in ultrathin semimetallic $SrIrO_3$ close to the metal–insulator transition", *APL Materials* **8**, 051108 (2020).
20. Prescott E. Evans, Takashi Komesu, Le Zhang, Ding-Fu Shao, Andrew J. Yost, Shiv Kumar, Eike F. Schwier, Kenya Shimada, Evgeny Tsymbal, Xia Hong, and P. A. Dowben, "Detection of decoupled surface and bulk states in epitaxial orthorhombic $SrIrO_3$ thin films", *AIP Advances* **10**, 045027 (2020).
21. Dawei Li, Xi Huang, Zhiyong Xiao, Hanying Chen, Le Zhang, Yifei Hao, Jingfeng Song, Ding-Fu Shao, Evgeny Y. Tsymbal, Yongfeng Lu, and Xia Hong*, "Polar Coupling Enabled Nonlinear Optical Filtering at MoS_2/Ferroelectric Heterointerfaces", *Nature Communications* **11**, 1422 (2020).
22. Bo Chen, Jingfeng Song, Xuezeng Dai, Ye Liu, Peter N Rudd, Xia Hong, and Jinsong Huang, "Synergistic Effect of Elevated Device Temperature and Excess Charge Carriers on the Rapid Light-Induced Degradation of Perovskite Solar Cells", *Adv. Mater.* **31**, 1902413 (2019).
23. D. Li, C. Wei, J. Song, X. Huang, F. Wang, K. Liu, W. Xiong, X. Hong, B. Cui, A. Feng, L. Jiang, Y. Lu, "Anisotropic Enhancement of Second-Harmonic Generation in Monolayer and Bilayer MoS_2 by Integrating with TiO_2 Nanowires", *Nano Lett.* **19**, 4195 (2019).
24. A. Rajapitamahuni, L. L. Tao, Y. Hao, J. Song, X. Xu, E. Y. Tsymbal, and X. Hong*, "Ferroelectric Polarization Control of Magnetic Anisotropy in $PbZr_{0.2}Ti_{0.8}O_3/La_{0.8}Sr_{0.2}MnO_3$ Heterostructures", *Phys. Rev. Mater.* **3**, 021401(R) (2019).
25. Xuegang Chen, Xiaozhe Zhang, Myung-Geun Han, Le Zhang, Yimei Zhu, Xiaoshan Xu, and Xia Hong*, "Magnetotransport Anomaly in Room Temperature Ferrimagnetic $NiCo_2O_4$ Thin Films", *Adv. Mater.* **31**, 1805260 (2019).
26. Jingfeng Song, Z. Xiao, B. Chen, S. Prockish, X. Chen, Stephen J. Huang, and X. Hong*, "Enhanced Piezoelectric Response in Hybrid Lead Halide Perovskite Thin Films via Interfacing with Ferroelectric $PbZr_{0.2}Ti_{0.8}O_3$", *ACS Appl. Mater. Interfaces* **10**, 19218 (2018).
27. Dawei Li, Zhiyong Xiao, Sai Mu, Fei Wang, Ying Liu, Jingfeng Song, Xi Huang, Lijia Jiang, Jun Xiao, Lei Liu, Stephen Ducharme, Bai Cui, Xia Hong, Lan Jiang, Jean-Francois Silvain, Yongfeng Lu, "A Facile Space-Confined Solid-Phase Sulfurization Strategy for Growth of High-Quality Ultrathin Molybdenum Disulfide Single Crystals", *Nano Lett.* **18**, 2021 (2018).
28. Peter A. Dowben, Christian Binek, Kai Zhang, Lu Wang, Wai-Ning Mei, J. P. Bird, U. Singisetti, Xia Hong, Kang L. Wang, and Dmitri Nikonov, "Towards a Strong Spin-Orbit Coupling Magnetoelectric Transistor", *IEEE Journal of Exploratory Solid-State Computational Devices and Circuits* **4**, 1-9 (2018).
29. Xin Zhang, Alpha T. N'Diaye, Xuanyuan Jiang, Xiaozhe Zhang, Yuewei Yin, Patrick Rosa, Xuegang Chen, Xia Hong, Xiaoshan Xu, and Peter A. Dowben, "Indications of magnetic coupling effects in spin cross-over molecular thin films", *Chem. Commun.* **54**, 944 (2018).

30. Shi Cao, Zhiyong Xiao, Chun-Pui Kwan, Kai Zhang, Jonathan P. Bird, Lu Wang, W.N. Mei, Xia Hong, Peter A. Dowben, "Moving towards the Magnetoelectric Graphene Transistor", *Appl. Phys. Lett.* **111**, 182402 (2017).

31. Reza M Moghadam, Zhiyong Xiao, Kamyar Ahmadi-Majlan, Everett D Grimley, Mark Bowden, Phuong-Vu Ong, Scott A Chambers, James M Lebeau, Xia Hong, Peter V Sushko, Joseph H Ngai, "An Ultrathin Single Crystalline Relaxor Ferroelectric Integrated on a High Mobility Semiconductor", *Nano Lett.* **17**, 6248-6257 (2017).

32. Xuegang Chen, Xin Zhang, Mark A. Koten, Hanghui Chen, Zhiyong Xiao, Le Zhang, Jeffrey E. Shield, Peter A. Dowben and Xia Hong*, "Interfacial Charge Engineering in Ferroelectric-Controlled Mott Transistors", *Adv. Mater.* **29**, 1701385 (2017).

33. D.W. Li, Q.M. Zou, H. Rabiee Golgir, K. Keramatnejad, X. Huang, J.F. Song, Z.Y. Xiao, X. Hong, L. Jiang, J.F. Silvain, and Y.F. Lu, "Controlled Defect Creation and Removal in Graphene and MoS_2 Monolayers", *Nanoscale* **9**, 8997 (2017).

34. Zhiyong Xiao, Jingfeng Song, David K. Ferry, Stephen Ducharme, Xia Hong*, "Ferroelectric Domain Patterning Controlled Schottky Junction State in Monolayer MoS_2", *Phys. Rev. Lett.* **118**, 236801 (2017).

35. Dawei Li, Zhiyong Xiao, Hossein Rabiee Golgir, Li Jia Jiang, Vijay Raj Singh, Kamran Keramatnejad, Kevin E. Smith, Xia Hong, Lan Jiang, Jean-Francois Silvain, and Yongfeng Lu, "Large-Area 2D/3D MoS_2–MoO_2 Heterostructures with Thermally Stable Exciton and Intriguing Electrical Transport Behaviors", *Advanced Electronic Materials* **3**, 1600335 (2017).

36. Haidong Lu, Bo Wang, Tao Li, Alexey Lipatov, Hyungwoo Lee, Anil Rajapitamahuni, Ruijuan Xu, Xia Hong, Saeedeh Farokhipoor, Lane W. Martin, Chang-Beom Eom, Long-Qing Chen, Alexander Sinitskii, and Alexei Gruverman, "Nanodomain Engineering in Ferroelectric Capacitors with Graphene Electrodes", *Nano Lett.*, ***16***, 6460–6466 (2016).

37. A. Rajapitamahuni, L. Zhang, M. A. Koten, V. R. Singh, J. D. Burton, E. Y. Tsymbal, J. E. Shield, and X. Hong*, "Giant Enhancement of Magnetic Anisotropy in Ultrathin CMR Films via Nanoscale 1D Periodic Depth Modulation", *Phys. Rev. Lett.* **116**, 187201 (2016).

38. Xia Hong*, "(Topical Review) Emerging ferroelectric transistors with nanoscale channel materials: the possibilities, the limitations", *J. Phys.: Condens. Matter* **28**, 103003 (2016).

39. L. Zhang, X. G. Chen, H. J. Gardner, M. A. Koten, J. E. Shield, and X. Hong*, "Effect of Strain on Ferroelectric Field Effect in Strongly Correlated Oxide $Sm_{0.5}Nd_{0.5}NiO_3$", *Appl. Phys. Lett.* **107**, 152906 (2015).

40. L. Zhang, H. J. Gardner, X. G. Chen, V. R. Singh, and X. Hong*, "Strain Induced Modulation of the Correlated Transport in Epitaxial $Sm_{0.5}Nd_{0.5}NiO_3$ Thin Films", *J. Phys.: Condens. Matter* (*Fast Track Communication*) **27**, 132201 (2015). (*IOP Select, featured in the Lab Talk of JPCM, Apr. 29, 2015*)

41. Z. Xiao, J. Hamblin, S. Poddar, S. Ducharme, P. Paruch, and X. Hong*, "Effect of Thermal Annealing on Ferroelectric Domain Structures in Poly(vinylidene-fluoride-trifluorethylene) Langmuir-Blodgett Thin Films", *J. Appl. Phys.* **116**, 066819 (2014).

42. V. Singh, L. Zhang, A. K. Rajapitamahuni, N. Devries, and X. Hong*, "Nonlinear transport in nanoscale phase separated colossal magnetoresistive oxide thin films", *J. Appl. Phys.* **116**, 033914 (2014).

43. Z. Xiao, S. Poddar, S. Ducharme, and X. Hong*, "Domain wall roughness and creep in nanoscale crystalline ferroelectric polymers", *Appl. Phys. Lett.* **103**, 112903 (2013).

44. A. Rajapitamahuni, Jason Hoffman, Charles Ahn, and X. Hong*, "Examining Graphene Field Effect Sensors for Ferroelectric Thin Film Studies", *Nano Lett.* **13**, 4374 (2013).
45. X. Hong*, K. Zou, A. M. DaSilva, C. H. Ahn, and J. Zhu, "(Review) Integrating functional oxides with graphene", *Solid State Commun*. **152**, 1365 (2012).
46. P. Paruch, A. B. Kolton, X. Hong, C. H. Ahn, and T. Giamarchi, "Thermal quench effects on ferroelectric domain walls", *Phys. Rev. B* **85**, 214115 (2012).
47. X. Hong, K. Zou, B. Wang, S.-H. Cheng, and J. Zhu, "Evidence for spin-flip scattering and local moments in dilute fluorinated graphene", *Phys. Rev. Lett.* **108**, 226602 (2012).
48. K. Zou, X. Hong, and J. Zhu, "Electron-electron interaction and electron-hole asymmetry in bilayer graphene", *Phys. Rev. B* **84**, 085408 (2011).
49. J. Hoffman, X. Hong, and C.H. Ahn, "Device performance of ferroelectric/correlated oxide heterostructures for non-volatile memory applications", *Nanotechnology* **22**, 254014 (2011).
50. X. Hong, S.-H. Cheng, C. Herding, and J. Zhu, "Colossal negative magnetoresistance in dilute fluorinated graphene", *Phys. Rev. B* **83**, 085410 (2011).
51. K. Zou, X. Hong, D. Keefer, and J. Zhu, "Deposition of high-quality HfO_2 on graphene and the effect of remote substrate phonon scattering", *Phys. Rev. Lett.* **105**, 126601 (2010).
52. X. Hong, J. Hoffman, A. Posadas, K. Zou, C.H. Ahn, and J. Zhu "Unusual resistance hysteresis in *n*-layer graphene field effect transistors fabricated on ferroelectric $Pb(Zr_{0.2}Ti_{0.8})O_3$", *Appl. Phys. Lett.* **97**, 033114 (2010).
53. X. Hong, K. Zou, and J. Zhu, "Quantum scattering time and its implications on scattering sources in graphene", *Phys. Rev. B* **80**, 241415 (*Rapid Communication*) (2009). Appeared in *Virtual Journal of Nanoscale Science & Technology* (Jan. 18, 2010 issue) and *Virtual Journal of Ultrafast Science* (Jan. 2010 issue).
54. N. Naftalis, Y. Bason, J. Hoffman, X. Hong, C. H. Ahn, and L. Klein, "Anisotropic magnetoresistance and planar Hall effect in epitaxial films of $La_{0.7}Ca_{0.3}MnO_3$", *J. Appl. Phys.* **106**, 023916 (2009).
55. X. Hong, A. Posadas, K. Zou, C. H. Ahn, and J. Zhu, "High-mobility few-layer graphene field effect transistors fabricated on epitaxial ferroelectric gate oxides", *Phys. Rev. Lett.* **102**, 136808 (2009).
56. J.-B. Yau, X. Hong, A. Posadas, W. Gao, E. Altman, C. H. Ahn, Y. Bason, L. Klein, M. Sidorov, and Z. Krivokapic, "Anisotropic magnetoresistance in colossal magnetoresistive $La_{1-x}Sr_xMnO_3$ thin films", *J. Appl. Phys.* **102**, 103901 (2007).
57. Y. Bason, L. Klein, H. Q. Wang, J. Hoffman, X. Hong, V. E. Henrich, and C. H. Ahn, "Planar Hall effect in epitaxial thin films of magnetite", *J. Appl. Phys.* **101**, 09J507 (2007).
58. X. Hong, J.-B. Yau, J. D. Hoffman, C. H. Ahn, Y. Bason, and L. Klein, "Effect of electric field doping on the anisotropic magnetoresistance of doped manganites", *Phys. Rev. B* **74**, 174406 (2006).
59. Y. Bason, L. Klein, J.-B. Yau, X. Hong, J. D. Hoffman, and C. H. Ahn, "Planar Hall effect magnetic random access memory", *J. Appl. Phys.* **99**, 08R701 (2006).
60. T. C. Kaspar, T. Droubay, V. Shutthanandan, S. M. Heald, C. M. Wang, D. E. McCready, S. Thevuthasan, J. D. Bryan, D. R. Gamelin, A. J. Kellock, M. F. Toney, X. Hong, C. H. Ahn, and S. A. Chambers, "Ferromagnetism and structure of epitaxial Cr-doped anatase TiO_2 thin films", *Phys. Rev. B* **73**, 155327 (2006).
61. X. Hong, A. Posadas, and C. H. Ahn, "Examining the screening limit of field effect devices via the metal-insulator transition", *Appl. Phys. Lett.* **86**, 142501 (2005).

62. X. Hong, F. Xiao, J. W. Reiner, A. Posadas, and C. H. Ahn, "Growth and characterization of $La_{0.8}Sr_{0.2}MnO_3/Pb(Zr_{0.2}Ti_{0.8})O_3/La_{0.8}Sr_{0.2}MnO_3$ heterostructures for three-dimensional circuit studies", *Ann. Phys.* **13**, 15 (2004).
63. Y. Bason, L. Klein, J.-B. Yau, X. Hong, and C. H. Ahn, "Giant planar Hall effect in colossal magnetoresistive $La_{0.84}Sr_{0.16}MnO_3$ thin films", *Appl. Phys. Lett.* **84**, 2593 (2004).
64. X. Hong, A. Posadas, A. Lin, and C. H. Ahn, "Ferroelectric-field-induced tuning of magnetism in the colossal magnetoresistive oxide $La_{1-x}Sr_xMnO_3$", *Phys. Rev. B* **68**, 134415 (2003).
65. A. Lin, X. Hong, V. Wood, A. A. Verevkin, C. H. Ahn, R. A. McKee, F. J. Walker, and E. D. Specht, "Epitaxial growth of $Pb(Zr_{0.2}Ti_{0.8})O_3$ on Si and its nanoscale piezoelectric properties", *Appl. Phys. Lett.* **78**, 2034 (2001).

Conference Proceedings

66. Le Zhang, Anil Rajapitamahuni, Yifei Hao, Xia Hong*, "Probing magnetic anisotropy in epitaxial $La_{0.67}Sr_{0.33}MnO_3$ thin films and nanostructures via planar Hall effect", *Proc. SPIE 10732*, Spintronics XI, 107320F (20 September 2018), doi: 10.1117/12.2319249.
67. Y. Bason, L. Klein, J.B. Yau, X. Hong, C.H. Ahn, "Characterization of the magnetic anisotropy in thin films of $La_{1-x}Sr_xMnO_3$ using the planar Hall effect", *Proceedings of Second Seeheim Conference on Magnetism*, *Physica Status Solidi (c)* **1**, 3336-3338 (2004).

Patents

Charles Ahn, Lior Klein, Yosef Bason, Xia Hong, Jeng-bang Yau, "Magnetoelectronic devices based on colossal magnetoresistive thin films". United States Patent 7684147.

Dmitri E. Nikonov, Christian Binek, Xia Hong, Jonathan P. Bird, Kang L. Wang, Peter W. Dowben, "Anti-Ferromagnetic Magneto-Electric Spin-Orbit Read Logic". Patent Number: US 10,361,292 B2

Invited Talks, Seminars, and Colloquia

Invited talk, APS March Meeting	Chicago, IL	Mar. 15, 2022
Invited talk, Electronic Materials and Applications Conference	*Virtual*	Jan. 20, 2022
Condensed Matter Physics Seminar, Department of Physics, Penn State University	*Web Seminar*	Oct. 11, 2021
Colloquium, Department of Physics and Astronomy, University of Nebraska-Lincoln	Lincoln, NE	Sep. 9, 2021
Invited talk, Intel	*Web Talk*	Nov. 16, 2020
Invited talk, 2020 Magnetism and Magnetic Materials Virtual Conference	*Web Talk*	Nov. 6, 2020
SRC LMD e-Workshop	*Web Seminar*	Feb. 20, 2020
Condensed Matter Seminar, Physics Department, Temple University	Philadelphia, PA	Nov. 6, 2019
Colloquium, Department of Physics, University of Illinois at Chicago	Chicago, IL	Feb. 18, 2019
Invited talk, 4th International Conference on 2D Materials and Technologies (ICON-2DMat 2018)	Melbourne, Australia	Dec. 12, 2018

Complex Quantum Systems/Condensed Matter Seminar, Department of Physics, University of Texas-Austin	Austin, TX	Sep. 20, 2018
Invited talk, 2018 SPIE Spintronics XI Conference	San Diego, CA	Aug. 19, 2018
Seminar, Institute of Physics, Chinese Academy of Sciences	Beijing, China	May 10, 2018
Invited talk, 2018 Conference on Electronic and Advanced Materials	New Orlando, FL	Jan. 18, 2018
Condensed Matter Physics Seminar, Department of Physics, Penn State University	University Park, PA	Oct. 18, 2017
Condensed Matter Physics & Materials Science Seminar, Brookhaven National Laboratory	Upton, NY	June 20, 2017
Seminar, SOEI Forum, School of Optical and Electronic Information, Huazhong University of Science and Technology	Wuhan, China	May 18, 2017
Seminar, Institute of Physics, New York University-Shanghai	Shanghai, China	May 10, 2017
Invited talk, 2016 Workshop on Innovative Nanoscale Devices and Systems (WINDS)	Kohala Coast, HI	Dec. 4, 2016
ECE Colloquium, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign	Urbana, IL	Sep. 22, 2016
Seminar, School of Physics, Huazhong University of Science and Technology	Wuhan, China	May 11, 2016
Seminar, International Center for Quantum Materials, School of Physics, Peking University	Beijing, China	May 6, 2016
Institute for Materials Science & Engineering Seminar, Department of Physics, Washington University in St. Louis	St. Louis, MO	Apr. 29, 2016
SRC NRI e-Workshop	*Web Seminar*	Oct. 20, 2015
Seminar, IBM Watson Research Center	Yorktown, NY	July 15, 2015
Colloquium, Department of Physics, University of Northern Iowa	Cedar Falls, IA	Apr. 22, 2015
Hard Condensed Matter and AMO Seminar, School of Physics, Georgia Institute of Technology	Atlanta, GA	Mar. 26, 2015
NST Seminar, Center for Nanoscale Materials, Argonne National Laboratory	Argonne, IL	Nov. 12, 2014
Invited advocate for "Mott Memory", 2014 ITRS-ERD Emerging Memory Device Assessment Workshop	Albuquerque, NM	Aug. 26, 2014
Invited talk, 3rd World Congress of Advanced Materials	Chongqing, China	Jun. 8, 2014
Invited guest speaker, Electrical and Computer Engineering Honor Society, University of Nebraska-Lincoln	Lincoln, NE	Apr. 9, 2014
Invited talk, 57th Midwest Solid State Conference	Lawrence, KS	Sep. 28, 2013
Invited talk, PSS Symposia on Quantum/Crystal, Graphene and New Particle Physics-2013	Boston, MA	Sep. 5, 2013
Invited talk, Crystal & Graphene Science Symposium-2012	Boston, MA	Sep. 6, 2012

NCMN Seminar, University of Nebraska-Lincoln	Lincoln, NE	Nov. 9, 2011
Invited talk, Conference for Undergraduate Women in Physics	Lincoln, NE	Oct. 21, 2011
Invited talk, Graphene Mini-Workshop	Lincoln, NE	Mar. 28, 2011
Invited talk, APS March Meeting	Dallas, TX	Mar. 24, 2011
Colloquium, Department of Physics, Missouri University of Science and Technology	Rolla, MO	Mar. 25, 2010
Colloquium, Department of Physics and Astronomy, University of Kentucky	Lexington, KY	Feb. 24, 2010
Colloquium, Department of Physics and Astronomy, University of Nebraska, Lincoln	Lincoln, NE	Feb. 18, 2010
Colloquium, Department of Physics, Lehigh University	Bethlehem, PA	Feb. 11, 2010
Condensed Matter Seminar 290 K, University of California, Berkeley	Berkeley, CA	Feb. 1, 2010
Colloquium, Physics Department, West Virginia University	Morgantown, WV	Jan. 21, 2010
Colloquium, Physics Department, Northeastern University	Boston, MA	Nov. 16, 2009
Invited talk, 21st International Symposium on Integrated Ferroelectrics and Functionalities	Colorado Springs, CO	Sep. 29, 2009
Seminar, IBM Watson Research Center	Yorktown, NY	May 24, 2006
CRISP Seminar, MRSEC Center, Yale University	New Haven, CT	May, 2006
Seminar, Department of Physics, Penn State University	State College, PA	May 1, 2006
Seminar, Department of Physics, Rutgers University	Piscataway, NJ	Apr. 20, 2006
Monday Evening Seminar, Applied Physics, Yale University	New Haven, CT	Feb. 27, 2006
SRC Seminar, Advanced Micro Devices	Sunnyvale, CA	Oct. 3, 2005
SRC Seminar, Advanced Micro Devices	Sunnyvale, CA	Sep. 22, 2004
Monday Evening Seminar, Applied Physics, Yale University	New Haven, CT	Jan. 12, 2004

Research Advisees

Current Advisees

Graduate students: Yifei Hao, Tianlin Li, Asad Mahmood, Shehr Bano Masood, Kun Wang, Jia Wang, Qiuchen Wu, Yuanyuan Zhang

Undergraduate students: Hailey Anderson, Alyssa Simpson

Former Graduate Students/Graduation Years/Current Affiliations

Hanying Chen (Master, 2021): Graduate student, Computer Science and Engineering, UNL

Le Zhang (PhD, 2018): Process Engineer, Applied Materials

Anil Rajapitamahuni (PhD, 2017): Postdoc, University of Minnesota

Zhiyong Xiao (PhD, 2017): Metrology Engineer, Seagate Technology

Former Postdocs/Current Affiliations

Dawei Li (2017-2021): Associate Professor, Dalian University of Technology, China

Le Zhang (2018-2020): Process Engineer, Applied Materials

Xuegang Chen (2014-2019): Professor, Anhui University, China

Jingfeng Song (2016-2018): Postdoc, University of Connecticut

H Jeffery Gardner (2013-2014): Quality Engineer, Molex, Inc.

Vijay Raj Singh (2011-2014): Associate Professor, Central University of South Bihar Gaya, India

Professional Affiliations

American Physical Society

American Ceramic Society

American Vacuum Society