

Jian Liu

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Professional Appointments

Assistant Professor (08/2015-present)

Department of Physics & Astronomy, University of Tennessee

Postdoctoral Fellow Physicist (06/2012-07/2015)

Department of Physics and Materials Science & Engineering, University of California at Berkeley

Materials Science Division, Lawrence Berkeley National Lab

Advanced Light Source Doctoral Fellow (01/2011-05/2012)

Lawrence Berkeley National Lab

Education

Ph.D. in Physics (May 2012), University of Arkansas, USA

M.S. in Physics (Dec 2006), University of Houston, USA

B.S. in Physics (Jun 2004), Nanjing University, China

Honors and Awards

Awards:

- ◆ *Visiting Scientist Award* by the X-ray Science Division at the Argonne National Laboratory (2017)
- ◆ *The Iris Ovshinsky Award* (eight awardees per year) by the American Physical Society (2012)
- ◆ *Advanced Light Source Doctoral Fellowship* (eight-nine worldwide awardees per year) from Lawrence Berkeley National Laboratory (2010/2011, 2011/2012).
- ◆ *The Robert D. Maurer Research Fellowship* (given only when qualifying awardee is available) by the Department of Physics at the University of Arkansas (2012)
- ◆ *The Raymond H. Hughes Graduate Fellowship* (the highest award for one-two graduate students per year) by the Department of Physics at the University of Arkansas (2010).
- ◆ *Grants-in-Aid of Research Award* by Sigma Xi, the Scientific Research Society (2009).

- ◆ *Poster Award* at the Arkansas INBRE Research Conference (2007).

Synergistic Activities

- ◆ Program Committee for InterMag Conference 2017.
- ◆ Speaker for the Saturday Morning Physics Lecture Series, 2017.
- ◆ Volunteering Organizer for the Wind Power Competition during the 2017 Tennessee Science Olympiad State Tournament for the middle school and high school divisions.
- ◆ Volunteering participant for departmental open houses, 2016 – present.
- ◆ Session chair for American Physical Society March Meeting 2015.
- ◆ The Advanced Light Source Users Executive Committee, Lawrence Berkeley National Laboratory (2011-2012).
- ◆ Proposal Reviewer for the National Science Foundation and the Stanford Synchrotron Radiation Lightsource.
- ◆ Journal Referee for *Nature Materials*, *Nature Communications*, *Physical Review Letters*, *Physical Review X*, *Physical Review B*, *AIP Advances*, *Applied Physics Letters*, *Journal of Applied Physics*, *Physics Letters A*, *Journal of Physics and Chemistry of Solids*, *Journal of Physics: Condensed Matter*, *Nanoscale*, *Annals of Physics*, *The Arabian Journal for Science and Engineering*, and *Proceedings of the MRS Spring and Fall Meetings*.
- ◆ Judge for the Poster Competition of the Advanced Light Source Users Meeting, Berkeley, 2012.

Publication List

[Google Scholar](#) shows >2000 citations and an *h*-index of 24 with 52 publications in total.

* Corresponding Author

Selected Publications after joining UT:

1. *Giant magnetic response of a two-dimensional antiferromagnet*, L. Hao, D. Meyers, H. Suwa, J. Yang, C. Frederick, T. R. Dasa, G. Fabbris, L. Horak, D. Kriegner, Y. Choi, J.-W. Kim, D. Haskel, P. J. Ryan, H. Xu, C. D. Batista, M.P.M. Dean, **Jian Liu***, *Nature Physics* 14, 806 (2018). [\[DOI\]](#)
-- featured in Science and Research Highlights of the Advanced Photon Source.
2. *Novel spin-orbit coupling driven emergent states in iridate-based heterostructures*, L. Hao, D. Meyers, M.P.M. Dean, and **Jian Liu***, *J. Phys. Chem. Solids* in press. [\[DOI\]](#)
-- invited topical review.
3. *Strain effects on structural and magnetic properties of SrIrO₃/SrTiO₃ superlattice*, T. R. Dasa, L. Hao, J. Yang, **Jian Liu***, H. Xu, *Materials Today Physics* 4, 43 (2018). [\[DOI\]](#)
4. *Two-dimensional $J_{\text{eff}} = 1/2$ antiferromagnetic insulator unraveled from interlayer exchange coupling in artificial perovskite iridate superlattices*, L. Hao, D. Meyers, C. Frederick, G. Fabbris, J. Yang, N. Traynor, L. Horak, D. Kriegner, Y. Choi, J.-W. Kim, D. Haskel, P. J. Ryan, M. P. M. Dean, **Jian Liu***, *Phys. Rev. Lett.* 119, 027204 (2017). [\[DOI\]](#)
-- UT physics highlight.



5. *Electron accumulation and emergent magnetism in LaMnO₃/SrTiO₃ heterostructures*, Z. Chen, Z. Chen, Z. Q. Liu, M. E. Holtz, C. J. Li, X. Renshaw Wang, W. M. Lü, M. Motapothula, L. S. Fan, J. A. Turcaud, L. R. Dedon, C. Frederick, R. J. Xu, R. Gao, A. T. N'Diaye, E. Arenholz, J. A. Mundy, T. Venkatesan, D. A. Muller, L.-W. Wang, **Jian Liu***, and L. W. Martin, *Phys. Rev. Lett.* 119, 156801 (2017). [\[DOI\]](#)
-- highlighted in Today At Berkeley Lab.
6. *Tuning perpendicular magnetic anisotropy by oxygen octahedral rotations in (La_{1-x}Sr_xMnO₃)/(SrIrO₃) superlattices*, D. Yi, C. L. Flint, P. P. Balakrishnan, K. Mahalingam, B. Urwin, A. Vailionis, A. T. N'Diaye, P. Shafer, E. Arenholz, Y. Choi, K. H. Stone, J.-H. Chu, B. M. Howe, **Jian Liu**, I. R. Fisher, and Y. Suzuki, *Phys. Rev. Lett.* 119, 077201 (2017). [\[DOI\]](#)
7. *Structure of epitaxial SrIrO₃ perovskite studied by interference between X-ray waves diffracted by the substrate and the thin film*, L. Horák, D. Kriegner, **Jian Liu**, C. Frontera, X. Marti, V. Holý, *J. Appl. Cryst.* 50, 385 (2017). [\[DOI\]](#)
8. *Photoinduced coherent acoustic phonon dynamics inside Mott insulator Sr₂IrO₄ films observed by femtosecond X-ray pulses*, B.-B. Zhang, **Jian Liu**, X. Wei, D.-R. Sun, Q.-J. Jia, Y. Li, Y. Tao, *Appl. Phys. Lett.* 110, 151904 (2017). [\[DOI\]](#)
9. *Emerging magnetism and anomalous Hall effect in iridate–manganite heterostructures*, J. Nichols, X. Gao, S. Lee, T. L. Meyer, J. W. Freeland, V. Lauter, D. Yi, **Jian Liu**, Daniel Haskel, J. R. Petrie1, E.-J. Guo, A. Herklotz, D. Lee, T. Z. Ward, G. Eres, M. R. Fitzsimmons, and H. N. Lee, *Nat. Commun.* 7, 12721 (2016). [\[DOI\]](#)
10. *Ultrafast energy and momentum resolved dynamics of magnetic correlations in photo-doped Mott insulator Sr₂IrO₄*, M.P.M. Dean, Y. Cao, X. Liu, S. Wall, D. Zhu, R. Mankowsky, V. Thampy, X.M. Chen, J.G. Vale, D. Casa, J. Kim, A.H. Said, P. Juhas, R. Alonso-Mori, J.M. Glownia, A. Robert, J. Robinson, M. Sikorski, S. Song, M. Kozina, H. Lemke, L. Patthey, S. Owada, T. Katayama, M. Yabashi, Y. Tanaka, T. Togashi, **Jian Liu**, C. Rayan Serrao, B.J. Kim, L. Huber, C.-L. Chang, D.F. McMorro, M. Forst, J.P. Hill, *Nature Materials* 15, 601 (2016). [\[DOI\]](#)
-- featured in Nature Materials News and Views


All others (in reverse chronological order):

11. *Controlling entangled spin-orbit coupling of 5d states with interfacial heterostructure engineering*, J.W. Kim, Y. Choi, S.H. Chun, D. Haskel, D. Yi, R. Ramesh, **Jian Liu***, P. J. Ryan, *Physical Review B* 97, 094426 (2018). [\[DOI\]](#)
12. *A strain driven antiferroelectric-to-ferroelectric phase transition in La-doped BiFeO₃ thin films on Si*, D. Chen, C. Nelson, X. Zhu, C. Serrao, J. Clarkson, Z. Wang, Y. Gao, S.-L. Hsu, L. Dedon, Z. Chen, D. Yi, H.-J. Liu, D. Zeng, Y.-H. Chu, **Jian Liu**, D. Schlom, R. Ramesh, *Nano Lett.* 17, 5823 (2017). [\[DOI\]](#)
13. *Atomic-scale control of magnetic anisotropy via novel spin-orbit coupling effect in La_{2/3}Sr_{1/3}MnO₃/SrIrO₃ superlattices*, D. Yi, **Jian Liu***, S.-L. Hsu, L. Zhang, Y. Choi, J.-W. Kim, Z. Chen, J. Clarkson, C. R. Serrao, E. Arenholz, P. J. Ryan, H. Xu, R. J. Birgeneau and R.

- Ramesh, *Proceedings of the National Academy of Sciences* 113, 6397 (2016). [\[DOI\]](#)
-- featured in *Science and Research Highlights of the Advanced Photon Source*.
14. *Strain-induced nonsymmorphic symmetry breaking and removal of Dirac semimetallic nodal line in an orthoperovskite iridate*, Jian Liu*, D. Kriegner, L. Horak, D. Puggioni, C. Rayan Serrao, R. Chen, D. Yi, C. Frontera, V. Holy, A. Vishwanath, J. M. Rondinelli, X. Marti, and R. Ramesh, *Phys. Rev. B* 93, 085118 (2016). [\[DOI\]](#)
 15. *Superconductor to Mott insulator transition in $YBa_2Cu_3O_7/LaCaMnO_3$ heterostructures*, B. A. Gray, S. Middey, G. Conti, A. X. Gray, C.-T. Kuo, A. M. Kaiser, S. Ueda, K. Kobayashi, D. Meyers, M. Kareev, I. C. Tung, Jian Liu, C. S. Fadley, J. Chakhalian, J. W. Freeland, *Sci. Rep.* 6, 33184 (2016). [\[DOI\]](#)
 16. *Pure electronic metal-insulator transition at the interface of complex oxides*, D. Meyers, Jian Liu*, J. W. Freeland, S. Middey, M. Kareev, J. Kwon, J. M. Zuo, Y.-D. Chuang, J.-W. Kim, P. J. Ryan, J. Chakhalian, *Sci. Rep.* 6, 27934 (2016). [\[DOI\]](#)
 17. *Built-in Electric Field Induced Mechanical Property Change at the Lanthanum Nickelate/Nb-doped Strontium Titanate Interfaces*, T.Y. Chien, Jian Liu, A. Yost, J. Chakhalian, J. W. Freeland, N. Guisinger, *Sci. Rep.* 6 19017 (2016). [\[DOI\]](#)
 18. *Epitaxial growth of intermetallic MnPt films on oxides and large exchange bias*, Z. Liu, M. D. Biegalski, S.-L. Hsu, S. Shang, C. Marker, Jian Liu, L. Li, L. Fan, T. L. Meyer, A. T. Wong, J. A. Nichols, D. Chen, L. You, Z. Chen, K. Wang, K. Wang, T. Z. Ward, Z. Gai, H. N. Lee, A. S. Sefat, V. Lauter, Z. Liu, H. M. Christen, *Adv. Mater.* 28, 118 (2016). [\[DOI\]](#)
 19. *Charge order and antiferromagnetism in epitaxial ultrathin films of $EuNiO_3$* , D. Meyers, S. Middey, M. Kareev, Jian Liu, J. W. Kim, P. Shafer, P. Ryan, J. Chakhalian, *Phys. Rev. B* 92, 235126 (2015). [\[DOI\]](#)
 20. *180° Ferroelectric Stripe Nanodomains in $BiFeO_3$ Thin Films*, Z. Chen, Jian Liu, Y. Qi, D. Chen, S.-L. Hsu, A. R. Damodaran, X. He, A. T. N' Diaye, A. Rockett, L. W. Martin, *Nano Lett.* 15, 6506 (2015). [\[DOI\]](#)
 21. *Novel Electronic Behavior Driving $NdNiO_3$ Metal-Insulator Transition*, M. H. Upton, Y. Choi, H. Park, Jian Liu, D. Meyers, J. Chakhalian, S. Middey, J.-W. Kim, P. J. Ryan, *Phys. Rev. Lett.* 115, 036401 (2015). [\[DOI\]](#)
 22. *Probing single magnon excitations in Sr_2IrO_4 using O K-edge resonant inelastic X-ray scattering*, X. Liu, M.P.M. Dean, Jian Liu, S.G. Chiuzbăian, N. Jaouen, A. Nicolaou, W.G. Yin, C. Rayan Serrao, R. Ramesh, H. Ding, J.P. Hill, *J. Phys.: Condens. Matter.* 27, 202202 (2015). [\[DOI\]](#)
 23. *Giant reversible nanoscale piezoresistance at room temperature in Sr_2IrO_4 thin films*, N. Domingo, L. López-Mir, M. Paradinas, V. Holy, J. Zelezny, D. Yi, S. J. Suresha, Jian Liu, R. Ramesh, C. Ocal, X. Martí G. Catalán, *Nanoscale* 7, 3453 (2015). [\[DOI\]](#)
 24. *Anisotropic magnetoresistance in an antiferromagnetic semiconductor*, X. Marti, I. Fina, D. Yi, Jian Liu, J.-H. Chu, C. Rayan-Serrao, S. Suresha, J. Železný, T. Jungwirth, J. Fontcuberta, R. Ramesh, *Nat. Commun.* 5, 4671 (2014). [\[DOI\]](#)
 25. *Room-temperature antiferromagnetic memory resistor*, X. Marti, I. Fina, C. Frontera, Jian Liu, Q. He, R.J. Paull, J.D. Clarkson, J. Kudrnovský, I. Turek, D. Yi, J.-H. Chu, C. Nelson, L. You, E.

- Arenholz, S. Salahuddin, J. Fontcuberta, T. Jungwirth, R. Ramesh, *Nat. Mater.* 13, 367 (2014). [DOI](#).
26. *Deterministic switching of ferromagnetism at room temperature using an electric field*, J. T. Heron, J. L. Bosse, Q. He, Y. Gao, M. Trassin, L. Ye, J. D. Clarkson, C. Wang, **Jian Liu**, S. Salahuddin, D. C. Ralph, D. G. Schlom, J. Íñiguez, B. D. Huey, R. Ramesh, *Nature* 516, 370 (2014). [DOI](#)
27. *Induced magnetization in $La_{0.7}Sr_{0.3}MnO_3/BiFeO_3$ superlattices*, S. Singh, J. T. Haraldsen, J. Xiong, E. M. Choi, P. Lu, D. Yi, X.-D. Wen, **Jian Liu**, H. Wang, Z. Bi, P. Yu, M. R. Fitzsimmons, J. L. MacManus-Driscoll, R. Ramesh, A. V. Balatsky, Jian-Xin Zhu, Q. X. Jia, *Phys. Rev. Lett.* 113, 047204 (2014). [DOI](#)
28. *Electronic and magnetic properties of (1 1 1)-oriented $CoCr_2O_4$ epitaxial thin film*, Xiaoran Liu, M. Kareev, Yanwei Cao, **Jian Liu**, S. Middey, D. Meyers, J. W. Freeland, J. Chakhalian, *Appl. Phys. Lett.* 105, 042401 (2014). [DOI](#)
29. *Heterointerface engineered electronic and magnetic phases of $NdNiO_3$ thin films*, **Jian Liu***, M. Kargarian, M. Kareev, B. Gray, P. J. Ryan, A. Cruz, N. Tahir, Y.-D. Chuang, J.-H. Guo, J. M. Rondinelli, J. W. Freeland, G. A. Fiete, J. Chakhalian, *Nat. Commun.* 4, 2714 (2013). [DOI](#)
-- highlighted in Today At Berkeley Lab.
30. *Magnetoelectric coupling effects in heterostructures consisting of multiferroic $BiFeO_3$ and half-doped manganite $La_{0.5}Ca_{0.5}MnO_3$* , D. Yi, **Jian Liu***, S. Okamoto, S. Jaganatha, G. Palsson, Y. C. Chen, P. Yu, Y.-H. Chu, E. Arenholz, R. Ramesh, *Phys. Rev. Lett.* 111, 127601 (2013). [DOI](#)
31. *Epitaxy-distorted spin-orbit Mott insulator in Sr_2IrO_4 thin film*, C. Rayan Serrao, **Jian Liu***, J.T. Heron, G. Singh-Bhalla, A. Yadav, S. J. Suresha, J. Ravichandran, R. J. Paull, Y. Di, J.-H. Chu, M. Trassin, A. Vishwanath, E. Arenholz, X. Marti, R. Ramesh, *Phys. Rev. B* 87, 085121 (2013). [DOI](#)
32. *Interfacial coupling in multiferroic/ferromagnet heterostructures*, M. Trassin, J. D. Clarkson, S. R. Bowden, **Jian Liu**, J. T. Heron, R. J. Paull, E. Arenholz, D. T. Pierce, J. Unguris, *Phys. Rev. B* 87, 134426 (2013).  [DOI](#)
33. *Connecting bulk symmetry and orbital polarization in strained $RNiO_3$ ultrathin films*, I. C. Tung, P. V. Balachandran, **Jian Liu**, B. A. Gray, E. A. Karapetrova, J. H. Lee, J. Chakhalian, M. J. Bedzyk, J. M. Rondinelli, J. W. Freeland, *Phys. Rev. B* 88, 205112 (2013). [DOI](#)
34. *Strain-modulated Mott transition in $EuNiO_3$ ultrathin films*, D. Meyers, S. Middey, M. Kareev, M. van Veenendaal, E. J. Moon, B. A. Gray, **Jian Liu**, J. W. Freeland, J. Chakhalian, *Phys. Rev. B* 88, 075116 (2013). [DOI](#)
35. *Epitaxial stabilization of ultrathin films of rare-earth nickelates*, D. J. Meyers, E. J. Moon, M. Kareev, I.-C. Tung, B. A. Gray, **Jian Liu**, M. J. Bedzyk, J. W. Freeland, J. Chakhalian, *J. Phys. D: Appl. Phys.* 46, 385303 (2013). [DOI](#)
36. *Metal-insulator transition and orbital reconstruction in Mott-type quantum wells made of $NdNiO_3$* , **Jian Liu***, M. Kareev, D. Meyers, B. Gray, P. Ryan, J. W. Freeland, J. Chakhalian,

- Phys. Rev. Lett.* 109, 107402 (2012). [\[DOI\]](#)
 -- featured in *Science and Research Highlights of the Advanced Photon Source*.
37. *Heterostructuring and strain effects on the infrared optical properties of nickelates*, M. K. Stewart, D. Brownstead, **Jian Liu**, M. Kareev, J. Chakhalian, D. N. Basov, *Phys. Rev. B* 86, 205102 (2012). [\[DOI\]](#)
 38. *Quantum confinement of Mott electrons in ultrathin $\text{LaNiO}_3/\text{LaAlO}_3$ superlattice*, **Jian Liu***, S. Okamoto, M. van Veenendaal, M. Kareev, B. Gray, P. Ryan, J. W. Freeland, J. Chakhalian, *Phys. Rev. B: Rapid Communications* (Editor's suggestion) 83, 161102(R) (2011).   [\[DOI\]](#)
 -- selected for outstanding results of 2011 by the *Advanced Photon Source*.
 39. *Interfacial electronic and magnetic properties of a $\text{Y}_{0.6}\text{Pr}_{0.4}\text{Ba}_2\text{Cu}_3\text{O}_7/\text{La}_{2/3}\text{Ca}_{1/3}\text{MnO}_3$ superlattice*, **Jian Liu***, B. J. Kirby, B. Gray, M. Kareev, J. W. Freeland, H.-U. Habermeier, G. Cristiani, J. Chakhalian, *Phys. Rev. B* 84, 092506 (2011). [\[DOI\]](#)
 40. *Mott physics near the insulator-to-metal transition in NdNiO_3* , M. K. Stewart, **Jian Liu**, M. Kareev, J. Chakhalian, D. N. Basov, *Phys. Rev. Lett.* 107, 176401 (2011). [\[DOI\]](#)
 41. *Asymmetric orbital-lattice interactions in ultra thin complex oxides films*, J. Chakhalian, J. M. Rondinelli, **Jian Liu**, B. Gray, M. Kareev, M. Varela, E. J. Moon, S. Altendorf, F. Strigari, B. Dabrowski, H. Tjeng, P. J. Ryan, and J. W. Freeland, *Phys. Rev. Lett.* 107, 116805 (2011). [\[DOI\]](#)
 42. *Optical probe of strong correlations in LaNiO_3 thin films*, M.K. Stewart, **Jian Liu**, R. K. Smith, B. C. Chapler, C. H. Yee, D. Meyers, R. E. Baumbach, M. B. Maple, K. Haule, J. Chakhalian, and D. N. Basov, *J. of Appl. Phys.* 110, 033514 (2011). [\[DOI\]](#)
 43. *Orbital control in strained ultra-thin $\text{LaNiO}_3/\text{LaAlO}_3$ superlattices*, J. W. Freeland, **Jian Liu**, M. Kareev, B. Gray, J.W. Kim, P. Ryan, R. Pentcheva, J. Chakhalian, *EPL* 96, 57004 (2011). [\[DOI\]](#)
 44. *Optical study of strained ultrathin films of strongly correlated LaNiO_3* , M. K. Stewart, C. H. Yee, **Jian Liu**, M. Kareev, R. K. Smith, B. C. Chapler, , K. Haule, M. Varela, P. Ryan, J. Chakhalian, and D. N. Basov, *Phys. Rev. B* 83, 075125 (2011). [\[DOI\]](#)
 45. *Sub-monolayer nucleation and growth of complex oxide heterostructures at high supersaturation and rapid flux modulation*, M. Kareev, S. Prosandeev, B. Gray, **Jian Liu**, P. Ryan, A. Kareev, E. J. Moon, J. Chakhalian, *J. of Appl. Phys.* 109, 114303 (2011). [\[DOI\]](#)
 46. *Strain dependent transport properties of the quasi two-dimensional correlated metal LaNiO_3* , E. J. Moon, B. A. Gray, M. Kareev, **Jian Liu**, S. G. Altendorf, F. Strigari, L. H. Tjeng, J. W. Freeland, J. Chakhalian, *New Journal of Physics* 13, 073037 (2011). [\[DOI\]](#)
 47. *Strain-mediated metal-insulator transition in epitaxial ultra-thin films of NdNiO_3* , **Jian Liu***, M. Kareev, B. Gray, J. W. Kim, P. Ryan, B. Dabrowski, J. W. Freeland, J. Chakhalian, *Appl. Phys. Lett.* 96, 233110 (2010). [\[DOI\]](#)
 48. *Effect of polar discontinuity on the growth of $\text{LaNiO}_3/\text{LaAlO}_3$ superlattices*, **Jian Liu***, M. Kareev, S. Prosandeev, B. Gray, P. Ryan, J. W. Freeland, J. Chakhalian, *Appl. Phys. Lett.* 96, 133111 (2010). [\[DOI\]](#)
 49. *Visualizing nanoscale electronic properties at a complex oxide interface*, T. Y. Chien, **Jian Liu**, J. Chakhalian, N. Guisinger, J. W. Freeland, *Phys. Rev. B: Rapid Communications* (Editor's

suggestion) 82, 041101(R) (2010).   [DOI](#)

-- featured in *Vir. J. Nan. Sci. & Tech and Research Highlights of the Center for Nanoscale Materials*.

50. *Local electronic and magnetic studies of an artificial $\text{La}_2\text{FeCrO}_6$ double perovskite*, B. Gray, H. N. Lee, **Jian Liu**, J. Chakhalian, J. W. Freeland, *Appl. Phys. Lett.* 97, 013105 (2010). [DOI](#)
51. *Depth-resolved subsurface defects in chemically etched SrTiO_3* , J. Zhang, D. Dou, T. Merz, J. Chakhalian, M. Kareev, **Jian Liu**, L. J. Brillson, *Appl. Phys. Lett.* 94, 092904 (2009). [DOI](#)
52. *Atomic control and characterization of surface defect states of TiO_2 terminated SrTiO_3 single crystals*, M. Kareev, S. Prosandeev, **Jian Liu**, C. Gan, A. Kareev, J. W. Freeland, Min Xiao, J. Chakhalian, *Appl. Phys. Lett.* 93, 061909 (2008). [DOI](#)

Invited Oral Presentations

1. Enabling emergent spin-orbit magnetism in iridate-based heterostructures, invited seminar at California State University San Marcos, 2018
2. Enabling emergent spin-orbit magnetism in iridate-based heterostructures, invited seminar at Brookhaven National Laboratory, 2018
3. Spin-Orbit Quantum Materials by Heteroepitaxial Control, invited talk at the 2nd Conference on Condensed Matter Physics, 2016.
4. Artificial Quantum Materials by Design of Correlated Oxide Interfaces, invited talk at Sun Yat-Sen University, 2015.
5. Artificial Quantum Materials by Design of Correlated Oxide Interfaces, invited talk at Southeast University, 2015.
6. Shedding Light on Emergent Phenomena at Oxide Interfaces, invited talk at Advanced Photon Source Review Workshop, 2015.
7. Spin-Orbit Mott Materials by Heteroepitaxial Control, invited talk at Advanced Light Source User Meeting, 2015.
8. Toward *in situ* Control/Probe over Novel Magnetoelectric Heterostructures, invited talk at Advanced Photon Source User Meeting, 2015.
9. Building correlated quantum materials by design of interfaces, invited talk at Columbia University, 2015.
10. Control on correlated electrons in complex oxide heterostructures, invited talk at Advanced Light Source CXRO-seminar, 2014.
11. Heterostructuring spin-orbit Mott oxides, invited talk at User Science Seminar, Advanced Photon Source, Argonne National Laboratory, March 01, 2013.
12. Interface-control of correlated electrons in complex oxide heterostructures, invited talk at Department of Chemistry, University of Arkansas, April 02, 2012.
13. Quantum confinement of correlated e_g^1 electrons in rare earth nickelate heterostructures, awarded presentation at American Physical Society March Meeting 2012.
14. Interface-control of correlated electrons in complex oxide heterostructures, invited talk at Los Alamos National Laboratory, November 01, 2011.

15. Interface-control of correlated electrons in complex oxide heterostructures, invited Condensed-Matter Physics & Materials Science Seminar at Brookhaven National Laboratory, October 10, 2011