

Ryan Comes

Thomas and Jean Walter Assistant Professor of Physics, Auburn University

✉ ryan.b.comes@gmail.com 🌐 <http://wp.auburn.edu/comes>

Education

- | | |
|---------------------|--|
| Aug 2008 – May 2013 | University of Virginia
<i>PhD, Engineering Physics</i> <ul style="list-style-type: none">• <i>Dissertation:</i> "Growth and Control of CoFe_2O_4 and BiFeO_3 Thin Films and Nanocomposites for Magnetoelectric Devices"• <i>Advisor:</i> Prof. Stuart Wolf |
| Aug 2004 – May 2008 | Carnegie Mellon University
<i>BS, Physics; BS, Electrical and Computer Engineering</i> <ul style="list-style-type: none">• <i>Honors:</i> University, Mellon College of Science, and College of Engineering Honors |

Work Experience

- | | |
|---------------------|--|
| Aug 2016 - Present | Auburn University
<i>Department of Physics</i> <ul style="list-style-type: none">• Thomas and Jean Walter Assistant Professor, 2020-Present• Assistant Professor, 2016-2020 |
| Jul 2013 - Jul 2016 | Pacific Northwest National Laboratory
<i>Physical and Computational Sciences Directorate</i> <ul style="list-style-type: none">• Linus Pauling Distinguished Postdoctoral Fellow• <i>Mentor:</i> Dr. Scott Chambers |

Teaching Experience

- | | |
|---------------------|---|
| Aug 2016 - Present | Auburn University, Department of Physics
<i>Courses Taught</i> <ul style="list-style-type: none">• Physics 2 for Engineers (Introductory Level)• Quantum Mechanics (Senior Undergraduate Level)• Solid State Physics (Graduate Level)• Group Theory for Solid State Physics (Graduate Level) |
| Aug 2012 - Dec 2012 | University of Virginia, School of Engineering and Applied Science Graduate Teaching Fellow
<i>Course Taught</i> <ul style="list-style-type: none">• Introductory Calculus for Engineers (Co-Instructor) |

University Service

- | | |
|--------------------|--|
| Aug 2016 - Present | Auburn University, Department of Physics
<i>Committees</i> <ul style="list-style-type: none">• Graduate Recruiting, Committee member; Oct 2016-Present; Chair, Oct 2019-Present• Condensed Matter Physics faculty search committee, Sep 2018-Mar 2019• Biophysics faculty search committee, Sep 2019-Mar 2020• Graduate Admissions Committee, Member; Nov 2020-Present• Physics Diversity, Equity, and Inclusion Committee, Member, Jun 2020-Present |
|--------------------|--|

Grants Received

- 2021
- **Ryan Comes** (single PI). “CAREER: Topological Phenomena in 4d and 5d Complex Oxide Interfaces and Superlattices Grown by Hybrid Molecular Beam Epitaxy.” *National Science Foundation, Division of Materials Research*. May 1, 2021-April 30, 2026. \$651,110.
- 2020
- **Ryan Comes** (PI), Majid Beidaghi, Byron Farnum, Masoud Mahjouri-Samani, Tae-Sik Oh. “MRI: Acquisition of a X-Ray Diffraction System for Materials Research in Alabama.” *National Science Foundation, Major Research Instrumentation program*. August 1, 2020-July 31, 2023. \$280,487.
 - **Ryan Comes** (single PI). “Metastable Oxides for High-Mobility and Spin-Orbit 2D Electronics.” *Air Force Office of Scientific Research, Young Investigator Program*. January 1, 2020-December 31, 2022. \$448,790.
- 2018
- **Ryan Comes** (PI) and Byron Farnum. “Exploration of Electronic and Catalytic Behavior in Epitaxial Complex Oxide Films and Nanocomposites.” *National Science Foundation, Division of Materials Research*. July 1, 2018-June 30, 2021. \$531,981.

Honors and Awards

- 2021
- *National Science Foundation, CAREER Award*
 - *Journal of Materials Research, Early Career Scholars in Materials Science Prize for best paper in early career scholars issue*
- 2020
- *Journal of Physics: Condensed Matter, Emerging Leaders, Invited original research paper*
 - *Air Force Office of Scientific Research, Young Investigator Award*
 - *Auburn University, Department of Physics, Society of Physics Students Most Outstanding Professor*
- 2019
- *Fusion Conferences, 4th Functional Oxide Thin Films for Advanced Energy and Information Technology Conference, Emerging Young Investigator Award*
- 2013
- *Pacific Northwest National Laboratory, Linus Pauling Distinguished Postdoctoral Fellow*
 - *Materials Research Society, Graduate Student Silver Award, Spring Meeting*
- 2012
- *University of Virginia, Department of Materials Science and Engineering, Doris Kuhlmann-Wilsdorf Outstanding Graduate Student Award*
 - *University of Virginia, School of Engineering and Applied Sciences, Engineering Research Symposium, First Place*
- 2010
- *Army Research Office, National Defense Science and Engineering Graduate Fellowship*
- 2009
- *National Science Foundation, Graduate Research Fellowship Program, Honorable Mention*
- 2008
- *University of Virginia, School of Engineering and Applied Sciences, Dean’s Fellow*
 - *University of Virginia, Vice President of Research and Graduate Studies, Fellowship Enhancement*

Publications

- Pending
40. Bredar, A. R., Blanchet, M. D., Burton, A. R., Matthews, B., Spurgeon, S. R., **Comes, R. B.** & Farnum, B. H. Understanding Oxygen Reduction Electrocatalysis at Metal Oxide Surfaces with Epitaxially Grown Spinel MnFe_2O_4 . *In Preparation* (2022).
 39. Thapa, S., Provence, S. R., Heald, S. M., Kuroda, M. A. & **Comes, R. B.** Growth of Metastable $\text{SrNbO}_{3+\delta}$ by Hybrid Molecular Beam Epitaxy. *In Preparation* (2022).
 38. Suyolcu, E., Christiani, G., Gemperline, P. T., Provence, S. R., Bussmann-Holder, A., **Comes, R. B.**, van Aken, P. A. & Logvenov, G. Engineering ordered arrangements of oxygen vacancies at the surface of superconducting La_2CuO_4 thin films. *Submitted for Publication* (2022).
 37. Burton, A. R., Paudel, R., Matthews, B., Sassi, M., Spurgeon, S. R., Farnum, B. H. & **Comes, R. B.** Thickness Dependent OER Electrocatalysis of Epitaxial LaFeO_3 Thin Films. *Submitted for Publication*. eprint: <https://arxiv.org/abs/2108.09360> (2022).
- 2021
36. Lapano, J., Pai, Y.-Y., Mazza, A., Zhang, J., Isaacs-Smith, T., Gemperline, P., Zhang, L., Li, H., Lee, H. N., Miao, H., Eres, G., Yoon, M., **Comes, R. B.**, Ward, T. Z., Lawrie, B. J., McGuire, M., Moore, R. G., Nelson, C. T., May, A. & Brahlek, M. Self-regulated growth of candidate topological superconducting parkerite by molecular beam epitaxy. *APL Materials* **9**, 101110. doi:10.1063/5.0064746 (Oct. 2021).
 35. Thapa, S., Provence, S. R., Jessup, D., Lapano, J., Brahlek, M., Sadowski, J. T., Reinke, P., Jin, W. & **Comes, R. B.** Correlating surface stoichiometry and termination in SrTiO_3 films grown by hybrid molecular beam epitaxy. *Journal of Vacuum Science & Technology A* **39**, 053203. doi:10.1116/6.0001159 (Sept. 2021).
 34. Kaspar, T. C., Spurgeon, S. R., Matthews, B. E., Bowden, M., Heald, S. M., Wang, L., Kelley, R., Paudel, R., Isaacs-Smith, T., Comes, R., *et al.* Incorporation of Ti in epitaxial Fe_2TiO_4 thin films. *Journal of Physics: Condensed Matter* **31**, 314004. doi:10.1088/1361-648X/ac0571 (June 2021).
 33. Blanchet, M. D., Heath, J. J., Kaspar, T. C., Matthews, B. E., Spurgeon, S. R., Bowden, M. E., Heald, S. M., Isaacs-Smith, T., Kuroda, M. A. & **Comes, R. B.** Electronic and structural properties of single-crystal Jahn–Teller active $\text{Co}_{1+x}\text{Mn}_{2-x}\text{O}_4$ thin films. *Journal of Physics: Condensed Matter* **33**, 124002. doi:10.1088/1361-648X/abd573 (Jan. 2021).
 32. Thapa, S., Paudel, R., Blanchet, M. D., Gemperline, P. T. & **Comes, R. B.** Probing surfaces and interfaces in complex oxide films via in situ X-ray photoelectron spectroscopy. *Journal of Materials Research* **36**, 26–51. doi:10.1557/s43578-020-00070-9 (Jan. 2021).
- 2020
31. Provence, S. R., Thapa, S., Paudel, R., Truttmann, T., Prakash, A., Jalan, B. & **Comes, R. B.** Machine Learning Analysis of Perovskite Oxides Grown by Molecular Beam Epitaxy. *Physical Review Materials* **4**, 083807. doi:10.1103/PhysRevMaterials.4.083807 (Aug. 2020).
- 2019
30. Wang, Y., Zhang, J., Ni, Y., Chen, X., Mescall, R., Isaacs-Smith, T., **Comes, R. B.**, Kittiwatanakul, S., Wolf, S. A., Lu, J., *et al.* Structural, transport, and ultrafast dynamic properties of $\text{V}_{1-x}\text{Nb}_x\text{O}_2$ thin films. *Physical Review B* **99**, 245129. doi:10.1103/PhysRevB.99.245129 (June 2019).
 29. Kaspar, T. C., Sushko, P. V., Spurgeon, S. R., Bowden, M. E., Keavney, D. J., **Comes, R. B.**, Saremi, S., Martin, L. & Chambers, S. A. Electronic Structure and Band Alignment of $\text{LaMnO}_3/\text{SrTiO}_3$ Polar/Nonpolar Heterojunctions. *Advanced Materials Interfaces* **6**, 1801428. doi:10.1002/admi.201801428 (Jan. 2019).

Publications

- 2018
28. Bredar, A. R., Blanchet, M. D., **Comes, R. B.** & Farnum, B. H. Evidence and influence of copper vacancies in p-type CuGaO₂ mesoporous films. *ACS Applied Energy Materials* **2**, 19–28. doi:10.1021/acsaem.8b01558 (Dec. 2018).
 27. Lin, S.-C., Kuo, C.-T., **Comes, R. B.**, Rault, J. E., Rueff, J.-P., Nemšák, S., Taleb, A., Kortright, J. B., Meyer-Ilse, J., Gullikson, E., *et al.* Interface properties and built-in potential profile of a LaCrO₃/SrTiO₃ superlattice determined by standing-wave excited photoemission spectroscopy. *Physical Review B* **98**, 165124. doi:10.1103/PhysRevB.98.165124 (Oct. 2018).
 26. Kaspar, T. C., Hong, S., Bowden, M. E., Varga, T., Yan, P., Wang, C., Spurgeon, S. R., **Comes, R. B.**, Ramuhalli, P. & Henager, C. H. Tuning piezoelectric properties through epitaxy of La₂Ti₂O₇ and related thin films. *Scientific reports* **8**, 1–11. doi:10.1038/s41598-018-21009-5 (Feb. 2018).
- 2017
25. Spurgeon, S. R., Sushko, P. V., **Comes, R. B.** & Chambers, S. A. Dynamic Interface Rearrangement in LaFeO₃/n-SrTiO₃ Heterojunctions. *Physical Review Materials* **1**, 063401. doi:10.1103/PhysRevMaterials.1.063401 (Nov. 2017).
 24. **Comes, R. B.**, Perea, D. E. & Spurgeon, S. R. Heterogeneous Two-Phase Pillars in Epitaxial NiFe₂O₄-LaFeO₃ Nanocomposites. *Advanced Materials Interfaces* **4**, 1700396. doi:10.1002/admi.201700396 (Aug. 2017).
 23. Stoerzinger, K. A., Comes, R., Spurgeon, S. R., Thevuthasan, S., Ihm, K., Crumlin, E. J. & Chambers, S. A. Influence of LaFeO₃ Surface Termination on Water Reactivity. *Journal of Physical Chemistry Letters* **8**, 1038–1043. doi:10.1021/acs.jpcllett.7b00195 (Mar. 2017).
 22. Chambers, S. A., Du, Y., **Comes, R. B.**, Spurgeon, S. R. & Sushko, P. V. The effects of core-level broadening in determining band alignment at the epitaxial SrTiO₃ (001)/p-Ge (001) heterojunction. *Applied Physics Letters* **110**, 082104. doi:10.1063/1.4977422 (Feb. 2017).
 21. **Comes, R. B.**, Spurgeon, S. R., Kepaptsoglou, D. M., Engelhard, M. H., Perea, D. E., Kaspar, T. C., Ramasse, Q. M., Sushko, P. V. & Chambers, S. A. Probing the Origin of Interfacial Carriers in SrTiO₃-LaCrO₃ Superlattices. *Chemistry of Materials* **29**, 1147. doi:10.1021/acs.chemmater.6b04329 (Feb. 2017).
- 2016
20. **Comes, R. B.** & Chambers, S. A. Interface Structure, Band Alignment, and Built-In Potentials at LaFeO₃/n-SrTiO₃ Heterojunctions. *Physical Review Letters* **117**, 226802. doi:10.1103/PhysRevLett.117.226802 (Nov. 2016).
 19. Xu, P., Ayino, Y., Cheng, C., Pribiag, V. S., **Comes, R. B.**, Sushko, P. V., Chambers, S. A. & Jalan, B. Predictive control over charge density in the two-dimensional electron gas at the polar-nonpolar NdTiO₃/SrTiO₃ interface. *Physical Review Letters* **117**, 106803 (Sept. 2016).
 18. **Comes, R. B.**, Spurgeon, S. R., Heald, S. M., Kepaptsoglou, D. M., Jones, L., Ong, P. V., Bowden, M. E., Ramasse, Q. M., Sushko, P. V. & Chambers, S. A. Interface-induced Polarization in SrTiO₃-LaCrO₃ Superlattices. *Advanced Materials Interfaces* **3**, 1500779. doi:10.1002/admi.201500779 (May 2016).
 17. **Comes, R. B.**, Kaspar, T. C., Heald, S. M., Bowden, M. E. & Chambers, S. A. Infrared Optical Absorption in Low-spin Fe²⁺-doped SrTiO₃. *Journal of Physics: Condensed Matter* **28**, 035901. doi:10.1088/0953-8984/28/3/035901 (Jan. 2016).
 16. Li, X., Ma, C. T., Lu, J., Devaraj, A., Spurgeon, S. R., **Comes, R. B.** & Poon, S. J. Exchange Bias and Bistable Magneto-Resistance States in Amorphous TbFeCo thin Films. *Applied Physics Letters* **108**, 012401. doi:10.1063/1.4939240 (Jan. 2016).
 15. Wang, Y., **Comes, R. B.**, Wolf, S. A. & Lu, J. Threshold switching characteristics of Nb/NbO₂/TiN vertical devices. *IEEE Journal of the Electron Devices Society* **4**, 11–14. doi:10.1109/JEDS.2015.2503922 (Jan. 2016).

Publications

- 2015
14. **Comes, R. B.**, Xu, P., Jalan, B. & Chambers, S. A. Band alignment of epitaxial SrTiO₃ thin films with (LaAlO₃)_{0.3}-(Sr₂AlTaO₆)_{0.7} (001). *Applied Physics Letters* **107**, 131601. doi:10.1063/1.4932063 (Sept. 2015).
 13. **Comes, R. B.**, Smolin, S. Y., Kaspar, T. C., Gao, R., Apgar, B. A., Martin, L. W., Bowden, M. E., Baxter, J. B. & Chambers, S. A. Visible light carrier generation in co-doped epitaxial titanate films. *Applied Physics Letters* **106**, 092901. doi:10.1063/1.4913930 (Mar. 2015).
 12. **Comes, R. B.**, Siebein, K., Lu, J. & Wolf, S. A. Microstructural Effects of Chemical Island Templating in Patterned Matrix-Pillar Oxide Nanocomposites. *CrystEngComm* **17**, 2041–2049. doi:10.1039/C5CE00025D (Mar. 2015).
 11. Wang, Y., **Comes, R. B.**, Kittiwatanakul, S., Wolf, S. A. & Lu, J. Epitaxial niobium dioxide thin films by reactive-biased target ion beam deposition. *Journal of Vacuum Science & Technology A* **33**, 021516. doi:10.1116/1.4906143 (Mar. 2015).
 10. Steiner, M. A., **Comes, R. B.**, Floro, J. A., Soffa, W. A. & Fitz-Gerald, J. M. L₁¹ ordering: Evidence of L₁₀-L₁₂ hybridization in strained Fe_{38.5}Pd_{61.5} epitaxial films. *Acta Materialia* **85**, 261–269. doi:10.1016/j.actamat.2014.11.036 (Feb. 2015).
- 2014
9. **Comes, R. B.**, Sushko, P. V. ., Heald, S. M., Colby, R. J., Bowden, M. E. & Chambers, S. A. Band-Gap Reduction and Dopant Interaction in Epitaxial La,Cr Co-doped SrTiO₃ Thin Films. *Chemistry of Materials* **26**, 7073–7082. doi:10.1021/cm503541u (Dec. 2014).
- 2013
8. Steiner, M. A., **Comes, R. B.**, Floro, J. A., Soffa, W. A., Fitz-Gerald, J. M. & Smentkowski, V. S. Strain induced microstructural and ordering behaviors of epitaxial Fe_{38.5}Pd_{61.5} films grown by pulsed laser deposition. *Journal of Vacuum Science & Technology A* **31**, 050824. doi:10.1116/1.4819376 (Aug. 2013).
 7. Liu, H., **Comes, R. B.**, Pei, Y., Lu, J. & Wolf, S. A. Structural, magnetic, and nanoscale switching properties of BiFeO₃ thin films grown by pulsed electron deposition. *Journal of Vacuum Science & Technology B* **31**, 032801. doi:10.1116/1.4802924 (May 2013).
 6. **Comes, R. B.**, Gu, M., Khokhlov, M., Liu, H., Lu, J. & Wolf, S. A. Electron molecular beam epitaxy: Layer-by-layer growth of complex oxides via pulsed electron-beam deposition. *Journal of Applied Physics* **113**, 023303. doi:10.1063/1.4774238 (Jan. 2013).
- 2012
5. **Comes, R. B.**, Liu, H., Khokhlov, M., Kasica, R., Lu, J. & Wolf, S. A. Directed self-assembly of epitaxial CoFe₂O₄-BiFeO₃ multiferroic nanocomposites. *Nano Letters* **12**, 2367–2373. doi:10.1021/nl3003396 (May 2012).
 4. **Comes, R. B.**, Khokhlov, M., Liu, H., Lu, J. & Wolf, S. A. Magnetic anisotropy in composite CoFe₂O₄-BiFeO₃ ultrathin films grown by pulsed-electron deposition. *Journal of Applied Physics* **111**, 07D914. doi:10.1063/1.3676413 (Apr. 2012).
 3. **Comes, R. B.**, Gu, M., Khokhlov, M., Lu, J. & Wolf, S. A. Microstructural and domain effects in epitaxial CoFe₂O₄ films on MgO with perpendicular magnetic anisotropy. *Journal of Magnetism and Magnetic Materials* **324**, 524–527. doi:10.1016/j.jmmm.2011.08.033 (Feb. 2012).
- 2010
2. **Comes, R. B.**, Terrell, E. J. & Higgs, C. F. Pad Deflection-Based Model of Chemical-Mechanical Polishing for Use in CAD IC Layout. *IEEE Transactions on Semiconductor Manufacturing* **23**, 121–131. doi:10.1109/TSM.2009.2039182 (Feb. 2010).
 1. Terrell, E. J., **Comes, R. B.** & Higgs, C. F. Analysis of feature-scale wear in chemical mechanical polishing: modeling and experiments. *Tribology Letters* **37**, 327–336. doi:10.1007/s11249-009-9524-5 (Feb. 2010).

Invited Seminars

- 2021 | 19. **Comes, R. B.** *New Approaches to Atomic Scale Oxide Films Synthesis for Electronic and Energy Applications* (Oakland University, Department of Physics, Virtual, Apr. 2021).
18. **Comes, R. B.** *New Approaches to Atomic Scale Oxide Films Synthesis for Electronic and Energy Applications* (University of Virginia, Department of Materials Science and Engineering, Virtual, Mar. 2021).
- 2020 | 17. **Comes, R. B.** *Engineering Oxide Thin Films at the Atomic Level for New Electronic and Energy Applications* (Florida State University, National High Magnetic Field Laboratory, Virtual, Mar. 2020).
16. **Comes, R. B.** *Engineering Oxide Thin Films at the Atomic Level for New Electronic and Energy Applications* (Alabama A&M, Department of Physics, Feb. 2020).
15. **Comes, R. B.** *Engineering Oxide Thin Films at the Atomic Level for New Electronic and Energy Applications* (University of Georgia, Department of Physics, Jan. 2020).
- 2019 | 14. **Comes, R. B.** *Engineering Oxide Thin Films at the Atomic Level for New Electronic and Energy Applications* (Clemson University, Department of Physics, Sept. 2019).
13. **Comes, R. B.** *Atom-by-Atom Engineering of Oxide Thin Films and Nanocomposites via Molecular Beam Epitaxy* (University of Cincinnati, Department of Materials Science and Engineering, Apr. 2019).
12. **Comes, R. B.** *Atom-by-Atom Engineering of Oxide Thin Films and Nanocomposites via Molecular Beam Epitaxy* (Augusta University, Department of Physics, Mar. 2019).
- 2018 | 11. **Comes, R. B.** *Atom-by-Atom Engineering of Oxide Thin Films and Nanocomposites via Molecular Beam Epitaxy* (University of Alabama-Huntsville, Department of Physics, Nov. 2018).
10. **Comes, R. B.** *Atom-by-Atom Engineering of Oxide Thin Films and Nanocomposites via Molecular Beam Epitaxy* (Tuskegee University, Department of Physics, Oct. 2018).
- 2017 | 9. **Comes, R. B.** *Atom-by-Atom Engineering of Oxide Thin Films and Nanocomposites via Molecular Beam Epitaxy* (University of Alabama, Department of Physics, Oct. 2017).
8. **Comes, R. B.** *Atom-by-Atom Engineering of Oxide Thin Films and Nanocomposites via Molecular Beam Epitaxy* (University of Alabama-Birmingham, Department of Physics, Apr. 2017).
- 2016 | 7. **Comes, R. B.** *Engineering Electronic and Optical Properties in Oxides by Design* (Lehigh University, Department of Materials Science and Engineering, Mar. 2016).
6. **Comes, R. B.** *Controlling Band Structure in Complex Oxide Thin Films with Dopants and Interfaces* (Auburn University, Department of Physics, Feb. 2016).
- 2015 | 5. **Comes, R. B.** *Engineering Band Structure in SrTiO₃ Thin Films with Dopants and Interfaces* (Naval Research Laboratory, Physics of Electronic Materials Branch, Oct. 2015).
4. **Comes, R. B.** *Engineering Band Structure in SrTiO₃ Thin Films with Dopants and Interfaces* (University of Idaho, Department of Chemical Engineering and Materials Science, Apr. 2015).
- 2012 | 3. **Comes, R. B.** *Growth and Patterning of Epitaxial Multiferroic Nanocomposites Using Pulsed Electron Deposition* (Argonne National Laboratory, Materials Science Division, Nov. 2012).
2. **Comes, R. B.** *Epitaxial Multiferroic Nanocomposites: PED Growth and EBL Patterning* (Oak Ridge National Laboratory, Materials Science and Technology Division, Sept. 2012).
1. **Comes, R. B.** *Directed Self-Assembly of Epitaxial Multiferroic Nanocomposites* (Argonne National Laboratory, Materials Science Division, Feb. 2012).

Invited Conference Presentations

- | | |
|------|---|
| 2020 | 5. Comes, R. B. <i>Structural and Electronic Phenomena in Jahn-Teller Active Mn Spinel Thin Films</i> , ACERS Electronic Materials and Applications. Jan. 2020. |
| 2019 | 4. Comes, R. B. <i>Surface and Interface Studies of Complex Oxides Grown by Hybrid MBE</i> , Fusion Conferences, 4th Functional Oxide Thin Films for Advanced Energy and Information Technology Conference. July 2019. |
| 2018 | 3. Comes, R. B. <i>Surface and Interface Defects in SrTiO₃ Polar/Non-Polar Heterostructures</i> , Gordon Research Conference on Defects in Semiconductors. Aug. 2018. |
| 2017 | 2. Comes, R. B. <i>Measuring Built-in Electric Fields in Oxide Heterostructures with X-rays</i> , ACERS Electronic Materials and Applications. Jan. 2017. |
| 2016 | 1. Comes, R. B. <i>Interfacial Engineering and Characterization in Polar/Non-Polar Oxide Heterostructures</i> , 83rd Annual Meeting of the Southeastern Section of the American Physical Society. Nov. 2016. |

Service to Research Community

Peer Review

- Journal referee for *Nature Materials*, *Nature Communications*, *Physical Review Letters*, *Physical Review B*, *Physical Review Materials*, *Nano Letters*, *ACS Nano*, *Chemistry of Materials*, *Advanced Functional Materials*, *Applied Physics Letters*, and others.
- *National Science Foundation*, Division of Materials Research ad hoc and panel reviewer
- *Department of Energy*, Basic Energy Science Proposal reviewer
- *Air Force Office of Scientific Research*, Proposal reviewer

Conference Organization

American Physical Society

- *March Meeting 2017*: Focus Session Organizer and Session Chair, Complex Oxide Interfaces and Heterostructures
- *March Meeting 2019*: Focus Session Organizer and Session Chair, Complex Oxide Interfaces and Heterostructures

American Ceramics Society

- *Electronic Materials and Applications 2018*: Symposium co-organizer, “Complex oxide and chalcogenide semiconductors: Research and applications”; Session chair: “Multifunctional nanocomposites”
- *Electronic Materials and Applications 2019*: Lead Symposium Organizer, “Complex oxide and chalcogenide semiconductors”; Session chair: “Oxide Semiconductors”
- *Electronic Materials and Applications 2020*: Symposium co-organizer, “Complex oxide and chalcogenide semiconductors”; Session chair: “Low Dimensional Systems”

International Workshop on Oxide Electronics

- Co-organizer, 2020 International Workshop on Oxide Electronics (postponed to 2022 due to COVID)