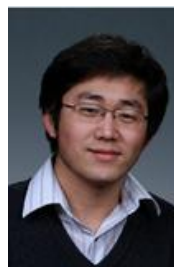


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Education

Beijing University of Aeronautics and Astronautics, China Material Science & Engr. B.S., 2003
Beijing University of Aeronautics and Astronautics, China Material Science & Engr. Ph.D., 2009

Professional Experience

2011–p Postdoctoral Research Associate, Functional Hybrid Nanostructures Group, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory (ORNL)
2009–2011 Postdoctoral Research Associate, Pacific Northwest National Laboratory (PNNL)

Professional and Synergistic Activities

2010–p Member, Materials Research Society
2010–p Reviewer, *Phys. Rev. Lett.*; *Phys. Rev. B*; *Appl. Phys. Lett.*; *J. Appl. Phys.*; *Chem. Comm.*; *J. Mater. Chem.*; *Phys. Chem. Chem. Phys.*; *CrystEngComm*; *Dalton Transactions*
2010 Award Committee, Gibson-Fawcett Award, Royal Society of Chemistry

Honors and Awards

2010 Excellent Ph.D. Thesis Award for Beijing University of Aeronautics and Astronautics
2008 Innovation Foundation of Beijing University of Aeronautics and Astronautics for Ph.D. Graduate Award

Patents

“Metal Platinum Doping LaNiO₃ Composite Electrode and its Fabrication Method,” X. F. Bi, L. Qiao, X. H. Cheng, CN ZL1925190, 2007.

Recent Invited Talks and Contributed Conference Presentations

“Thermodynamic Instability at the Stoichiometric LaAlO₃/SrTiO₃(001) Interface,” Materials Research Society 2010 Fall Meeting, Boston, MA, Nov. 29-Dec. 3, 2010.
“Structure, Ferroelectric and Ferromagnetic Properties of Composed Ferroic BaTiO₃-Ni films,” The 6th Pacific Rim International Conferences on Advanced Materials and Processing, Jeju, Korea, Nov. 5-Nov. 9, 2007.

Publications (30 publications in refereed journals, 2 book chapters) *Full publication list follows CV*

Research Synopsis

1. Epitaxial growth of oxide films and the related “composition-structure-property-application” correlations.
2. Electronic/magnetic structure and transport properties of correlated and doped perovskite epitaxial films and oxide/oxide, oxide/metal, oxide/semiconductor interfaces or superlattices.
3. Optical, photovoltaic, and electro-optical response in oxide nanostructures.
4. Magnetoelectric response in multiferroic or composite ferroic thin films or materials.
5. Strain state, size effect and surface effect on the domain structure, ferroelectric properties and ferroelectric phase transition characters of ferroelectric materials or thin films.

6. Electronic structure of strongly correlated or ferromagnetic/ferroelectric/multiferroic materials and ferroelectric/dielectric phase transition in thin films.

Collaborations: M. Biegalski (Oak Ridge National Laboratory); S. A. Chambers (Pacific Northwest National Laboratory); H. Christen (Oak Ridge National Laboratory); H. Meyer (Oak Ridge National Laboratory)

Graduate and Postdoctoral Advisors:

Graduate Advisor: Prof. Xiaofang Bi, Beijing University of Aeronautics and Astronautics

Postdoctoral Advisors: Dr. Michael D. Biegalski, Oak Ridge National Laboratory

Dr. Scott A. Chambers, Pacific Northwest National Laboratory

PUBLICATIONS

Liang Qiao

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Recent Book Chapters

- L. Qiao and X. F. Bi, "Preparation, Structure and Performance of High Quality Metal-Oxide Composite Electrode Film for Ferroelectric Film Devices," pp. 285-310, Chapter 8 in *Advances in Materials Sciences Research*, Vol. 8, ed., Maryann C. Wytherst, ISBN: 978-1-61209-822-7, Nova Science Publishers, Inc., Hauppauge, NY, 2011.
- L. Qiao and X. F. Bi, "Epitaxial Integration of Ferroelectric BaTiO₃ with Semiconductor Si: From a Structure-Property Correlation Point of View," pp. 363-388, Chapter 18 in *Ferroelectrics – Material Aspects*, ed., Mickaël Lallart, ISBN: 978-953-307-182-4, InTech Open Access Publisher, Vienna, Austria, 2011.

Refereed Journals

- S. A. Chambers, L. Qiao, T. C. Droubay, B. Arey, P. V. Sushko, "Band Alignment, Build-in Potentials and the Absence of Conductivity at the LaCrO₃/SrTiO₃ Heterojunction," *Physical Review Letters* **107**, 206802 (2011).
- L. Qiao, T. C. Droubay, M. E. Bowden, V. Shutthanandan, T. C. Kaspar, S. A. Chambers, "LaCrO₃ Heteroepitaxy on SrTiO₃(001) by Molecular Beam Epitaxy," *Applied Physics Letters* **99**, 061904 (2011).
- L. Qiao, T. C. Droubay, T. C. Kaspar, P. V. Sushko, S. A. Chambers, "Cation Mixing, Band Offsets and Electrical Fields at the LaAlO₃/SrTiO₃(001) Heterojunction with variable La:Al atom ratio," *Surface Science* **605**, 1381 (2011). ***Editor's Choice**
- L. Qiao, T. C. Droubay, T. Varga, M. E. Bowden, V. Shutthanandan, Z. Zhu, T. C. Kaspar and S. A. Chambers, "Epitaxial Growth, Structure and Intermixing at the LaAlO₃/SrTiO₃ Interface as the Film Stoichiometry is Varied," *Physical Review B* **83**, 085408 (2011).
- L. Qiao and X. F. Bi, "Dielectric Phase Transition and Relaxor Behavior in BaTiO₃/LaNiO₃ Superlattice," *CrystEngComm* **13**, 1693 (2011) ***RSC Hot Paper**
- L. Qiao and X. F. Bi, "Direct Observation of Ni³⁺ and Ni²⁺ in Correlated LaNiO_{3-δ} Films," *Europhysics Letters* **93**, 57002 (2011).
- L. Qiao and X. F. Bi, "Enhanced Ferroelectricity of BaTiO₃ Film by Optimizing its Conducting Electrode Layer," *Journal of Materials Chemistry* **21**, 6280 (2011). ***Journal Cover**
- S. A. Chambers, M. H. Engelhard, V. Shutthanandan, Z. Zhu, T. C. Droubay, L. Qiao, P. V. Sushko, T. Feng, H. D. Lee, T. Gustafsson, E. Garfunkel, A. Shah, J.-M. Zuo, Q. M. Ramasse, "Intermixing, Instability and Electronic Structure at the Epitaxial LaAlO₃/SrTiO₃(001) Heterojunction," *Surface Science Reports* **65**, 317 (2010).
- T. C. Droubay, L. Qiao, T. C. Kaspar, M. H. Engelhard, V. Shutthanandan, S. A. Chambers, "Nonstoichiometric Material Transfer in the Pulsed Laser Deposition of LaAlO₃," *Applied Physics Letters* **97**, 124105 (2010).
- L. Qiao and X. F. Bi, "Direct Observation of Oxygen Vacancy and Its Effect on the Microstructure, Electronic and Transport Properties of Sputtered LaNiO_{3-δ} Films on Si Substrates," *Thin Solid Films* **519**, 943 (2010).
- L. Qiao and X. F. Bi, "Origin of Compressive Strain and Phase Transition Characteristics of Thin BaTiO₃ Film Grown on LaNiO₃/Si Substrate," *Physica Status Solidi A* **207**, 2511 (2010). ***Journal Cover**
- L. Qiao, T. C. Droubay, V. Shutthanandan, Z. Zhu, P. V. Sushko, S. A. Chambers, "Thermodynamic Instability at the Stoichiometric LaAlO₃/SrTiO₃(001) Interface," *Journal of Physics: Condensed*

Matter **22**, 312201 (2010). ***Highlights of 2010**

- L. Qiao and X. F. Bi, "Dielectric Behavior of BaTiO₃-Ni Composite Ferroic Films," *Applied Physics A* **95**, 733 (2009).
- L. Qiao and X. F. Bi, "Effect of Different Buffer Layers on the Microstructure and Dielectric Properties of Different Buffer Layers on the Microstructure and Dielectric Properties of BaTiO₃ Thin Films Grown on Si Substrates," *Journal of Alloys and Compounds* **477**, 560 (2009).
- L. Qiao and X. F. Bi, "Effect of LaNiO₃ Buffer Layer Thickness on the Microstructure and Electrical Properties of (100)-Oriented BaTiO₃ Thin Films on Si Substrate," *Thin Solid Films* **317**, 3784 (2009).
- L. Qiao and X. F. Bi, "Microstructural Orientation, Strain State and Diffusive Phase Transition of Pure Argon Sputtered BaTiO₃ Film," *Journal of Physics D: Applied Physics* **42**, 175508 (2009).
- L. Qiao and X. F. Bi, "Microstructure and Grain Size Dependence of Ferroelectric Properties of BaTiO₃ Thin Films on LaNiO₃ Buffered Si," *Journal of the European Ceramic Society* **29**, 1995 (2009).
- L. Qiao and X. F. Bi, "Nanostructure and Performance of Pt-LaNiO₃ Composite Film for Ferroelectric Film Devices," *Acta Materialia* **57**, 4109 (2009).
- L. Qiao and X. F. Bi, "Dielectric Response and Structure of In-Plane Tensile Strained BaTiO₃ Thin Films Grown on the LaNiO₃ Buffered Si Substrate," *Applied Physics Letters* **92**, 062912 (2008).
- L. Qiao and X. F. Bi, "Domain Configuration and Phase Transition for BaTiO₃ Thin Films on Tensile Si Substrates," *Journal of Crystal Growth* **310**, 5327 (2008).
- L. Qiao and X. F. Bi, "Effect of Substrate Temperature on the Microstructure and Transport Properties of Highly (100)-Oriented LaNiO₃-delta Films by Pure Argon Sputtering," *Journal of Crystal Growth* **310**, 3653 (2008).
- L. Qiao and X. F. Bi, "Evaluation of Magnetoelectric Coupling in a BaTiO₃-Ni Composite Ferroic Film by Impedance Spectroscopy," *Applied Physics Letters* **92**, 214101 (2008).
- L. Qiao and X. F. Bi, "Microstructure and Electrical Properties of the Conductive Pt-LaNiO₃ Composite Films Deposited with Co-Sputtering," *Applied Surface Science* **255**, 3170 (2008).
- L. Qiao and X. F. Bi, "Microstructure and Ferroelectric Properties of BaTiO₃ Films on LaNiO₃ Buffer Layers by RF Sputtering," *Journal of Crystal Growth* **310**, 2780 (2008).
- L. Qiao and X. F. Bi, "Strain State, Microstructure and Electrical Transport Properties of LaNiO₃ Films Grown on Si Substrates," *Journal of Physics D: Applied Physics* **41**, 195407 (2008).
- X. H Cheng, L. Qiao, X. F. Bi, "Preparation and Microstructure of Highly-Oriented LaNiO₃ Thin Films by RF Sputtering Method," *Chinese Journal of Aeronautics* **19**, S142 (2006).
- F. S. Lu, L. Qiao, X. F. Bi, "Magnetic and Mechanical Properties of FeSi Alloys with High Si Content," *Transactions of Nonferrous Metals Society of China* **16**, S81 (2006).