Quanxi JIA

Center for Integrated Nanotechnologies (CINT), MS K771
Los Alamos National Laboratory
Los Alamos, NM 87545

Tel: (505) 667-2716
Fax: (505) 665-9030
E-mail: qxjia@lanl.gov

EDUCATION

09/1991	**Ph.D.** in Electrical & Computer Engineering, SUNY at Buffalo, NY
04/1985	**M.S.** in Electronic Engineering, Jiaotong Univ., Xian, China
07/1982	**B.S.** in Electronic Engineering, Jiaotong Univ., Xian, China

PROFESSIONAL EXPERIENCE

02/2016 - present	Director of CINT & Group Leader of MPA-CINT, LANL
04/2015 - 02/2016	Co-Director of CINT & Group Leader of MPA-CINT, LANL
06/2014 - 04/2015	Acting Co-Director of CINT, LANL
09/2003 - present	Laboratory Fellow, Los Alamos National Laboratory (LANL)
12/2009 - 06/2014	Thrust Leader, CINT, LANL
03/2010 - present	Visiting Professor, Konkuk Univ., Seoul, Korea
10/1997 - 12/2009	Team Leader, Superconductivity Technology Center, LANL
01/1996 - present	Technical Staff Member, LANL
08/1993 - 01/1996	Director's Postdoctoral Fellow, LANL
04/1993 - 12/1993	Visiting Associate Professor, Kumamoto University, Japan
09/1991 - 08/1993	Research Associate, State University of New York (SUNY) at Buffalo
09/1988 - 08/1991	Teaching Assistant, SUNY at Buffalo
02/1988 - 08/1988	Research Associate, SUNY at Buffalo
12/1987 - 01/1988	Assistant Professor, Jiaotong Univ., Xian, China
05/1985 - 11/1987	Research Associate, Jiaotong Univ., Xian, China

FUNDED PROJECTS, PATENTS, PUBLICATIONS, & PRESENTATIONS

- More than 40 funded projects (as PI)
- 47 US patents issued
- More than 400 peer reviewed journal articles with a total citation over 15,000 and an *h*-index 60 from Google Scholar
- More than 100 invited conference presentations and seminars
- 9 book chapters and 6 co-Edited proceeding books
- More than 60 refereed/un-refereed proceeding articles

RESEARCH INTERESTS

- Synthesis and structure-property relationships of nanostructured materials, multifunctional materials, thin films and multilayer systems. In particular, the growth of nanocomposite and multilayer metal-oxide thin films, the mechanism of film growth, optical/electrical properties of the films, and device applications of the films
- Novel deposition techniques for the growth of electronic materials with controlled structural and transport properties
- Development and fabrication of high-temperature superconducting films for coated conductors and devices, device applications of superconducting materials

- Development and fabrication of novel solid-state microelectronic/electro-optic devices, research on advanced semiconductor devices and materials
- Development and study of energy materials and devices

HONORS & AWRADS

- *Fellow* of Materials Research Society (2014)
- *Fellow* of American Association for the Advancement of Science (2011)
- Postdoctoral Distinguished Mentor Awards, LANL (2010)
- *Fellow* of American Ceramic Society (2010)
- Adjunct Professor, State Univ. of New Mexico, Las Cruces, NM (2010 - present)
- *Fellow* of American Physical Society (2009)
- The Outstanding Women's Career Development Mentoring Awards, LANL (2008)
- The Federal Laboratory Consortium for Technology Transfer Awards (2008)
- Adjunct Professor, Jiaotong Univ., Xian, China (2008 - present)
- Asian-American Engineer of the Year Award (2005)
- *Laboratory Fellow* of Los Alamos National Laboratory (2003)
- R&D 100 award - Flexible Superconducting Tape (2003)
- Los Alamos National Laboratory Achievement Award (2000)
- R&D 100 award - Underground Radio (1998)
- Listed in Marquis *Who's Who*
- Listed in *who's Who in America*
- Listed in *Who's Who in Science and Engineering*
- Listed in *American Men and Women of Science*
- Award for Excellence in Industrial Partnerships at LANL (1996)
- National Link Foundation Fellowship Award at SUNY (1990 - 1991)
- Distinguished Teaching Award at Jiaotong University (1986 - 1987)

PROFESSIONAL SERVICES

- Editor-in-Chief for *Materials Research Letters*, Taylor & Francis Group (2012 – present)
- Editorial Board for *Ferroelectrics Letters*, Taylor & Francis Group (2013 – present)
- Editorial Board for *Nano Convergence*, Springer (2013 – present)
- Editorial Board for *J. Semiconductors*, IOP Publishing (2010 – present)
- International Editorial Board for *Trans. Electrical & Electronic Materials*, Korean IEEE (2010 – present)
- Executive Committee of the Electronics Division, American Ceramic Society (ACerS): Secretary-Elect (2008 - 2009); Secretary (2009 - 2010); Vice-Chair & Program Chair (2010 - 2011); Chair-Elect (2011 - 2012); Chair (2012 - 2013)
- Chair of Award Committee of the Electronics Division, ACerS (2007 - 2008)
- LANL Fellows Organization: Secretary (2009 - 2010); Deputy Coordinator (2010 - 2011); Coordinator (2011 - 2012)
- Chair of LDRD-DR Sci./Eng. Advisory Panel (2010); Member of the Proposal Review Committee for the LDRD-ERs (1996, 1997, 2000, 2001, 2014)

- Member of the Postdoctoral Selection Committee at LANL (2002 – 2005)
- Division Leader Selection Committee for Materials Physics & Applications at LANL (2015)
- Division Deputy Leader Selection Committee for Materials Science & Technology at LANL (2003)
- Review Panel of NSF MRI/IMR, ERC, DMR/ECCS proposals
- Proposal reviewer for NSF, BES/DOE, SBIR, and other funding agencies
- External reviewer for the Korea Science Prizes
- Organizing committees of over 30 international Symposia/conferences
- Reviewer for the scientific journals: *Science*, *Nat. Mater., Nat. Commun*., *Adv. Mate., Adv. Functional Mater., Appl. Phys. Lett., J. Appl. Phys., J. Vac. Sci. Technol., J. Mater. Res., Integrated Ferroelectrics, Ferroelectrics, IEEE Trans. Appl. Supercond., IEEE Electron Devices Lett., Phil. Mag. B, Physica B, Physica C, J. Am. Ceramic Soc., Thin Solid Films, J. Phys. Chem. B, Chem. Mater., J. Am. Chem. Soc., ACS Nano, Small, Angew. Chem. Int. Ed*., *J. Phys. Chem., Phys. Status Solidi (a), Appl. Surf. Sci., Electrochem. Solid-State Lett., Int. J. Photoenergy, Supercond. Sci. Technol., J. Crystal Growth, Crystal Growth & Design, and Rev. Sci. Instrum., Acta Materialia, APL Mater.*

TEACHING AND MENTORING

- Supervised and mentored 35 postdoctoral and graduate students
- Supervised 8 college and high school interns

MEMEBERSHIPS

American Physical Society (APS)
American Ceramic Society (ACerS)
Materials Research Society (MRS)
Institute of Electrical & Electronics Engineers (IEEE)
American Association for the Advancement of Science (AAAS)

PATENTS (*47 issued*)

1. J. L. Driscoll, S. B. Lee, and Q. X. Jia, "Memristor comprising film with comb-like structure of nanocolumns of metal oxide embedded in a metal oxide matrix," United States Patent No. 9,029,985, May 12, 2015

2. L. Boulaevskii, D. M. Feldmann, Q. X. Jia, A. Koshelev, N. A. Moody, "Tunable terahertz radiation source," United States Patent No. 8,633,472, Jan. 21, 2014

3. T. M. McCleskey, A. K. Burrell, Q. X. Jia, and Y. Lin, "Precursors for the polymer-assisted deposition of films," United States Patent No. 8,530,554, Sept. 10, 2013

4. H. M. Luo, Q. W. Li, E. Bauer, A. K. Burrell, T. M. McCleskey, and Q. X. Jia, "Polymer-assisted deposition of films and preparation of carbon nanotube arrays using the films," United States Patent No. 8,487,028, July 16, 2013

5. A. K. Burrell, T. M. McCleskey, Q. X. Jia, A. H. Mueller, and H. M. Luo, "Cubic nitride templates," United States Patent No. 8,431,253, April 30, 2013

6. Q. X. Jia, A. K. Burrell, E. Bauer, F. Ronning, T. M. McCleskey, and G. Zou, "Germanium films by polymer-assisted deposition," United States Patent No. 8,354,046, Jan. 15, 2013.

7. H. M. Luo, Q. W. Li, E. Bauer, A. K. Burrell, T. M. McCleskey, and Q. X. Jia, "Polymer-assisted deposition of films and preparation of carbon nanotube arrays using the films," United States Patent No. 8,278,380, Oct. 2, 2012.

8. A. K. Burrell, T. M. McCleskey, Q. X. Jia, E. Bauer, and A. H. Mueller, "Porous light-emitting compositions," United States Patent No. 8,158,247, April 17, 2012.

9. T. M. McCleskey, A. K. Burrell, Q. X. Jia, and Y. Lin, "Polymer-assisted deposition of films," United States Patent No. 8,124,176, Feb. 28, 2012.

10. H. Peng, Y. T. Zhu, D. E. Peterson, and Q. X. Jia, "Fibrous composites comprising carbon nanotubes and silica," United States Patent No. 8,034,448, Oct. 11, 2011.

11. L. Stan, Q. X. Jia, and S. R. Foltyn, "Buffer layers for coated conductors," United States Patent No. 8,003,571, Aug. 23, 2011.

12. H. Peng, Y. T. Zhu, D. E. Peterson, and Q. X. Jia, "Carbon microtubes," United States Patent No. 7,959,889, June 14, 2011.

13. P. N. Arendt, L. Stan, Q. X. Jia, R. F. DePaula, and I. O. Usov, "Wide band gap semiconductor templates," United States Patent No. 7,851,412, Dec. 14, 2010.

14. Y. Duan, Q. X. Jia, and W. Cao, "Hydrogen sensor," United States Patent No. 7,839,499, Nov. 23, 2010.

15. S. R. Foltyn, Q. X. Jia, P. N. Arendt, and H. Wang, "Buffer layer for thin film structures," United States Patent No. 7,736,761, June 15, 2010.

16. A. T. Findikoglu, Q. X. Jia, P. N. Arendt, V. Matias, and W. Choi, "Near single-crystalline, high-carrier-mobility silicon thin film on a polycrystalline/amorphous substrate," United States Patent No. 7,608,335, Oct. 27, 2009. *(Licensed)*

17. T. M. McCleskey, A. K. Burrell, Q. X. Jia, and Y. Lin, "Polymer-assisted deposition of films," United States Patent No. 7,604,839, Oct. 20, 2009. *(Licensed)*

18. S. R. Foltyn, Q. X. Jia, P. N. Arendt, and T. G. Holesinger, "Segmented superconducting tape having reduced AC losses and method of making," United States Patent No. 7,593,758, Sept. 22, 2009. *(Licensed)*

19. T. M. McCleskey, A. K. Burrell, Q. X. Jia, and Y. Lin, "Polymer-assisted deposition of films," United States Patent No. 7,365,118, April 29, 2008. *(Licensed)*

20. S. R. Foltyn, Q. X. Jia, and P. N. Arendt, "High rate buffer layer for IBAD MgO coated conductors," United States Patent No. 7,258,927, Aug. 21, 2007. *(Licensed)*

21. S. R. Foltyn, Q. X. Jia, P. N. Arendt, and H. Wang, "Buffer layer for thin film structures," United States Patent No. 7,129,196, Oct. 31, 2006.

22. T. G. Holesinger and Q. X. Jia, "Multilayer composites and manufacture of same," United States Patent No. 6,994,775, Feb. 7, 2006.

23. C. Kwon, Q. X. Jia, and S. R. Foltyn, "Superconducting structure," United Sates Patent No. 6,943,136, Sept. 13, 2005.

24. P. N. Arendt, S. R. Foltyn, J. R. Groves, T. G. Holesinger, and Q. X. Jia, "High temperature superconducting films," United States Patent No. 6,933,065, Aug. 23, 2005.

25. P. N. Arendt, S. R. Foltyn, J. R. Groves, and Q. X. Jia, "Substrate structure for growth of highly oriented and/or epitaxial layers thereon," United States Patent No. 6,921,741, July 26, 2005. *(Licensed)*

26. T. G. Holesinger, S. R. Foltyn, P. N. Arendt, J. R. Groves, Q. X. Jia, and A. Ayala, "High temperature superconducting composite conductors," United States Patent No. 6,843,898, Jan. 18, 2005.

27. Q. X. Jia, S. R. Foltyn, P. N. Arendt, and J. R. Groves, "Buffer layers on metal alloy substrates for superconducting tapes," United States Patent No. 6,800,591, Oct. 5, 2004.

28. Q. X. Jia, S. R. Foltyn, P. N. Arendt, and J. R. Groves, "Buffer layers on metal alloy substrates for superconducting tapes," United States Patent No. 6,756,139, June 29, 2004.

29. A. T. Findikoglu, S. F. Hahn, and Q. X. Jia, "Dynamic time expansion and compression using nonlinear waveguides," United States Patent No. 6,753,741, June 22, 2004.

30. Q. X. Jia and P. N. Arendt, "Oriented conductive oxide electrodes on SiO_2/Si and glass," United States Patent No. 6,743,292, June 1, 2004. *(Licensed)*

31. T. G. Holesinger, S. R. Foltyn, P. N. Arendt, J. R. Groves, Q. X. Jia, and A. Ayala, "High temperature superconducting composite conductors," United States Patent No. 6,716,545, April 6, 2004.

32. L. S. Li and Q. X. Jia, "Preparation of energy storage materials," United States Patent No. 6,656,390, Dec. 2, 2003. *(Licensed)*

33. T. G. Holesinger, Q. X. Jia, and S. R. Foltyn, "High critical current superconducting tapes," United Sates Patent No. 6,624,122, Sept. 23, 2003. *(Licensed)*

34. C. Kwon, Q. X. Jia, S. R. Foltyn, J. L. Smith, E. J. Peterson, and W. L. Hults, "Superconducting structure including mixed rare earth barium-copper oxide compounds," United Sates Patent No. 6,602,588, Aug. 5, 2003.

35. D. Q. Li and Q. X. Jia, "Polymer-assisted aqueous deposition of metal oxide films," United Sates Patent No. 6,589,457, July 8, 2003. *(Licensed)*

36. C. Kwon, Q. X. Jia, and S. R. Foltyn, "Superconducting structure," United Sates Patent No. 6,541,136, April 1, 2003.

37. L. S. Li and Q. X. Jia, "Preparation of energy storage materials," United States Patent No. 6,508,959, Jan. 21, 2003. *(Licensed)*

38. Q. X. Jia, X. D. Wu, S. R. Foltyn, and D. Reagor, "High temperature superconductor Josephson junctions and SQUIDs," United States Patent No. 6,476,413, Nov. 5, 2002.

39. C. Kwon and Q. X. Jia, "Ramp-edge structured tunneling devices using ferromagnet electrodes," United States Patent No. 6,445,024, Sept. 3, 2002.

40. Q. X. Jia, B. J. Gibbons, A. T. Findikoglu, and B. H. Park, "Thin film dielectric composite materials," United States Patent No. 6,444,336, Sept. 3, 2002.

41. Q. X. Jia and S. R. Foltyn, "Architecture for high critical current superconducting thick films," United States Patent No. 6,383,989, May 7, 2002. *(Licensed)*

42. Q. X. Jia and P. N. Arendt, "Highly oriented conducting layers on SiO_2/Si and glass," United States Patent No. 6,312,819, Nov. 6, 2001. *(Licensed)*

43. Q. X. Jia and A. T. Findikoglu, "Formation of nonlinear dielectric films for electrically tunable microwave devices," United States Patent No. 6,045,932, April 4, 2000.

44. Q. X. Jia, "Epitaxial oxides on amorphous SiO_2 on single crystal silicon," United States Patent No. 5,912,068, June 15, 1999.

45. W. A. Anderson, Q. X. Jia, J. Yi, and L. H. Chang, "Nanocrystalline layer thin film capacitors," United States Patent No. 5,587,870, Dec. 24, 1996.

46. W. A. Anderson, F. M. Collins, Q. X. Jia, K. L. Jiao, and H. J. Lee, "Thin film resistors comprising ruthenium oxide," United States Patent No. 5,585,776, Dec. 17, 1996.

47. W. A. Anderson, R. S. Hamilton, Q. X. Jia, and Z. Q. Shi, "Thin film capacitors," United States Patent No. 5,390,072, Feb. 14, 1995. *(Licensed)*

PEER-REVIEWED JOURNAL ARTICLES (*over 400*)

1. X. Lü, G. Wang, J. W. Howard, A. Chen, Y. Zhao, L. L. Daemen, and Q. X. Jia, "Anti-perovskite Li_3OCl superionic conductor films for solid-state Li-ion batteries," *Adv. Sci.*, DOI: 10.1002/advs.201500359.

2. S. Singh, J. Xiong, A. P. Chen, M. R. Fitzsimmons, and Q. X. Jia, "Field dependent magnetization of $BiFeO_3$ in ultrathin $La_{0.7}Sr_{0.3}MnO_3/BiFeO_3$ superlattice," *Phys. Rev. B* **92**, 224405 (2015).

3. S. M. Yang, S. Lee, J. Jian, W. Zhang, Q. X. Jia, H. Wang, T. W. Noh, S. V. Kalinin, and J. L. MacManus-Driscoll, "Strongly enhanced oxygen ion transport through samarium-doped CeO_2 nanopillars in nanocomposite films," *Nat. Commun*. **6**, 8588 (2015).

4. W. Zhang, M. Fan, L. Li, A. Chen, Q. Su, Q. X. Jia, J. L. MacManus-Driscoll, and H. Wang, "Heterointerface design and strain tuning in epitaxial $BiFeO_3$:$CoFe_2O_4$ nanocomposite films," *Appl. Phys. Lett.* **107**, 21290 (2015).

5. S. Lee, W. Zhang, F. Khatkhatay, H. Wang, Q. X. Jia, and J. L. MacManus-Driscoll, "Ionic conductivity increased by two orders of magnitude in micrometer-thick vertical yttria-stabilized ZrO_2 nanocomposite films," *Nano Lett.* **15**, 7362 (2015).

6. W. Zhang, L. Li, P. Lu, M. Fan, Q. Su, F. Khatkhatas, A. Chen, Q. X. Jia, X. Zhang, J. L. MacManus-Driscoll, and H. Wang, "Perpendicular exchange-bias magnetotransport at the vertical heterointerfaces in $La_{0.7}Sr_{0.3}MnO_3$:NiO nanocomposites," *ACS Appl. Mater. & Interfaces* **7**, 21646 (2015).

7. C. W. Nan and Q. X. Jia, "Obtaining ultimate functionalities in nanocomposites: Design, control, and fabrication," *MRS Bulletin* **40**, 719 (2015).

8. J. L. MacManus-Driscoll, A. Suwardi, A. Kursumovic, Z. Bi, C.-F. Tsai, H. Wang, Q. X. Jia, and Q. J. Lee, "New strain states and radical property tuning of metal oxides using a nanocomposite thin film approach," *APL Mater*. **3**, 062507 (2015).

9. W. Zhang, A. Chen, J. Jian, Y. Zhu, L. Chen, P. Lu, Q. X. Jia, J. L. MacManus-Driscoll, X. Zhang, and H. Wang, "Strong perpendicular exchange bias in epitaxial $La_{0.7}Sr_{0.3}MnO_3$:$BiFeO_3$ nanocomposite films through vertical interfacial coupling," *Nanoscale* **7**, 13808 (2015).

10. S. Lee, W. Zhang, Q. X. Jia, H. Wang, and J. L. MacManus-Driscoll, "Strain tuning and strong enhancement of ionic conductivity in $SrZrO_3$-RE_2O_3 (RE = Sm, Eu, Gd, Dy, and Er) nanocomposite films," *Adv. Functional Mater*. **25**, 4328 (2015).

11. P. Jain, Q. Wang, M. Roldan, A. Glavic, V. Lauter, C. Urban, Z. Bi, T. Ahmed, J. Zhu, M. Varela, Q. X. Jia, and M. R. Fitzsimmons, "Synthetic magnetoelectric coupling in a nanocomposite multiferroic," *Scientific Reports* 5, 9089 (2015).

12. Y. Park, J. S. Choi, T. Choi, M. J. Lee, Q. X. Jia, M. Park, H. Lee, and B. H. Park, "Configuration of ripple domains and their topological defects formed under local mechanical stress on hexagonal monolayer graphene," *Scientific Reports* **5**, 9390 (2015).

13. A. Chen, N. Poudyal, J. Xiong, J. P. Liu, and Q. X. Jia, "Modification of structure and magnetic anisotropy of epitaxial $CoFe_2O_4$ films by hydrogen reduction," *Appl. Phys. Lett*. **106**, 111907 (2015).

14. Y. M. Sheu, S. A. Trugman, L. Yan, Q. X. Jia, A. J. Taylor, and R. P. Prasankumar, "Ultrafast optical manipulation of magnetoelectric coupling at a multiferroic interface," *Nat. Commun*. **5**, 5832 (2014).

15. P. Lu, E. Roemro, S. Lee, J. L. MacManus-Driscoll, and Q. X. Jia, "Chemical quantification of atomic-scale EDS maps under thin specimen conditions," *Microscopy & Microanalysis* **20**, 1782 (2014).

16. X. Lü, G. Wang, J. W. Howard, A. Chen, Y. Zhao, L. L. Daemen, and Q. X. Jia, "Li-rich anti-perovskite Li_3OCl films with enhanced ionic conductivity," *Chem. Commun*. **50**, 11520-11522 (2014).

17. Q. Y. Lei, M. Golalikhani, D. Yang, W. Withanage, A. Rafti, J. Qiu, M. Hambe, E. Bauer, F. Ronning, Q. X. Jia, J. Weiss, E. Hellstrom, X. Wang, X. H. Chen, F. Williams, Q. Yang, D. Temple, and X. X. Xi, "Structural and transport properties of epitaxial $Ba(Fe_{1-x}Co_x)_2As_2$ thin films on various substrates," *Supercond. Sci. Technol*. **27**, 115010 (2014).

18. S. Lee, A. Sangle, P. Lu, A. Chen, W. Zhang, J. S. Lee, H. Wang, Q. X. Jia, and J. L. MacManus-Driscoll, "Novel electroforming-free nanoscaffold memristor with very high uniformity, tunability and density," *Adv. Mater*. **26**, 6284 (2014).

19. J. A. Aguiar, P. P. Dholabhai, Z. Bi, Q. X. Jia, E. Fu, Y. Wang, T. Aoki, J. Zhu, A. Amit, and B. P. Uberuaga, "Probing defect-boundary interactions at oxide interfaces," *J. Mater. Res*. **29**, 1699-1710 (2014). (*Invited feature paper*)

20. E. M. Choi, T. Fix, A. Kursumovic, C. J. Kinane, D. Arena, S. L. Sahonta, Z. Bi, J. Xiong, L. Yan, J. S. Lee, H. Wang, S. Langridge, Y. M. Kim, A. Y. Borisevich, I. MacLaren, Q. M. Ramasse, M. G. Blamire, Q. X. Jia, and J. L. MacManus-Driscoll, "Room temperature ferrimagnetism and ferroelectricity in strained, thin films of $BiFe_{0.5}Mn_{0.5}O_3$,"*Adv. Funct. Mater*. **24**, 7478 (2014).

21. M. Staruch, K. Cil, H. Silva, J. Xiong, Q. X. Jia, and M. Jain, "Effect of Mn doping on the properties of sol-gel derived $Pb_{0.3}Sr_{0.7}TiO_3$ thin films," *Ferroelectrics* **470**, 227 (2014).

22. S. Sing, J. H. Haraldsen, J. Xiong, E. M. Choi, P. Lu, D. Yi, X. D. Wen, J. Liu, H. Wang, Z. Bi, P. Yu, M. R. Fitzsimmons, J. L. MacManus-Driscoll, R. Ramesh, A. V. Balatsky, J. X. Zhu, and Q. X. Jia, "Induced magnetization in $La_{0.7}Sr_{0.3}MnO_3/BiFeO_3$ superlattices," *Phys. Rev. Lett*. **113**, 047204 (2014).

23. J. A. Aguiar, P. P. Dholabhai, Z. Bi, Q. X. Jia, E. G. Fu, Y. Q. Wang, T. Aoki, J. Zhu, A. Amit, and B. P. Uberuaga, "Linking interfacial step structure and chemistry with locally enhanced radiation-induced amorphization at oxide heterointerfaces," *Adv. Mater. Interfaces* **1**, 1300142 (2014).

24. A. Chen, M. Weigand, Z. Bi, W. Zhang, X. Lv, P. Dowden, H. Wang, J. L. MacManus-Driscoll, and Q. X. Jia, "Role of microstructure and strain on the magnetoresistance of nanocomposite films," *Scientific Reports* **4**, 5426 (2014).

25. R. Zhao, W. Li, J. H. Lee, E. M. Choi, Y. Liang, W. Zhang, R. Tang, H. Wang, Q. X. Jia, J. L. MacManus-Driscoll, and H. Yang, "Precise tuning of $(YBa_2Cu_3O_{7-\delta})_{1-x}$:$(BaZrO_3)_x$ thin film nanocomposite structures," *Adv. Funct. Mater*. **24**, 5240-5245 (2014).

26. J. Xiong, V. Matias, B. W. Tao, Y. R. Li, and Q. X. Jia, "Ferroelectric and ferromagnetic properties if epitaxial $BiFeO_3$-$BiMnO_3$ films on ion-beam-assisted deposited TiN buffered flexible Hastelloy," *J. Appl. Phys*. **115**, 17D913 (2014).

27. Y. Ji, Y. Zhang, M. Gao, Z. Yuan, Y. D. Xia, C. Q. Jin, B. W. Tao, C. L. Chen, Q. X. Jia, and Y. Lin, "Role of microstructures on the M1-M2 phase transition in epitaxial VO_2 thin films," *Scientific Reports* **4**, 4854 (2014).

28. Z. Bi, B. P. Uberuaga, L. J. Vernon, J. A. Aguiar, E. G. Fu, S. Zheng, S. Zhang, Y. Q. Wang, A. Misra, and Q. X. Jia, "Role of the interface on radiation damage in the $SrTiO_3$/$LaAlO_3$ heterostructure under Ne^{2+} ion irradiation," *J. Appl. Phys*. **115**, 124315 (2014).

29. Y. M. Sheu, S. A. Trugman, L. Yan, J. Qi, Q. X. Jia, A. J. Taylor, and R. P. Prasankumar, "Polaronic transport induced by competing interfacial magnetic order in a $La_{0.7}Ca_{0.3}MnO_3$/$BiFeO_3$ heterostructure," *Phys. Rev. X* **4**, 021001 (2014).

30. A. Chen, Z. X. Bi, W. Zhang, J. Jian, Q. X. Jia, and H. Wang, "Textured metastable VO_2 (B) thin films on $SrTiO_3$ substrates with significantly enhanced conductivity," *Appl. Phys. Lett.* **104**, 071909 (2014).

31. P. C. Dowden, Z. Bi, and Q. X. Jia, "Method for controlling energy density for reliable pulsed laser deposition of thin films," *Rev. Sci. Instrum.* **85**, 025111 (2014).

32. W. Zhang, J. Jian, A. Chen, L. Jiao, F. Khatkhatay, L. Li, F. Chu, Q. X. Jia, J. L. MacManus-Driscoll, and H. Wang, "Strain relaxation and enhanced perpendicular magnetic anisotropy in $BiFeO_3$:$CoFe_2O_4$ vertically aligned nanocomposite thin films**,"** *Appl. Phys. Lett*. **104**, 062402 (2014).

33. Q. Su, W. Gong, D. Yoon, C. Jacob, Q. X. Jia, A. Manthiram, A. J. Jacobson, and H. Wang, "Interlayer effects on oxygen reduction kinetics in porous electrodes of $La_{0.5}Sr_{0.5}CoO_{3-\delta}$," *J. Electrochem. Soc*. **161**, F398-F404 (2014).

34. W. Z. Liang, Z. Li, Z. X. Bi, T. X. Nan, H. Du, C. W. Nan, C. L. Chen, Q. X. Jia, and Y. Lin, "Role of the interface on the magnetoelectric properties of $BaTiO_3$ thin films deposited on polycrystalline Ni foils," *J. Mater. Chem. C*. **2**, 708 (2014).

35. T. M. McCleskey, P. Shi, E. Bauer, M. J. Highland, J. A. Eastman, Z. X. Bi, P. H. Fuoss, P. M. Baldo, W. Ren, B. L. Scott, A. K. Burrell, and Q. X. Jia, "Nucleation and growth of epitaxial metal-oxide films based on polymer-assisted deposition," *Chem. Soc. Rev*. **43**, 2141 (2014). (*Tutorial review*)

36. B. L. Scott, J. J. Joyce, T. D. Durakiewicz, R. L. Martin, T. M. McCleskey, E. Bauer, H. Luo, and Q. X. Jia, "High quality epitaxial thin films of actinide materials: advancing understanding of electronic structure of *f*-element materials," *Coord. Chem. Rev*. **266-267**, 137-154 (2014). (*Review article*)

37. W. Zhang, A. Chen, Z. X. Bi, Q. X. Jia, J. L. MacManus-Driscoll, and H. Wang, "Interfacial coupling in heteroepitaxial vertically aligned nanocomposite thin films: from lateral to vertical control," *Curr. Opin. Solid State Mater. Sci*. **18**, 6-18 (2014).

38. M. P. Paranthaman, T. Aytug, L. Stan, Q. X. Jia, C. Cantoni, and S. H. Wee, "Chemical solution derived planarization layers for highly aligned IBAD MgO templates," *Supercond. Sci. Technol*. **27**, 022002 (2014). (*Journal cover*)

39. R. E. Jilek, E. Bauer, A. K. Burrell, T. M. McCleskey, Q. X. Jia, B. L. Scott, M. F. Beaux, T. Durakiewicz, J. J. Joyce, K. D. Rector, J. Xiong, K. Gofryk, F. Ronning, and R. L. Martin, "Preparation of epitaxial uranium dicarbide thin films by polymer-assisted deposition," *Chem. Mater*. **25**, 4373-4377 (2013).

40. Q. Su, D. Yoon, Z. Sisman, F. Khatkhatay, Q. X. Jia, A. Manthiram, and H. Wang, "Vertically aligned nanocomposite $La_{0.8}Sr_{0.2}MnO_{3-\delta}/Zr_{0.92}Y_{0.08}O_{1.96}$ thin films as electrode/electrolyte interfacial layer for solid oxide reversible fuel cells," *Intl. J. Hydrogen Energy* **38**, 16320-16327 (2013).

41. Y. Y. Zhu, A. Chen, H. Zhou, W. Zhang, J. Narayan, J. L. MacManus-Driscoll, Q. X. Jia, and H. Wang, "Research updates: Epitaxial strain relaxation and associated interfacial reconstructions: The driving force for creating new structures with integrated functionality," *APL Mater*. **1**, 050702 (2013).

42. Y. Xu, G. Chen, E. Fu, M. Zhou, M. Dunwell, L. Fei, S. G. Deng, P. Andersen, Y. Q. Wang, Q. X. Jia, and H. M. Luo, "Nickel substituted $LiMn_2O_4$ cathode with durable high-rate capability for Li-ion batteries," *RSC Adv*. **3**, 18441-18445 (2013).

43. N. K. Brady, B. G. Perkins Jr, H. Y. Hwang, N. C. Brandt, D. Torchinsky, R. Singh, L. Yan, D. Trugman, S. A. Trugman, Q. X. Jia, A. J. Taylor, K. A. Nelson, and H. T. Chen, "Nonlinear high-temperature superconducting terahertz metamaterials," *New J. Phys*. **15**, 105016 (2013).

44. N. Haberkorn, Y. Y. Zhang, J. Kim, T. M. McCleskey, A. K. Burrell, R. F. DePaula, T. Tajima, Q. X. Jia, and L. Civale, "Upper critical magnetic field and vortex-free state in very thin epitaxial δ-MoN films grown by polymer-assisted deposition," *Supercond. Sci. Technol.* **26**, 105023 (2013).

45. T. A. Harriman, Z. Bi, Q. X. Jia, D. A. Lucca, "Frequency shifts of E_2^{High} Raman mode due to residual stress in epitaxial ZnO thin films," *Appl. Phys, Lett*. **103**, 121904 (2013).

46. M. J. Zhuo, L. Yan, E. G. Fu, Y. Q. Wang, A. Misra, M. Nastasi, B. P. Uberuaga, and Q. X. Jia, "Phase transformations and defect clusters in single crystal $SrTiO_3$ irradiated at different temperatures," *J. Nuclear Mater*. **442**, 143-147 (2013).

47. A. Chen, W. Zhang, J. Jian, H. Wang, C.-F. Tsai, Q. Su, Q. X. Jia, and J. L. MacManus-Driscoll, "Role of boundaries on low-field magnetotransport properties of $La_{0.7}Sr_{0.3}MnO_3$-based nanocomposite thin films," *J. Mater. Res*. **28**, 1707-1714 (2013).

48. R. Singh, D. R. Chowdhury, J. Xiong, H. Yang, A. K. Azad, A. J. Taylor, Q. X. Jia, and H. T. Chen, "Influence of film thickness in THz active metamaterial devices: A comparison between superconductor and metal split-ring resonators," *Appl. Phys. Lett*. **103**, 061117 (2013).

49. Y. M. Sheu, S. A. Trugman, L. Yan, C. P. Chuu, Z. Bi, Q. X. Jia, A. J. Taylor, and R. P. Prasankumar, "Photoinduced stabilization and enhancement of the ferroelectric polarization in $Ba_{0.1}Sr_{0.9}TiO_3/La_{0.7}Ca(Sr)_{0.3}MnO_3$ thin film heterostructures," *Phys. Rev. B* **88**, 020101(R) (2013).

50. Y. H. Liu, J. Xiong, J. T. Haraldsen, L. Yan, A. V. Balatsky, Q. X. Jia, A. J. Taylor, and D. Yarotski, "Tuning the electronic properties of ultrathin $La_{0.7}Sr_{0.3}MnO_3$ films by interfacing with superconducting $EuBa_2Cu_3O_{7-\delta}$," *Phys. Rev. B*. **87**, 165140 (2013).

51. P. Lu, J. Xiong, M. Van Benthem, and Q. X. Jia, "Atomic-scale chemical quantification of oxide interfaces using energy dispersive x-ray spectroscopy," *Appl. Phys. Lett*. **102**, 173111 (2013).

52. A. Chen, Z. Bi, Q. X. Jia, J. L. MacManus-Driscoll, and H. Wang, "Microstructure, vertical strain control and tunable functionalities in self-assembled vertically aligned nanocomposite thin films," *Acta Materialia* **61**, 2783-2792 (2013).

53. A. Chen, W. Zhang, F. Khatkatay, Q. Su, C. F. Tsai, L. Chen, Q. X. Jia, J. L. MacManus-Driscoll, and H. Wang, "Magnetotransport properties of quasi-one-dimensional channeled vertically aligned heteroepitaxial nanomazes," *Appl. Phys. Lett*. **102**, 093114 (2013).

54. D. Bufford, Y. Liu, Y. Zhu, Z. Bi, Q. X. Jia, H. Wang, and X. Zhang, "Formation mechanisms of high-density growth twins in aluminum with high stacking-fault energy," *Mater. Res. Lett*. **1**, 51-60 (2013).

55. F. Rivadulla, Z. X. Bi, E. Bauer, B. R. Murias, J. M. Vila-Fungueirino, and Q. X. Jia, "Strain-induced ferromagnetism and magnetoresistance in epitaxial thin films of $LaCoO_3$ prepared by polymer assisted deposition," *Chem. Mater*. **25**, 55-58 (2013).

56. Z. B. Yang, T. Chen, R. X. He, H. P. Li, H. J. Lin, L. Li, G. F. Zou, Q. X. Jia, and H. S. Peng, "A novel carbon nanotube/polymer composite film for counter electrodes of dye-sensitized solar cells," *Polym. Chem*. **4**, 1680-1684 (2013).

57. Z. Bi, B. P. Uberuaga, E. G. Fu, Y. Q. Wang, N. Li, H. Y. Wang, A. Misra, and Q. X. Jia, "Radiation damage in heteroepitaxial $BaTiO_3/SrTiO_3$ thin films under Ne ion irradiation," *J. Appl. Phys*. **113**, 023513 (2013).

58. G. F. Zou, J. Zhao, H. M. Luo, T. M. McCleskey, A. K. Burrell, and Q. X. Jia, "Polymer-assisted deposition: a chemical solution route for a wide range of materials," *Chem. Soc. Rev*. **42**, 439-449 (2013). (*Tutorial review*)

59. A. Chen, H. H. Zhou, Z. Bi, Y. Zhu, Z. Luo, A. Bayraktaroglu, J. Phillips, E. M. Choi, J. L. MacManus-Driscoll, S. J. Pennycook, J. Narayan, Q. X. Jia, X. Zhang, and H. Wang, "A new class of room temperature multiferroic thin films with bismuth-based supercell structure," *Adv. Mater*. **25**, 1028-1032 (2013).

60. T. M. McCleskey, E. Bauer, Q. X. Jia, A. K. Burrell, B. L. Scott, S. D. Conradson, A. Mueller, L. Roy, X. D. Wen, G. E. Scuseria, and R. L. Martin, "Optical band gap of NpO_2 and PuO_2 from optical absorbance of epitaxial films," *J. Appl. Phys*. **13**, 013515 (2013).

61. R. Singh, J. Xiong, A. K. Azad, H. Yang, S. A. Trugman, Q. X. Jia, A. J. Taylor, and H. T. Chen, "Optical tuning and ultrafast dynamics of high-temperature superconducting terahertz metamaterials," *Nanophotonics* **1**, 117-123 (2012).

62. D. C. Iza, D. Munoz-Rojas, Q. X. Jia, B. Swartzentruber, and J. L. MacManus-Driscoll, "Tuning of defects in ZnO nanorod arrays used in bulk heterojunction solar cells," *Nanoscale Res. Lett*. **7**, 655 (2012).

63. A. Caviezel, U. Staub, S. L. Johnson, S. O. Mariager, E. Mohr-Vorobeva, G. Ingold, C. J. Milne, M. Garanourakis, V. Scagnoli, S. W. Huang, Q. X. Jia, S. W. Cheong, and P. Beaud, "Femtosecond dynamics of the structural transition in mixed valence manganites," *Phys. Rev. B.* **86**, 174105 (2012).

64. D. Bufford, Z. Bi, Q. X. Jia, H. Wang, and X. Zhang, "Nanotwins and stacking faults in high-strength epitaxial Ag/Al multilayer films," *Appl. Phys. Lett*. **101**, 223112 (2012).

65. S. X. Zhang, R. D. McDonald, A. Shekhter, Z. X. Bi, Y. Li, Q. X. Jia, and S. T. Picraux, "Magneto-resistance up to 60 Tesla in topological insulator Bi_2Te_3 thin films," *Appl. Phys. Lett.* **101**, 202403 (2012).

66. F. Song, A. Monsen, Z. S. Li, E. M. Choi, J. L. MacManus-Driscoll, J. Xiong, Q. X. Jia, W. Wahlstrom, J. W. Wells, "Extracting the near surface stoichiometry of $BiFe_{0.5}Mn_{0.5}O_3$ thin films: a finite element maximum entropy approach," *Surf. Sci*. **606**, 1771-1776 (2012).

67. S. X. Zhang, L. Yan, J. Qi, M. Zhuo, Y. Q. Wang, R. P. Prasankumar, Q. X. Jia, S. T. Picraux, "Epitaxial thin films of topological insulator Bi_2Te_3 with two-dimensional weak anti-localization effect grown by pulsed laser deposition," *Thin Solid Films* **520**, 6459-6462 (2012).

68. O. Lee, S. A. Harrington, A. Kursumovic, E. Defay, H. Wang, Z. Bi, C. F. Tsai, L. Yan, Q. X. Jia, and J. L. MacManus-Driscoll, "Extremely high tenability and low loss in nanoscaffold ferroelectric films," *Nano Lett*. **12**, 4311-4317 (2012).

69. J. Qi, L. Yan, H. D. Zhou, J.-X. Zhu, S. A. Trugman, A. J. Taylor, Q. X. Jia, and R. P. Prasamkumar, "Coexistence of coupled magnetic phases in epitaxial $TbMnO_3$ films revealed by ultrafast optical spectroscopy," *Appl. Phys. Lett*. **101**, 122904 (2012).

70. V. F. Solovyov, Q. Li, W. Si, B. Maiorov, T. J. Haugan, J. L. MacManus-Driscoll, H. Yang, Q. X. Jia, and E. D. Specht, "Influence of defect-induced biaxial strain on flux pinning in thick $YBa_2Cu_3O_7$ layers," *Phys. Rev. B* **86**, 094511 (2012).

71. Y. D. Ji, T. S. Pan, Z. Bi, W. Z. Liang, Y. Zhang, H. Z. Zeng, Q. Y. Wen, H. W. Zhang, C. L. Chen, Q. X. Jia, and Y. Lin, "Epitaxial growth and metal-insulator transition of vanadium oxide thin films with controllable phases," *Appl. Phys. Lett*. **101**, 071902 (2012).

72. M. J. Zhuo, B. P. Uberuaga, L. Yan, E. G. Fu, R. M. Dickerson, Y. Q. Wang, A. Misra, M. Nastasi, and Q. X. Jia, "Radiation damage at the coherent anatase $TiO_2/SrTiO_3$ interface under Ne ion irradiation," *J. Nuclear Mater*. **429**, 177-184 (2012).

73. L. Yan, M. J. Zhou, Z. Wang, J. Yao, N. Haberkorn, S. Zhang, L. Civale, J. Li, D. Viehland, and Q. X. Jia, "Magnetoelectric properties of flexible $BiFeO_3$/Ni tapes," *Appl. Phys. Lett*. **101**, 012908 (2012).

74. D. Yarotski, E. G. Fu, L. Yan, Q. X. Jia, Y. Q. Wang, A. J. Taylor, and B. P. Uberuaga, "Characterization of irradiation damage distribution near $TiO_2/SrTiO_3$ interfaces using coherent acoustic phonon interferometry," *Appl. Phys. Lett*. **100**, 251603 (2012).

75. W. Liang, Y. Ji, T. Nan, J. Huang, Z. Bi, H. Zeng, H. Du, C. L. Chen, Q. X. Jia, and Y. Lin, "Growth dynamics of barium titanate thin films on polycrystalline Ni foils using polymer assisted deposition technique," *ACS Appl. Mater. & Interfaces* **4**, 2199-2203 (2012).

76. Y. M. Sheu, S. A. Trugman, Y. S. Park, S. Lee, H. Y. Yi, S. W. Cheong, Q. X. Jia, A. J. Taylor, and R. P. Prasankumar, "Ultrafast carrier dynamics and radiative recombination in multiferroic $BiFeO_3$," *Appl. Phys. Lett*. **100**, 242904 (2012).

77. E. G. Fu, Y. Q. Wang, G. F. Zou, J. Xiong, M. J. Zhuo, Q. M. Wei, J. K. Baldwin, Q. X. Jia, L. Shao, A. Misra, and M. Nastasi, "Irradiation induced changes in small angle grain boundaries in mosaic Cu thin films," *Appl. Phys. A* **108**, 121-126 (2012).

78. Y. Y. Zhang, F. Ronning, K. Gofryk, N. A. Mara, G. Zou, N. Haberkorn, H. Wang, E. Bauer, T. M. McCleskey, A. K. Burrell, L. Civale, Y. T. Zhu, and Q. X. Jia, "Aligned carbon nanotubes sandwiched in epitaxial NbC film for enhanced superconductivity," *Nanoscale* **4**, 2268-2271 (2012).

79. Q. Lin, Y. Xu, E. G. Fu, S. Baber, Z. Bao, L. Yu, S. G. Deng, J. Kundu, J. Hollingsworth, E. Bauer, T. M. McCleskey, A. K. Burrell, Q. X. Jia, and H. M. Luo, "Polymer-assisted chemical solution approach to YVO_4:Eu nanoparticle networks," *J. Mater. Chem*. **22**, 5835 (2012).

80. J. Bae, I. Hwang, Y. Jeong, S. O. Kang, S. Hong, J. Son, J. Choi, J. Park, M. J. Seong, Q. X. Jia, and B. H. Park, "Coexistence of bi-stable memory and mono-stable threshold resistance switching phenomena in amorphous NbOx films," *Appl. Phys. Lett*. **100**, 062902 (2012).

81. S. M. Baber, Q. L. Lin, G. F. Zou, N. Haberkorn, S. A. Baily, H. Wang, Z. Bi, H. Yang, S. Deng, S. Zollner, M. E. Hawley, L. Civale, E. Bauer, T. M. McCleskey, A. K. Burrell, Q. X. Jia, and H. M. Luo, "Magnetic properties of self-assembled epitaxial nanocomposite $CoFe_2O_4$:$SrTiO_3$ and $CoFe_2O_4$:MgO films," *J. Phys. Chem. C* **115**, 25338-25342 (2011).

82. Y. Y. Zhang, N. Haberkorn, F. Ronning, H. Wang, N. A. Mara, M. Zhuo, C. Li, J. H. Lee, K. J. Blackmore, E. Bauer, A. K. Burrell, T. M. McCleskey, M. E. Hawley, R. K. Schulze, L. Civale, T. Tajima, and Q. X. Jia, "Structure and superconducting property of epitaxial δ-MoN films by a chemical solution method," *J. Am. Chem. Soc*. **133**, 20735-20737 (2011).

83. H. M. Luo, G. F. Zou, H. Wang, J. H. Lee, Y. Lin, H. Peng, Q. L. Lin, S. Deng, E. Bauer, T. M. McCleskey, A. K. Burrell, and Q. X. Jia, "Controlling crystal structure and oxidation state in molybdenum nitrides through epitaxial stabilization," *J. Phys. Chem. C* **115**, 17880-17883 (2011).

84. M. J. Zhuo, E. G. Fu, L. Yan, Y. Q. Wang, Y. Y. Zhang, R. M. Dickerson, B. P. Uberuaga, A. Misra, M. Nastasi, and Q. X. Jia, "Interface-enhanced defect absorption between epitaxial anatase TiO_2 film and single crystal $SrTiO_3$," *Scripta Materialia* **65**, 807-810 (2011).

85. S. A. Harrington, J. Zhai, S. Denev, V. Gopalan, H. Wang, Z. Bi, S. A. T. Redfern, S. H. Baek, C. W. Bark, C. B. Eom, Q. X. Jia, M. E. Vickers, and J. L. MacManus-Driscoll, "Thick lead-free ferroelectric films with high Curie temperatures through nanocomposite-induced strain," *Nat. Nanotechnology* **6**, 491-495 (2011).

86. I. S. Byun, D. Yoon, J. S. Choi, I. Hwang, D. H. Lee, M. J. Lee, T. Kawai, Y. W. Son, Q. X. Jia, H. Cheong, and B. H. Park, "Nanoscale lithography on monolayer graphene using hydrogenation and oxidation," *ACS Nano* **5**, 6417-6424 (2011).

87. A. Chen, Z. Bi, H. Hazariwala, X. Zhang, Q. Su, Li Chen, Q. X. Jia, J. L. MacManus-Driscoll, and H. Wang, "Microstructure, magnetic, and low-field magnetotransport

properties of self-assembled $(La_{0.7}Sr_{0.3}MnO_3)_{0.5}$:$(CeO_2)_{0.5}$ vertically aligned nanocomposite thin films," *Nanotechnology* **22**, 315712 (2011).

88. B. S. Kang, L. Stan, I. O. Usov, J. K. Lee, T. A. Harriman, D. A. Lucca, R. F. DePaula, P. N. Arendt, M. Nastasi, J. L. MacManus-Driscoll, B. H. Park, and Q. X. Jia, "Strain mismatch induced titled heteroepitaxial (000*l*) hexagonal ZnO films on (001) cubic substrates," *Adv. Eng. Mater*. **13**, 1142-1145 (2011).

89. G. Zou, H. Luo, S. Baily, Y. Zhang, N. Haberkorn, J. Xiong, E. Bauer, T. McCleskey, A. Burrell, L. Civale, Y. T. Zhu, J. L. MacManus-Driscoll, and Q. X. Jia, "Highly aligned carbon nanotube forests coated by superconducting NbC," *Nat. Commun.* **2**, 248 (2011).

90. A. Chen, Z. Bi, C. F. Tsai, J. H. Lee, Q. Su, X. Zhang, Q. X. Jia, J. L. MacManus-Driscoll, and H. Wang, "Tunable low-field magnetoresistance in $(La_{0.7}Sr_{0.3}MnO_3)$:$(ZnO)_{0.5}$ self-assembled vertically aligned nanocomposite thin films," *Adv. Funct. Mater*. **21**, 2423-2429 (2011).

91. W. Liu, X. H. Zhang, G. Xu, P. D. Bradford, X. Wang, H. B. Zhao, Y. Y. Zhang, Q. X. Jia, F. G. Yuan, Q. W. Li, Y. P. Qiu, and Y. T. Zhu, "Producing superior composites by winding carbon nanotubes onto a mandrel under a poly(vinyl alcohol) spray," *Carbon* **49**, 4786-4791 (2011).

92. A. S. Budiman, N, Li, Q. Wei, J. K. Baldwin, J. Xiong, H. Luo, D. Trugman, Q. X. Jia, N. Tamura, M. Kunz, K. Chen, and A. Misra, "Growth and structural characterization of epitaxial Cu/Nb multilayers," *Thin Solid Films* **519**, 4137-4143 (2011).

93. J. S. Lee, Y. M. Kim, J. H. Kwon, J. S. Sim, H. Shin, B. H. Sohn, and Q. X. Jia, "Multilevel data storage memory devices based on the controlled capacitive coupling of trapped electrons," *Adv. Mater*. **23**, 2064-2068 (2011).

94. B. H. Park, Y. R. Li, J. Xiong, and Q. X. Jia, "Dielectric properties of epitaxial $Ba_{1-x}Sr_xTiO_3$ films on MgO substrates," *Functional Mater. Lett*. **4**, 41-44 (2011).

95. R. Singh, A. K. Azad, Q. X. Jia, A. J. Taylor, and H. T. Chen, "Thermal tunability in terahertz metamaterials fabricated on strontium titanate single crystal substrates," *Optics Lett*. **36**, 1230 (2011).

96. Q. Su, J. H. Lee, Z. Bi, B. Zhu, K. K. Shung, Q. Zhou, S. Takeuchi, B. H. Park, Q. X. Jia, and H. Wang, "Self-separated PZT thick films with bulk-like piezoelectric and electromechanical properties," *J. Mater. Res*. **26**, 1431-1435 (2011).

97. Z. Bi, A. Chen, H. Wang, E. Weal, J. L. MacManus-Driscoll, H. Luo, and Q. X. Jia, "Microstructure and magnetic properties of $(La_{0.7}Sr_{0.3}MnO_3)_{0.7}$:$(Mn_3O_4)_{0.3}$ nanocomposite thin films", *J. Appl. Phys*. **109**, 054302 (2011).

98. X. L. Li, J. D. Thompson, Y. Y. Zhang, C. I. Brady, G. Zou, N. H. Mack, D. Williams, J. G. Duque, Q. X. Jia, and S. K. Doorn, "Efficient synthesis of tailored magnetic carbon nanotubes via a noncovalent chemical route," *Nanoscale* **3**, 668-673 (2011).

99. E. M. Choi, S. Patnaik, E. Weal, S. L. Sahonta, H. Wang, Z. Bi, J. Xiong, M. G. Blamire, Q. X. Jia, and J. L. MacManus-Driscoll, "Strong room temperature magnetism in highly resistive strained thin films of $BiFe_{0.5}Mn_{0.5}O_3$," *Appl. Phys. Lett*. **98**, 012509 (2011).

100. P. Xu, S. H. Jeon, H. T. Chen, H. Luo, G. Zou, Q. X. Jia, M. Anghel, C. Teuscher, D. J. Williams, B. Zhang, X. J. Han, and H. L. Wang, "Facile synthesis and electrical properties of silver wires through chemical reduction by polyaniline," *J. Phys. Chem. C* **114**, 22147-22154 (2010).

101. P. D. Bradford, X. Wang, H. B. Zhao, J. P. Maria, Q. X. Jia, and Y. T. Zhu, "A novel approach to fabricate high volume fraction nanocomposites with long aligned carbon nanotubes," *Composites Sci. & Technol*. **70**, 1980-1985 (2010).

102. H. T. Chen, H. Yang, R. Singh, J. F. O'Hara, A. K. Azad, S. A. Trugman, Q. X. Jia, and A. J. Taylor, "Tuning the resonance in high-temperature superconducting terahertz metamaterials," *Phys. Rev. Lett*. **105**, 247402 (2010).

103. G. Zou, H. M. Luo, Y. Y. Zhang, J. Xiong, Q. Wei, M. Zhuo, J. Zhai, H. Wang, D. Williams, N. Li, E. Bauer, X. H. Zhang, T. M. McCleskey, Y. R. Li, A. K. Burrell, and Q. X. Jia, "A chemical solution approach for superconducting and hard epitaxial NbC film," *Chem. Commun.* **46**, 7837 (2010).

104. H. Zhao, P. D. Bradford, X. Wang, W. Liu, T. J. M. Luo, Q. X. Jia, Y. T. Zhu, and F. G. Yuan, "An intermetallic Fe-Zr catalyst used for growing long carbon nanotube arrays," *Mater. Lett.* **64**, 1947 (2010).

105. G. Sheng, Y. L. Li, J. X. Zhang, S. Choudhury, Q. X. Jia, V. Gopalan, D. G. Schlom, Z. K. Liu, and L. Q. Chen, "Phase transitions and domain stabilities in biaxially strained (001) $SrTiO_3$ epitaxial thin films," *J. Appl. Phys*. **108**, 084113 (2010).

106. J. Xiong, V. Matias, H. Wang, J. Y. Zhai, B. Maiorov, D. Trugman, B. W. Tao, Y. R. Li, and Q. X. Jia, "Much simplified IBAD-TiN template for high performance coated conductors," *J. Appl. Phys*. **108**, 083903 (2010).

107. Z. Bi, O. Anderoglu, X. Zhang, J. L. MacManus-Driscoll, H. Yang, Q. X. Jia, and H. Wang, "Nanoporous thin films with controllable nanopores processed from vertically aligned nanocomposites," *Nanotechnology* **21**, 285606 (2010).

108. G. Sheng, Y. L. Li, J. X. Zhang, S. Choudhury, Q. X. Jia, V. Gopalan, D. G. Schlom, Z. K. Liu, and L. Q. Chen, "A modified Landau-Devonshire thermodynamic potential for strontium titanate," *Appl. Phys. Lett*. **96**, 232902 (2010).

109. M. Staruch, L. Stan, F. Ronning, J. D. Thompson, Q. X. Jia, J. Yoon, H. Wang, and M. Jain, "Magnetotransport properties of epitaxial $Pr_{0.5}Ca_{0.5}MnO_3$ films grown by a solution technique," *J. Magnetism and Magnetic Mater*. **322**, 2708-2711 (2010).

110. H. B. Zhao, Y. Y. Zhang, P. D. Bradford, Q. Zhou, Q. X. Jia, F. G. Yuan, and Y. T. Zhu, "Carbon nanotube yarn strain sensors," *Nanotechnology* **21**, 305502 (2010).

111. H. M. Luo, H. Wang, G. F. Zou, E. Bauer, T. M. McCleskey, A. K. Burrell, and Q. X. Jia, "A review of epitaxial metal-nitride films by polymer-assisted deposition," *Trans. Electrical & Electronic Mater.* **11**, 54-60 (2010). (*Invited article*)

112. Y. Y. Zhang, C. J. Sheehan, J. Y. Zhai, G. F. Zou, H. M. Luo, J. Xiong, Y. T. Zhu, and Q. X. Jia, "Polymer-embedded carbon nanotube ribbons for stretchable conductors," *Adv. Mater*. **22**, 3027-3031 (2010).

113. S. Baber, M. Zhou, Q. L. Lin, M. Naalla, Q. X. Jia, Y. Lu, and H. M. Luo, "Nanoconfined surfactant templated electrodeposition to porous hierarchical nanowires and nanotubes," *Nanotechnology* **21**, 165603 (2010).

114. Y. Lin, C. Dai, Y. R. Li, X. Chen, C. L. Chen, A. Bhalla, and Q. X. Jia, "Strain relaxation in epitaxial (Pb,Sr)TiO_3 thin films on $NadGaO_3$ substrates," *Appl. Phys. Lett*. **96**, 102901 (2010).

115. G. Zou, H. Wang, N. Mara, H. Luo, N. Li, Z. F. Di, E. Bauer, Y. Q. Wang, T. M. McCleskey, A. K. Burrell, X. Zhang, M. Nastasi, and Q. X. Jia, "Chemical solution deposition of epitaxial carbide films," *J. Am. Chem. Soc*. **132**, 2516-2517 (2010).

116. S. C. Wimbush, J. H. Durrell, C. F. Tsai, H. Wang, Q. X. Jia, M. G. Blamire, and J. L. MacManus-Driscoll, "Enhanced critical current in $YBa_2Cu_3O_{7-\delta}$ thin films through pinning by ferromagnetic $YFeO_3$ nanoparticles," *Supercond. Sci. Technol.* **23**, 045019 (2010).

117. G. F. Zou, M. K. Jain, H. Yang, Y. Y. Zhang, D. Williams, and Q. X. Jia, "Recyclable and electrically conducting carbon nanotube composite films," *Nanoscale* **2**, 418-422 (2010).

118. H. Yang, Y. Q. Wang, H. Wang, and Q. X. Jia, "Oxygen concentration and its effect on the leakage current in $BiFeO_3$ thin films," *Appl. Phys. Lett*. **96**, 012909 (2010).

119. L. Stan, B. W. Tao, T. G. Holesinger, H. Yang, D. M. Feldmann, B. Maiorov, S. A. Baily, L. Civale, R. F. DePaula, Y. R. Li, and Q. X. Jia, "The role of thermally and chemically stable composite Y_2O_3:Al_2O_3 in the development of $YBa_2Cu_3O_7$ films on metal substrates," *Supercond. Sci. Technol.* **23**, 045012 (2010).

120. G. Zou, H. Luo, F. Ronning, B. Sun, T. M. McCleskey, A. K. Burrell, E. Bauer, and Q. X. Jia, "Facile chemical solution deposition of high-mobility epitaxial germanium films on silicon," *Angew. Chem. Int. Ed*. **49**, 1782-1785 (2010).

121. L. Stan, Y. Chen, X. Xiong, T. G. Holesinger, B. Maiorov, D. M. Feldmann, L. Civale, R. F. DePaula, V. Selvamanickam, and Q. X. Jia, "Investigation of (Y,Ga)$Ba_2Cu_3O_{7-\delta}$ grown by MOCVD on a simplified IBAD MgO template," *Supercond. Sci. Technol.* **23**, 014011 (2010).

122. H. Yang, H. Wang, B. Maiorov, J. Lee, D. Talbayev, M. J. Hinton, D. M. Feldmann, J. L. MacManus-Driscoll, A. J. Taylor, L. Civale, T. R. Lemberger, and Q. X. Jia, "Self-assembled multilayers and enhanced superconductivity in $(YBa_2Cu_3O_{7-x})_{0.5}$:$(BaZrO_3)_{0.5}$ nanocomposite films," *J. Appl. Phys*. **106**, 093914 (2009).

123. Z. Bi, J. W. Lee, H. Wang, H. Yang, Q. X. Jia, and J. L. MacManus-Driscoll, "Tunable lattice strain in vertically aligned nanocomposite $(BiFeO_3)_x(Sm_2O_3)_{1-x}$ thin films," *J. Appl. Phys*. **106**, 094309 (2009).

124. P. Beaud, S. L. Johnson, E. Vorobeva, U. Staub, C. J. Milne, Q. X. Jia, and G. Ingold, "An ultrafast structural phase transition driven by photo-induced melting of charge and orbital order," *Phys. Rev. Lett.* **103**, 155702 (2009).

125. H. Peng, X. M. Sun, F. J. Cai, X. Chen, G. P. Liao, D. Y. Chen, Q. W. Li, Y. F. Lu, Y. T. Zhu, and Q. X. Jia, "Electrochromatic carbon nanotube/polydiacetylene nanocomposite fibers," *Nat. Nanotechnology* **4**, 738-741 (2009).

126. Y. Y. Zhang, L. Stan, P. Xu, H. L. Wang, S. K. Doorn, H. Htoon, Y. T. Zhu, and Q. X. Jia, "A double-layered carbon nanotube array with super-hydrophobicity," *Carbon* **47**, 3332-3336 (2009).

127. S. R. Foltyn, H. Wang, L. Civale, B. Maiorov, and Q. X. Jia, "The role of interfacial defects in enhancing the critical current density of $YBa_2Cu_3O_7$ coatings," *Supercond. Sci. Technol.* **22**, 125002 (2009).

128. Y. Y. Zhang, G. Zou, S. K. Doorn, H. Htoon, L. Stan, M. E. Hawley, C. J. Sheehan, Y. T. Zhu, and Q. X. Jia, "Tailoring the morphology of carbon nanotube arrays: from spinnable forests to undulating foams," *ACS Nano* **3**, 2157-2162 (2009).

129. H. Wang, S. R. Foltyn, L. Civale, B. Maiorov, and Q. X. Jia, "Attenuation of interfacial pinning enhancement in YBCO using PrBCO buffer layer," *Physica C* **469**, 2033-2036 (2009).

130. H. Zhou, B. Maiorov, S. A. Baily, P. C. Dowden,, J. A. Kennison, L. Stan, T. G. Holesinger, Q. X. Jia, S. R. Foltyn, and L. Civale, "Thickness dependence of critical current density in $YBa_2Cu_3O_7$ films with $BaZrO_3$ and Y_2O_3 addition," *Supercond. Sci. Technol*. **22**, 085013/6 (2009).

131. H. M. Luo, H. Wang, Z. X. Bi, G. F. Zou, T. M. McCleskey, A. K. Burrell, E. Bauer, M. E. Hawley, Y. Lin, S. A. Baily, L. Civale, Y. Q. Wang, and Q. X. Jia, "Highly conductive layered ternary transition metal-nitride films," *Angew. Chem. Int. Ed.* **48**, 1490-1493 (2009).

132. A. Fouchet, H. Wang, H. Yang, J. Yoon, Q. X. Jia, and J. L. MacManus-Driscoll, "Spontaneous ordering, strain control and multifunctionality in vertical nanocomposite heteroepitaxial films," *IEEE Trans. Ultrasonics, Ferroelectrics, and Frequency Control* **56**, 1534-1538 (2009).

133. H. Yang, H. Wang, J. Yoon, Y. Q. Wang, M. Jain, D. M. Feldmann, P. C. Dowden, J. L. MacManus-Driscoll, and Q. X. Jia, "Vertical interface effect on the physical properties of self-assembled nanocomposite epitaxial films," *Adv. Mater*. **21**, 3794-3798 (2009).

134. H. M. Luo, Y. Lin, H. Wang, J. H. Lee, N. A. Suvorova, A. H. Mueller, A. K. Burrell, T. M. McCleskey, E. Bauer, I. O. Usov, M. E. Hawley, T. G. Holesinger, and Q. X. Jia, "A chemical solution approach to epitaxial metal nitride thin films," *Adv. Mater*. **21**, 193-197 (2009).

135. G. Zou, H. Yang, M. Jain, H. H. Zhou, D. Williams, M. Zhou, T. M. McCleskey, A. K. Burrell, and Q. X. Jia, "Vertical connection of carbon nanotubes to silicon at room temperature using a chemical route," *Carbon* **47**, 933-937 (2009).

136. S. C. Wimbush, M. Li, M. E. Cickers, B. Maiorov, D. M. Feldmann, Q. X. Jia, and J. L. MacManus-Driscoll, "Interfacial strain-induced oxygen disorder as the cause of enhanced critical current density in superconducting thin films," *Adv. Funct. Mate.* **19**, 835-841 (2009).

137. L. Stan, D. M. Feldmann, I. O. Usov, T. G. Holesinger, B. Maiorov, L. Civale, R. F. DePaula, P. C. Dowden, and Q. X. Jia, "Composite Y_2O_3-Al_2O_3 as a diffusion barrier/nucleation layer for HTS coated conductors based on IBAD-MgO," *IEEE Trans. Appl. Supercond*. **19**, 3459-3462 (2009).

138. Y. L. Li, S. Y. Hu, S. Choudhury, M. I. Baskes, A. Saxena, T. Lookman, Q. X. Jia, D. G. Schlom, and L. Q. Chen, "Influence of interfacial dislocations on hysteresis loops of ferroelectric films," *J. Appl. Phys*. **104**, 104110 (2008).

139. E. Bauer, A. H. Mueller, I. Usov, N. Suvorova, M. T. Janicke, G. I. N. Waterhouse, M. R. Waterland, Q. X. Jia, A. K. Burrell, and T. M. McCleskey, "Chemical solution route to conformal phosphor coatings on nanostructures," *Adv. Mater*. **20**, 4704-4707 (2008).

140. M. Jain, E. Bauer, Y. Lin, H. Wang, A. K. Burrell, T. M. McCleskey, and Q. X. Jia, "$BaTiO_3$-related ferroelectric thin films by polymer assisted deposition," *Integrated Ferroelectrics* **100**, 132-139 (2008).

141. J. L. MacManus-Driscoll, P. Zerrer, H. Wang, H. Yang, J. Yoon, S. R. Foltyn, M. G. Blamire, and Q. X. Jia, "Spontaneous ordering, strain control and manipulation in vertical nanocomposite heteroepitaxial films," *Nat. Mater.* **7**, 314-320 (2008).

142. S. Choudhury, J. X. Zhang, Y. L. Li, L. Q. Chen, Q. X. Jia, and S. V. Kalinin, "Effect of ferroelastic twin walls on local polarization switching: phase-field modeling," *Appl. Phys. Lett*. **93**, 162901 (2008).

143. G. Sheng, J. X. Zhang, Y. L. Li, S. Choudhury, Q. X. Jia, Z. K. Liu, and L. Q. Chen, "Misfit strain – misfit strain diagram of epitaxial $BaTiO_3$ thin films: thermodynamic calculations and phase-field simulations," *Appl. Phys. Lett*. **93**, 232904 (2008).

144. L. Stan, T. G. Holesinger, B. Maiorov, Y. Chen, D. M. Feldmann, I. O. Usov, R. F. DePaula, V. Selvamanickam, L. Civale, S. R. Foltyn, and Q. X. Jia, "Structural and superconducting properties of $(Y,Ga)Ba_2Cu_3O_7$, grown by MOCVD on samarium zirconate buffered IBAD-MgO," *Supercond. Sci. Technol.* **21**, 105023 (2008).

145. H. M. Luo, Y. Lin, H. Wang, C. Y. Chou, N. Suvorova, M. E. Hawley, A. H. Mueller, F. Ronning, E. Bauer, A. K. Burrell, T. M. McCleskey, and Q. X. Jia, "Epitaxial GaN thin films prepared by polymer-assisted deposition," *J. Phys. Chem. C* **112**, 20535-20538 (2008).

146. G. Sheng, J. X. Zhang, Y. L. Li, S. Choudhury, Q. X. Jia, Z. K. Liu, and L. Q. Chen, "Domain stability of $PbTiO_3$ thin films under anisotropic misfit strains: phase-field simulations," *J. Appl. Phys*. **104**, 054105 (2008).

147. J. S. Lee and Q. X. Jia, "Comparative study of reliability issues in La-doped bismuth titanate thin films according to the bottom electrode materials," *Electronic Mater. Lett*. **4**, 95 (2008).

148. H. S. Jung, J. K. Lee, J. Lee, B. S. Kang, Q. X. Jia, and M. Nastasi, "Strain relaxation in sol-gel grown epitaxial anatase thin films," *J. Phys. Chem. C* **112**, 4205-4208 (2008).

149. H. Yang, H. Wang, G. F. Zou, M. Jain, N. A. Suvorova, D. M. Feldmann, P. C. Dowden, R. F. DePaula, J. L. MacManus-Driscoll, A. J. Taylor, and Q. X. Jia, "Leakage mechanisms of self-assembled $(BiFeO_3)_{0.5}$:$(Sm_2O_3)_{0.5}$ nanocomposite films," *Appl. Phys. Lett*. **93**, 142904 (2008).

150. H. M. Luo, H. Wang, Z. X. Bi, D. M. Feldmann, Y. Q. Wang, A. K. Burrell, T. M. McCleskey, E. Bauer, M. E. Hawley, and Q. X. Jia, "Epitaxial ternary nitride thin films prepared by a chemical solution method," *J. Am. Chem. Soc*. **130**, 15224-15225 (2008).

151. G. Zou, M. Jain, H. H. Zhou, H. M. Luo, S. A. Baily, L. Civale, E. Bauer, T. M. McCleskey, A. K. Burrell, and Q. X. Jia, "Ultrathin epitaxial superconducting niobium nitride films grown by a chemical solution technique," *Chem. Commun*. **45**, 6022-6024 (2008).

152. L. Shao, Z. Di, Y. Lin, Q. X. Jia, Y. Q. Wang, M. Nastasi, P. E. Thompson, N. D. Theodore, and P. K. Chu, "The role of strain in hydrogenation induced cracking in $Si/Si_{1-x}Ge_x/Si$ structures," *Appl. Phys. Lett*. **93**, 041909 (2008).

153. H. S. Peng, D. Y. Chen, J. Y. Huang, S. B. Chikkannanavar, J. Hanisch, M. Jain, D. E. Peterson, S. K. Doorn, Y. F. Lu, Y. T. Zhu, and Q. X. Jia, "Strong and ductile colossal carbon tubes with walls of rectangular macro-pores," *Phys. Rev. Lett.* **101**, 145501 (2008). Featured by ***naturenews*** http://www.nature.com/news/2008/081010/full/news.2008.1164.html

154. H. S. Peng, M. Jain, D. E. Peterson, Y. T. Zhu, and Q. X. Jia, "Composite carbon nanotube/silica fibers with improved mechanical strengths and electrical conductivities," *Small* **4**, 1964-1967 (2008).

155. M. Jain, E. Bauer, F. Ronning, M. F. Hundley, L. Civale, H. Wang, B. Maiorov, A. K. Burrell, T. M. McCleskey, S. R. Foltyn, R. F. DePaula, and Q. X. Jia, "Mixed-valence perovskite thin films by polymer-assisted deposition," *J. Am. Ceram. Soc*. **91**, 1858-1863 (2008). (*Invited article*)

156. H. M. Luo, Y. Lin, S. A. Baily, H. Wang, M. E. Hawley, T. M. McCleskey, A. K. Burrell, E. Bauer, L. Civale, and Q. X. Jia, "Silica nanoparticles-oxide composite epitaxial thin films," *Angew. Chem. Int. Ed*. **47**, 5768-5771 (2008).

157. J. X. Zhang, Y. L. Li, S. Choudhury, L. Q. Chen, Y. H. Chu, F. Zavaliche, M. P. Cruz, R. Ramesh, and Q. X. Jia, "Computer simulation of ferroelectric domain structures in epitaxial $BiFeO_3$ thin films," *J. Appl . Phys.* **103**, 094111 (2008).

158. H. S. Jung, J. K. Lee, J. Lee, B. S. Kang, Q. X. Jia, M. Nastasi, J. H. Noh, C. M. Cho, and S. H. Yoon, "Mobility enhanced photoactivity in sol-gel grown epitaxial anatase TiO_2 films," *Langmuir* **24**, 2695-2698 (2008)

159. S. Choudhury, Y. L. Li, L. Q. Chen, and Q. X. Jia, "Strain effect on coercive field of epitaxial barium titanate thin films," *Appl. Phys. Lett*. **92**, 142907 (2008).

160. A. K Burrell, T. M. McCleskey, and Q. X. Jia, "Polymer assisted deposition," *Chem. Commun.* **11**, 1271 (2008). (*Feature article*)

161. N. A. Suvorova, I. O. Usov, L. Stan, R. F. DePaula, A. M. Dattelbaum, Q. X. Jia, A. A. Suvorova, "Structural and optical properties of ZnO thin films by rf magnetron sputtering with rapid thermal annealing," *Appl. Phys. Lett*. **92**, 141911 (2008).

162. A. Soukiassian, W. Tian, V. Vaithyanathan, J. H. Haeni, L. Q. Chen, X. X. Xi, D. G. Schlom, D. A. Tenne, H. P. Sun, X. Q. Pan, K. J. Choi, C. B. Eom, Y. L. Li, Q. X. Jia, C. Constantin, R. M. Feenstra, M. Bernhagen, P. Reiche, and R. Uecker, "Growth of nanoscale $BaTiO_3/SrTiO_3$ superlattices by molecular-beam epitaxy," *J. Mater. Res*. **23**, 1417-1432 (2008).

163. H. S. Peng, M. Jain, Q. W. Li, D. E. Peterson, Y. T. Zhu, and Q. X. Jia, "Vertically-aligned pearl-like carbon nanotube arrays for fiber spinning," *J. Am. Chem. Soc.* **130**, 1130 (2008).

164. H. Yang, H. M. Luo, H. Wang, I. O. Usov, N. A. Suvorova, M. Jain, D. M. Feldmann, P. C. Dowden, R. F. DePaula, and Q. X. Jia, "Rectifying current-voltage characteristics of $BiFeO_3$/Nb-doped $SrTiO_3$ heterojunction," *Appl. Phys. Lett.* **92**, 102113 (2008).

165. H. M. Luo, A. H. Mueller, T. M. McCleskey, A. K. Burrell, E. Bauer, and Q. X. Jia, "Structural and photoelectrochemical properties of $BiVO_4$ thin films," *J. Phys. Chem. C* **112**, 6099-6102 (2008).

166. H. Zhou, B. Maiorov, H. Wang, J. L. MacManus-Driscoll, T. G. Holesinger, L. Civale, Q. X. Jia, and S. R. Foltyn, "Improved microstructure and enhanced low-field Jc in $(Y_{0.67}Eu_{0.33})Ba_2Cu_3O_{7-\delta}$ films," *Supercond. Sci. Technol*. **21**, 025001 (2008).

167. H. Yang, H. Wang, H. M. Luo, D. M. Feldmann, P. C. Dowden, R. F. DePaula, and Q. X. Jia, "Structural and dielectric properties of epitaxial Sm_2O_3 thin films," *Appl. Phys. Lett.* **92**, 062905 (2008).

168. Y. L. Li, S. Y. Hu, D. A. Tenne, A. Soukiassian, D. G. Schlom, L. Q. Chen, X. X. Xi, K. J. Choi, C. B. Eom, A. Saxena, T. Lookman, and Q. X. Jia, "Interfacial coherency and ferroelectricity of $BaTiO_3$/$SrTiO_3$ superlattice films," *Appl. Phys. Lett.* **91**, 252904 (2007).

169. H. M. Luo, H. Yang, S. A. Baily, O. Ugurlu, M. Jain, M. Hawley, T. M. McCleskey, A. K. Burrell, E. Bauer, L. Civale, T. G. Holesinger, and Q. X. Jia, "Self-assembled epitaxial nanocomposite $BaTiO_3$-$NiFe_2O_4$ films prepared by polymer-assisted deposition," *J. Am. Chem. Soc.* **129**, 14132-14133 (2007).

170. Q. W. Li, Y. Li, X. F. Zhang, S. B. Chikkannanavar, Y. H. Zhao, A. M. Dangelewicz, L. X. Zheng, S. K. Doorn, Q. X. Jia, D. E. Peterson, P. N. Arendt, and Y. T. Zhu, "Structure-dependent electronic properties of carbon nanotube fibers," *Adv. Mater*. **19**, 3358-3363 (2007).

171. B. J. Talor, D. J. Scanderbeg, M. B. Maple, C. Kwon, and Q. X. Jia, "Role of quantum fluctuations in the vortex solid to vertex liquid transition of type-II superconductors," *Phys. Rev. B.* **76**, 014518 (2007).

172. J. S. Lee, B. S. Kang, and Q. X. Jia, "Data retention characteristics of $Bi_{3.25}La_{0.7}5Ti_3O_{12}$ thin films on conductive $SrRuO_3$ electrodes," *Appl. Phys. Lett*. **91**, 142901 (2007).

173. V. A. Maroni, Y. Li, D. M. Feldmann, and Q. X. Jia, "Correlation between cation disorder and flux pinning in the YBCO coated conductor," *J. Appl. Phys*. **102**, 113909 (2007).

174. A. K Burrell, T. M. McCleskey, P. Shukla, H. Wang, E. M. Minogue, and Q. X. Jia, "Controlling oxidation-states in uranium-oxide through epitaxial stabilization," *Adv. Mater.* **19**, 3559-3563 (2007).

175. H. M. Luo, M. Jain, T. M. McCleskey, E. Bauer, A. K. Burrell, and Q. X. Jia, "Optical and structural properties of single crystal epitaxial p-type transparent oxide thin films," *Adv. Mater.* **19**, 3604-3607 (2007).

176. D. M. Feldmann, O. Ugurlu, B. Maiorov, L. Stan, T. Holesinger, L. Civale, S. R. Foltyn, and Q. X. Jia, "Influence of growth temperature on critical current and magnetic flux pinning structures in $YBa_2Cu_3O_7$," *Appl. Phys. Lett.* **91**, 162501 (2007).

177. J. L. MacManus-Driscoll, A. Kursumovic, B. Maiorov, L. Civale, Q. X. Jia, S. R. Foltyn, and H. Wang, "$YBa_2Cu_3O_7$ coated conductor grown by hybrid liquid phase epitaxy," *IEEE. Trans. Appl. Supercond.* **17**, 2537-2541 (2007).

178. Y. L. Li, S. Y. Hu, D. A. Tenne, A. Soukiassian, D. G. Schlom, X. X. Xi, K. J. Choi, C. B. Eom, A. Saxena, T. Lookman, Q. X. Jia, and L. Q. Chen, "Prediction of ferroelectricity in $BaTiO_3/SrTiO_3$ superlattice with domains," *Appl. Phys. Lett.* **91**, 112914 (2007).

179. L. X. Zheng, X. F. Zhang, Q. W. Li, S. B. Chikkannan, Y. Li, Y. H. Zhao, X. Z. Liao, Q. X. Jia, S. K. Doorn, D. E. Peterson, and Y. T. Zhu, "Carbon-nanotube cotton for large-scale fibers," *Adv. Mater.* **19**, 2567-2570 (2007).

180. H. Yang, M. Jain, N. A. Suvorova, H. Zhou, H. M. Luo, P. C. Dowden, R. F. DePaula, D. M. Feldmann, S. R. Foltyn, and Q. X. Jia, "Temperature dependent leakage mechanism of $Pt/BiFeO_3/SrRuO_3$ thin film capacitors," *Appl. Phys. Lett.* **91**, 072911 (2007).

181. X. Li, M. W. Rupich, T. Kodenkandath, Y. Huang, W. Zhang, E. Siegal, D. T. Verbelyi, U. Schoop, N. Nguyen, C. Thieme, Z. Chen, D. M. Feldman, D. C. Larbalestier, T. G. Holesinger, L. Civale, Q. X. Jia, V. Maroni, and M. V. Rane, "High critical current YBCO films prepared by an MOD process on RABiTs templates," *IEEE. Trans. Appl. Supercond.* **17**, 3553-3556 (2007).

182. M. Jain, N. K. Karan, H. Wang, J. Yoon, R. S. Katiyar, A. S. Bhalla, and Q. X. Jia, "High tunability of lead strontium titanate thin films using conductive $LaNiO_3$ electrodes," *Appl. Phys Lett.* **91**, 072908 (2007).

183. H. M. Luo, M. Jain, S. A. Baily, R. F. DePaula, P. C. Dowden, and Q. X. Jia, "Structural and ferromagnetic properties of epitaxial $SrRuO_3$ films by a chemical solution deposition," *J. Phys. Chem. B.* **111**, 7497- 7500 (2007).

184. J. S. Lee and Q. X. Jia, "Epitaxial growth and anisotropic dielectric properties of La-doped $Bi_4Ti_3O_{12}$ thin films," *Solid State Phenomena* **124-126**, 177-180 (2007).

185. S. R. Foltyn, L. Civale, J. L. MacManus-Driscoll, Q. X. Jia, B. Maiorov, H. Wang, and M. Maley, "Materials science challenges for high-temperature superconducting wire," *Nat. Mater.* **6**, 631-642 (2007). (*Review article*)

186. B. Maiorov, Q. X. Jia, H. Zhou, H. Wang, Y. Li, A. Kursunovic, J. L. MacManus-Driscoll, T. Haugan, P. N. Barnes, S. R. Foltyn, and L. Civale, "Effects of the variable Lorentz force on the critical current in anisotropic superconducting thin films," *IEEE. Trans. Appl. Supercond.* **17**, 3697-3700 (2007).

187. M. Krishnamurthi, M. Ramirez, S. Denev, V. Semak, T. Lehecka, J. Thomas, Q. X. Jia, and V. Gopalan, "Two dimensional dynamic focusing of laser by electro-optic ferroelectric domain lenses," *Appl. Phys. Lett.* **90**, 201106 (2007).

188. Q. X. Jia, H. Wang, Y. Lin, Y. Li, C. Wetteland, G. W. Brown, M. Hawley, B. Maiorov, S. R. Foltyn, L. Civale, P. N. Arendt, and J. L. MacManus-Driscoll, "Microstructural evolution with the change in thickness of superconducting films," *IEEE. Trans. Appl. Supercond.* **17**, 3243-3246 (2007).

189. T. G. Holesinger, Q. X. Jia, P. Dowden, S. Kreiskott, B. Maiorov, L. Civale, and B. Gibbons, "Ultra-fine multilayers of complex metal-oxide films," *Adv. Mater.* **19**, 1917-1920 (2007).

190. M. Jain, Y. Lin, P. Shukla, Y. Li, H. Wang, M.F. Hundley, A. K. Burrell, T. M. McCleskey, S. F. Foltyn, and Q. X. Jia, "Ferroic metal-oxide films grown by polymer assisted deposition," *Thin Solid Films* **515**, 6411-6415 (2007).

191. H. Claus, B. Ma, A. P. Paulikas, R. Nikolova, B. W. Veal, Q. X. Jia, U. Welp, and K. E. Gray, "Critical current of grain boundaries in $YBa_2Cu_3O_x$ bicrystal films as a function of oxygen concentration," *Phys. Rev. B.* **76**, 014529 (2007).

192. H. L. Wang, W. Li, Q. X. Jia, and E. Akhodov, "Tailoring conducting polymer chemistry for the chemical deposition of metal particles and clusters," *Chem. Mater.* **19**, 520-525 (2007).

193. H. Yang, N. A. Suvorova, M. Jain, B. S. Kang, Y. Li, R. F. DePaula, Q. X. Jia, and C. J. Lu, "Effective thickness and dielectric constant of interfacial layer at $Pt/Bi_{3.25}Nd_{0.75}TiO_3/SrRuO_3$ interfaces," *Appl. Phys. Lett.* **90**, 232909 (2007).

194. X. Zhang, Q. Li, Yi Tu, Y. Li, Y. Coulter, L. Zheng, Y. Zhao, Q. X. Jia, D. Peterson, and Y. T. Zhu, "Strong carbon nanotube fiber spun from long CNT array," *Small* **3**, 244-248 (2007).

195. J. X. Zhang, Y. L. Li, F. Zavaliche, Q. X. Jia, D. G. Schlom, R. Ramesh, and L. Q. Chen, "Phase-field model for epitaxial ferroelectric and magnetic nanocomposite thin films," *Appl. Phys. Lett.* **90**, 052909 (2007).

196. H. S. Kang, S. S. Pang, J. W. Kim, G. H. Kim, J. H. Kim, S. Y. Lee, Y. Li, H. Wang, and Q. X. Jia, "The role of a ZnO buffer layer in the growth of ZnO thin film on Al_2O_3 substrate," *Superlattices and Microstructures* **40**, 501-506 (2006).

197. A. Vasudevarao, A. Kumar, L. Tian, J. H. Haeni, Y. L. Li, C. J. Eklund, Q. X. Jia, R. Uecker, P. Reiche, K. Rabe, L. Q. Chen, D. G. Schlom, and V. Gopalan, "Mutiferroic domain dynamics in strained strontium titanate," *Phys. Rev. Lett.* **97**, 257602 (2006).

198. M. Jain, B. S. Kang, and Q. X. Jia, "Effect of conductive $LaNiO_3$ electrode on the structural and ferroelectric properties of $Bi_{3.25}La_{0.75}Ti_3O_{12}$ film," *Appl. Phys. Lett.* **89**, 242903 (2006).

199. C. A. Meserole, G. F. Fisher, D. J. Hilton, Q. X. Jia, R. D. Averitt, D. J. Funk, and A. J. Taylor, "Fe (001) thin films for x-ray diffraction and terahertz emission studies," *J. Vac. Sci. Technol*. A **24**, 1509-1513 (2006).

200. H. Wang, S. R. Foltyn, P. N. Arendt, Q. X. Jia, and X. Zhang, "Identification of the misfit dislocations at $YBa_2Cu_3O_{7-\delta}/SrTiO_3$ interface using Moiré fringe contrast," *Physica C* **444**, 1-4 (2006).

201. J. -K. Lee, Y. Lin, Q. X. Jia, T. Hochbauer, H. S. Jung, L. Shao, A. Misra, and M. Nastasi, "Role of strain in the blistering of hydrogen-implanted silicon," *Appl. Phys. Lett.* **89**, 101901 (2006).

202. J. L. MacManus-Driscoll, B. Maiorov, J. Durrell, S. R. Foltyn, Q. X. Jia, L. Civale, H. Wang, A. Kursumovic, and D. E. Peterson, "Guidelines for optimizing random and

correlated pinning in RE-based superconducting films," *Supercond. Sci. Technol.* **19**, S55-S59 (2006).

203. M. Jain, Y. Li, M. F. Hundley, M. Hawley, B. Maiorov, I. H. Campbell, L. Civale, Q. X. Jia, P. Shukla, A. K. Burrell, and T. M. McCleskey, "Magnetoresistance in polymer assisted deposited Sr- and Ca-doped lanthanum manganite films," *Appl. Phys. Lett.* **88**, 232510 (2006).

204. H. S. Kang, J. W. Kim, J. H. Kim, S. Y. Lee, Y. Li, J. S. Lee, J. K. Lee, M. A. Nastasi, S. A. Crooker, and Q. X. Jia, "Optical property and stokes' shift in $Zn_{1-x}Cd_xO$ thin films depending on Cd content," *J. Appl. Phys*. **99**, 066113 (2006).

205. W. Li, Q. X. Jia, and H. L. Wang, "Facile synthesis of metal nanoparticles using conducting polymer colloids," *Polymer* **47**, 23-26 (2006).

206. D. A. Tenne, A. Bruchhausen, D. L. Kimura, A. Fainstein, R. Katiyar, A. Cantarero, A. Soukiassian, V. Vaithyanathan, J. H. Haeni, W. Tian, D. G. Schlom, C. E. Eom, H. P. Sun, X. Q. Pan, Y. L. Li, L. Q. Chen, Q. X. Jia, and X. X. Xi, "Nanoscale ferroelectricity in $BaTiO_3/SrTiO_3$ superlattices probed by ultraviolet Raman spectroscopy," *Science* **313**, 1614-1616 (2006).

207. J.-K. Lee, R. E. Muenchausen, J.-S. Lee, Q. X. Jia, M. Nastasi, J. Valdez, K. Sickafus, B. L. Bennett, D. W. Cooke, and S.Y. Lee, "Structure and optical properties of Lu_2SiO_5:Ce phosphor thin films," *Appl. Phys. Lett.* **89**, 101905 (2006).

208. M. Jain, P. Shukla, Y. Li, M. Hawley, M. F. Hundley, A. K. Burrell, T. M. McCleskey, and Q. X. Jia, "High magnetoresistance near room temperature in $La_{0.67}Ca_{0.33}MnO_3$/ $La_{0.66}Sr_{0.33}MnO_3$ multilayered films prepared by a solution technique," *Adv. Mater*. **18**, 2695-2698 (2006).

209. W. Tian, J. C. Jiang, X. Q. Pan, J. H. Haeni, Y. L. Li, L. Q. Chen, D. G. Schlom, J. B. Neaton, K. M. Rabe, and Q. X. Jia, "Structural evidence for enhanced polarization in a commensurate short-period $BaTiO_3/SrTiO_3$ superlattice," *Appl. Phys. Lett.* **89**, 092905 (2006).

210. H. Wang, B. Maiorov, L. Civale, J. L. MacManus-Driscoll, Q. X. Jia, P. N. Arendt, S. R. Foltyn, A. Serquis, and X. Zhang, "Microstructure and transport properties of Y-rich $YBa_2Cu_3O_{7-\delta}$ thin films," *J. Appl. Phys.* **100**, 053904 (2006).

211. Y. L. Li, S. Choudhury, J. H. Haeni, M. D. Biegalski, A. Vasudevarao, A. Sharan, H. Z. Ma, J. Levy, V. Gopalan, S. Trolier-McKinstry, D. G. Schlom, Q. X. Jia, and L. Q. Chen, "Phase transition and domain structures in strained pseudocubic (100) $SrTiO_3$ thin films," *Phys. Rev. B.* **73**, 184112 (2006).

212. W. Choi, B. S. Kang, Q. X. Jia, V. Matias, and A. T. Findikoglu, "Dielectric properties of <001>-oriented $(Ba,Sr)TiO_3$ thin films on polycrystalline metal tapes using biaxially oriented γ-Al_2O_3/MgO buffer layers," *Appl. Phys. Lett.* **88**, 062907 (2006).

213. P. Shukla, E. M. Minogue, T. M. McCleskey, Q. X. Jia, Y. Lin, P. Lu, and A. K Burrell, "Conformal coating of nanoscale features of microporous anodisc™ membranes with zirconium and titanium oxide," *Chem. Commun.* **8**, 847-849 (2006).

214. H. S. Kang, S. H. Lim, J. W. Kim, H. W. Chang, G. H. Kim, J. H. Kim, S. Y. Lee, Y. Li, J. S. Lee, J. K. Lee, M. A. Nastasi, S. A. Crooker, and Q. X. Jia, "Exciton localization and stokes' shift in $Zn_{1-x}Cd_xO$ thin films depending on chemical composition," *J. Crystal Growth* **287**, 23-26 (2006).

215. L. Shao, Y. Lin, J. G. Swadener, J. K. Lee, Q. X. Jia, Y. Q. Wang, M. Nastasi, P. E. Thompson, N. D. Theodore, T. L. Alford, J. W. Mayer, P. Chen, and S. S. Lau, "H-induced platelet crack formation in hydrogenated epitaxial $Si/Si_{0.98}B_{0.02}/Si$ structures," *Appl. Phys. Lett.* **88**, 021901 (2006).

216. B. S. Kang, H. Wang, Y. Li, J. L. MacManus-Driscoll, Q. X. Jia, I. Mihut, and J. B. Betts, "Low field magneto-transport properties of $(La_{0.7}Sr_{0.3}MnO_3)_{0.5}$:$(ZnO)_{0.5}$ nanocomposite films grown via pulsed laser deposition," *Appl. Phys. Lett.* **88**, 192514 (2006).

217. H. Wang, S. R. Foltyn, P. N. Arendt, Q. X. Jia, Y. Li, and X. Zhang, "Thickness effects of $SrTiO_3$ buffer layers on superconducting properties of $YBa_2Cu_3O_7$ coated conductors," *Physica C* **433**, 43-49 (2005).

218. L. Shao, Y. Lin, J. W. Swadener, J. K. Lee, Q. X. Jia, Y. Q. Wang, M. Nastasi, P. E. Thompson, N. D. Theodore, T. L. Alford, J. W. Mayer, P. Chen, and S. S. Lau, "Strained-facilitated process for the lift-off of a Si layer of less than 20 nm thickness," *Appl. Phys. Lett.* **87**, 251907 (2005).

219. A. Kursumovic, J. E. Evetts, J. L. MacManus-Driscoll, B. Maiorov, L. Civale, H. Wang, Q. X. Jia, and S. R. Foltyn, "High critical current densities in $YBa_2Cu_3O_{7-x}$ films grown at high rates by hybrid liquid phase epitaxy," *Appl. Phys. Lett.* **87**, 252507 (2005).

220. Y. Lin, J. Xie, H. Wang, Y. Li, C. Chavez, S. Y. Lee, S. R. Foltyn, S. A. Crooker, A. K. Burrell, T. M. McCleskey, and Q. X. Jia, "Green luminescent zinc oxide films prepared by polymer-assisted deposition with rapid thermal process," *Thin Solid Films* **492**, 101-104 (2005).

221. S. R. Foltyn, H. Wang, L. Civale, Q. X. Jia, P. N. Arendt, B. Maiorov, Y. Li, M. P. Maley, and J. L. MacManus-Driscoll, "Overcoming the barrier to 1000 A/cm-width superconducting coatings," *Appl. Phys. Lett.* **87**, 162505 (2005).

222. L. Shao, Y. Lin, J. K. Lee, Q. X. Jia, Y. Q. Wang, M. Nastasi, P. E. Thompson, N. D. Theodore, P. K. Chu, T. L. Alford, J. W. Mayer, P. Chen, and S. S. Lau, "Plasma hydrogenation of strained Si/SiGe/Si heterostructure for layer transfer without ion implantation," *Appl. Phys. Lett.* **87**, 091902 (2005).

223. Y. Lin, H. Wang, B. Maiorov, M. Hawley, C. J. Wetteland, P. N. Arendt, S. R. Foltyn, L. Civale, and Q. X. Jia, "Comparative study on microstructural properties for $YBa_2Cu_3O_7$ films on single crystal and Ni-based metal substrates," *J. Mater. Res.* **20**, 2055-2060 (2005).

224. A. Ayala, T. G. Holesinger, P. G. Clem, V. Matias, Q. X. Jia, H. Wang, S. R. Foltyn, and B. J. Gibbons, "Synthesis and characterization of Cu-doped $SrTiO_3$ powders and sol-gel processed buffer layers on IBAD MgO templates," *IEEE Trans. Appl. Supercond.* **15**, 2703-2706 (2005).

225. Y. Lin, H. Wang, M. E. Hawley, S. R. Foltyn, and Q. X. Jia, "The effect of growth rates on the microstructures of $EuBa_2Cu_3O_{7-x}$ films on $SrTiO_3$ substrates," *Appl. Phys. Lett.* **86**, 192508 (2005).

226. D. Lim, K. Thorsmolle, R. D. Averitt, A. J. Taylor, Q. X. Jia, K. H. Ahn, M. J. Graf, and S. A. Trugman, "Coherent optical and acoustic phonon generation correlated to charge ordering phase transition in $La_{1-x}Ca_xMnO_3$," *Phys. Rev. B* **71**, 1434403 (2005).

227. A. T. Findikoglu, W. Choi, V. Matias, T. G. Holesinger, Q. X. Jia, and D. E. Peterson, "Well-oriented, high-carrier-mobility silicon thin films on non-single-crystalline substrates," *Adv. Mater.* **17**, 1527-1531 (2005).

228. Q. X. Jia, B. Maiorov, H. Wang, Y. Lin, S. R. Foltyn, L. Civale, and J. L. MacManus-Driscoll, "Comparative study of $REBa_2Cu_3O_7$ films for coated conductors," *IEEE Trans. Appl. Supercond.* **15**, 2723-2726 (2005).

229. B. S. Kang, J. S. Lee, L. Stan, R. F. DePaula, P. D. Arendt, and Q. X. Jia, "Ferromagnetic properties of epitaxial $SrRuO_3$ thin films grown on SiO_2/Si using bi-axially oriented MgO as templates," *Appl. Phys. Lett.* **86**, 072511 (2005).

230. Y. Lin, X. Chen, S. W. Liu, C. L. Chen, J. S. Lee, Y. Li, Q. X. Jia, and A. Bhalla, "Epitaxial nature and anisotropic dielectric properties of $(Pb,Sr)TiO_3$ thin films on $NdGaO_3$ substrates," *Appl. Phys. Lett.* **86**, 142902 (2005).

231. B. Maiorov, B. J. Gibbons, S. Kreiskott, V. Matias, Q. X. Jia, T. G. Holesinger, and L. Civale, "Influence of tilted geometries on the critical current in superconducting thin films," *IEEE Trans. Appl. Supercond.* **15**, 2582-2585 (2005).

232. H. Wang, X. Z. Liao, X. Zhang, S. R. Foltyn, P. N. Arendt, J. L. MacManus-Driscoll, Y. T. Zhu, H. F. Xu, and Q. X. Jia, "Effect of Eu interfacial mobility on the growth of epitaxial $EuBa_2Cu_3O_7$ films," *Appl. Phys. Lett.* **86**, 101912 (2005).

233. J. L. MacManus-Driscoll, S. R. Foltyn, B. Maiorov, Q. X. Jia, H. Wang, A. Serquis, L. Civale, Y. Lin, M. E. Hawley, M. P. Maley, and D. E. Peterson, "Rare earth ion size effects and enhanced critical current densities in $Y_{2/3}Sm_{1/3}Ba_2Cu_3O_{7-x}$ coated conductors," *Appl. Phys. Lett.* **86**, 032505 (2005).

234. Y. Lin, H. Wang, M. Hawley, S. R. Foltyn, and Q. X. Jia, "Microstructural study of $EuBa_2Cu_3O_7$ films by high-resolution x-ray diffraction," *IEEE Trans. Appl. Supercond.* **15**, 2731-2734 (2005).

235. X. Qi, M. Wei, Y. Lin, Q. X. Jia, D. Zhi, J. Dho, M. Blamire, and J. L. MacManus-Driscoll, "High-resolution x-ray diffraction and transmission electron microscopy of multiferroic $BiFeO_3$ thin films," *Appl. Phys. Lett.* **86**, 071913 (2005).

236. T. Park, Z. Nussinov, K. R. A. Hazzard, V. A. Sidorov, A. V. Balatsky, J. L. Sarrao, S. W. Cheong, M. F. Hundley, J. S. Lee, Q. X. Jia, and J. D. Thompson, "Novel dielectric anomaly in the hole-doped $La_2Cu_{1-x}Li_xO_4$ and $La_{2-x}Sr_xNiO_4$ insulators: signature of an electronic glassy state," *Phys. Rev. Lett.* **94**, 017002 (2005).

237. X. Qi, J. Dho, M. Blamire, Q. X. Jia, J. S. Lee, S. R. Foltyn, and J. L. MacManus-Driscoll, "Epitaxial growth of $BiFeO_3$ thin films by LPE and sol-gel methods," *J. Magnetism & Magnetic Mater.* **283**, 415-421 (2004).

238. L. X. Zheng, M. J. O'Connell, S. K. Doorn, X. Z. Liao, Y. H. Zhao, E. A. Akhadov, M. A. Hoffbauer, B. J. Roop, Q. X. Jia, R. C. Dye, D. E. Peterson, S. M. Huang, J. Liu, and Y. T. Zhu, "Ultralong single-wall carbon nanotubes," *Nat. Mater.* **3**, 673-676 (2004).

239. Y. Lin, H. Wang, M. E. Hawley, S. R. Foltyn, Q. X. Jia, G. E. Collis, A. K. Burrell, and T. M. McCleskey, **"**Epitaxial growth of Eu_2O_3 thin films on $LaAlO_3$ substrates by polymer-assisted deposition,**"** *Appl. Phys. Lett.* **85**, 3426-3428 (2004).

240. B. S. Kang, J. S. Lee, L. Stan, J. K. Lee, R. F. DePaula, P. N. Arendt, M. Nastasi, and Q. X. Jia, "Dielectric properties of epitaxial $Ba_{0.6}Sr_{0.4}TiO_3$ films on SiO_2/Si using bi-axially oriented ion-beam-assisted-deposited MgO as templates," *Appl. Phys. Lett.* **85**, 4702-4704 (2004).

241. Y. Lin, J. S. Lee, H. Wang, Y. Li, S. R. Foltyn, Q. X. Jia, G. Collis, A. K. Burrell, and T. M. McCleskey, "Structural and dielectric properties of epitaxial $Ba_{1-x}Sr_xTiO_3$ films grown on $LaAlO_3$ substrates by polymer-assisted deposition," *Appl. Phys. Lett.* **85**, 5007-5009 (2004).

242. H. Wang, S. R. Foltyn, P. N. Arendt, Q. X. Jia, J. L. MacManus-Driscoll, L. Stan, Y. Li, X. Zhang, and P. C. Dowden, "Microstructure of $SrTiO_3$ buffer layers and its effects on superconducting properties of $YBa_2Cu_3O_{7-\delta}$ coated conductors," *J. Mater. Res*. **19**, 1869-1875 (2004).

243. D. W. Reagor, S. Y. Lee, Y. Li, and Q. X. Jia, "Work function of the mixed-valent manganese perovskites," *J. Appl. Phys*. **95**, 7971-7975 (2004).

244. S. Y. Lee, Y. Li, Jang-Sik Lee, J. K. Lee, M. Nastasi, S. A. Crooker, Q. X. Jia, H. S. Kang, and J. S. Kang, "Effects of chemical composition on the optical properties of $Zn_{1-x}Cd_xO$ thin films," *Appl. Phys. Lett*. **85**, 218-220 (2004).

245. J. L. MacManus-Driscoll, S. R. Foltyn, Q. X. Jia, H. Wang, A. Serquis, B. Maiorov, L. Civale, Y. Lin, M. E. Hawley, M. P. Maley, and D. E. Peterson, "Systematic enhancement of in-field critical current density with rare-earth ion size variance in superconducting rare-earth barium cuprate films," *Appl. Phys. Lett.* **84**, 5329-5331 (2004).

246. J. S. Lee, B. S. Kang, Y. Lin, Y. Li, and Q. X. Jia, "Anisotropic dielectric properties in epitaxial $Bi_{3.25}La_{0.75}Ti_3O_{12}$ thin films along different crystal directions," *Appl. Phys. Lett*. **85**, 2586-2588 (2004).

247. L. Civale, B. Maiorov, A. Serquis, J. O. Willis, J. Y. Coulter, H. Wang, Q. X. Jia, P. N. Arendt, J. L. MacManus-Driscoll, M. P. Maley, and S. R. Foltyn, "Angular dependent vortex pinning mechanisms in $YBa_2Cu_3O_{7-x}$ coated conductors and thin films," *Appl. Phys. Lett.* **84**, 2121-2123 (2004).

248. J. L. MacManus-Driscoll, S. R. Foltyn, Q. X. Jia, H. Wang, A. Serquis, L. Civale, B. Maiorov, M. E. Hawley, M. P. Maley, and D. E. Peterson, "Strongly enhanced flux pinning in $BaZrO_3$-doped $YBa_2Cu_3O_{7-x}$ coated conductors," *Nat. Mater.* **3**, 439-443 (2004).

249. H. Wang, Q. X. Jia, S. R. Foltyn, P. N. Arendt, X. Zhang, B. J. Gibbons, and M. F. Hundley, "Microstructures and properties of epitaxial $Nd_{0.67}Sr_{0.33}MnO_3$ thin films on single crystal $LaAlO_3$," *Appl. Phys. Lett.* **84**, 1147-1149 (2004).

250. J. S. Lee, Y. Li, Y. Lin, S. Y. Lee, and Q. X. Jia, "Hydrogen-induced degradation in epitaxial and polycrystalline in (Ba,Sr)TiO_3 thin films," *Appl. Phys. Lett.* **84**, 3825-3827 (2004).

251. Y. Lin, X. Chen, S. W. Liu, C. L. Chen, J. S. Lee, Y. Li, Q. X. Jia, and A. Bhalla, "Anisotropic in-plane strains in (Pd,Sr)TiO_3 thin films on the $NdGaO_3$ substrate," *Appl. Phys. Lett.* **84**, 577-579 (2004).

252. E. L. Brosha, R. Mukundan, D. R. Brown, Q. X. Jia, R. Lujan, and F. H. Garzon, "Techniques for the thin film growth of $La_{1-x}Sr_xCrO_3$ for solid state ionic devices," *Solid State Ionics*, **166**, 425-440 (2004).

253. Y. T. Zhu, G. W. Egeland, Y. Li. Q. X. Jia, J. Gallegos, A. Serquis, X. Z. Liao, D. E. Peterson, R. C. Dye, B. J. Roop, M. A. Hoffbauer, "Formation of pile networks by long carbon nanotubes from decomposition of CO on Co-Mo film," *J. Nanosci. Nanotech.* **4**, 189-191 (2004).

254. L. Civale, B. Maiorov, A. Serquis, S. R. Foltyn, Q. X. Jia, P. N. Arendt, H. Wang, J. O. Willis, J. Y. Coulter, T. G. Holesinger, J. L. MacManus-Driscoll, M. W. Rupich, W. Zhang, and X. Li, "Influence of crystalline texture on vortex pinning near the *ab* plane in $YBa_2Cu_3O_7$ thin films and coated conductors," *Physica C* **412-414**, 976-982 (2004).

255. L. Civale, B. Maiorov, A. Serquis, J. O. Willis, J. Y. Coulter, H. Wang, Q. X. Jia, P. N. Arendt, M. Jaime, J. L. MacManus-Driscoll, M. P. Maley, and S. R. Foltyn, "Understanding high critical currents in $YBa_2Cu_3O_7$ thin films and coated conductors," *J. Low Temp. Phys.* **135**, 87-98 (2004).

256. Q. X. Jia, T. M. McCleskey, A. K. Burrell, Y. Lin, G. Collis, H. Wang, A. D. Q. Li, and S. R. Foltyn, "Polymer-assisted deposition of metal-oxide films," *Nat. Mater.* **3**, 529-532 (2004).

257. J. S. Lee, Q. X. Jia, J. H. Park, S. K. Joo, W. S. Yang, N. K. Kim, S. J. Yeom, and J. S. Roh, "Low temperature processing and characterization of metal-organic decomposition derived $SrBi_2(Ta,Nb)_2O_9$ thin films by low energy accelerated ion bombardment," *J. Am. Ceramic Soc.* **87**, 720-723 (2004).

258. P. N. Arendt, S. R. Foltyn, L. Civale, R. E. DePaula, P. C. Dowden, J. R. Groves, T. G. Holesinger, Q. X. Jia, S. Kreiskott, L. Stan, I. Usov, H. Wang, and J. Y. Coulter, "High critical current YBCO coated conductors based on IBAD MgO," *Physica C* **412-414**, 795-800 (2004).

259. K. Venkataraman, A. J. Kropf, C. U. Segre, Q. X. Jia, A. Goyal, S. Chattopadhyay, and V. A. Maroni, "Detection of interfacial strain and phase separation in $MBa_2Cu_3O_7$ thin films using Raman spectroscopy and x-ray diffraction space mapping," *Physica C* **402**, 1-16 (2004).

260. J. S. Lee, H. Wang, S. Y. Lee, S. R. Foltyn, and Q. X. Jia, "Lateral epitaxial growth of (Ba,Sr)TiO_3 thin films," *Appl. Phys. Lett.* **83**, 5494-5496 (2003).

261. C. Kwon, L. B. Wang, S. Seo, B. H. Park, and Q. X. Jia, "Spatial distribution analysis of critical temperature in epitaxial Y-Ba-Cu-O film using variable temperature scanning laser microscopy," *IEEE Trans. Appl. Supercond.* **13**, 2894-22896 (2003).

262. P. Lu, J. S. Lee, and Q. X. Jia, "Microstructural properties of $Ba_{0.6}Sr_{0.4}TiO_3/RuO_2$ multilayers grown on MgO and YSZ by pulsed laser deposition," *Integrated Ferroelectrics* **55**, 965-972 (2003).

263. A. Serquis, X. Z. Liao, J. Y. Huang, Q. X. Jia, D. E. Peterson, and Y. T. Zhu, "Co-Mo catalyzed growth of multi-wall carbon nanotubes from CO decomposition," *Carbon* **41**, 2635-2641 (2003).

264. L. B. Wang, M. B. Proce, C. Kwon, and Q. X. Jia, "Variable temperature scanning laser microscopy of wider width high temperature superconducting films," *IEEE Trans. Appl. Supercond.* **13**, 2611-2613 (2003).

265. J. Y. Huang and Q. X. Jia, "Structural properties of $SrWO_4$ films synthesized by pulsed laser deposition," *Thin Solid Films* **444**, 95-98 (2003).

266. Q. X. Jia, S. R. Foltyn, H. Wang, P. N. Arendt, T. Holesinger, Y. Li, and M. Hawley, "Role of a superconducting seed layer on the structural and transport properties of $EuBa_2Cu_3O_7$ films," *Appl. Phys. Lett.* **83**, 1388-1390 (2003).

267. J. S. Lee, S. Y. Lee, and Q. X. Jia, "Lateral epitaxial growth of $Ba_{0.6}Sr_{0.4}TiO_3$ thin films," *Integrated Ferroelectrics* **55**, 933-938 (2003).

268. Q. X. Jia, S. R. Foltyn, P. N. Arendt, T. Holesinger, J. R. Groves, and M. Hawley, "Growth and characterization of $SrRuO_3$ buffer layer on MgO template for coated conductors," *IEEE Trans. Appl. Supercond.* **13**, 2655-2657 (2003).

269. S. R. Foltyn, P. N. Arendt, Q. X. Jia, H. Wang, J. L. MacManus-Driscoll, S. Kreiskott, R. F. DePaula, L. Stan, J. R. Groves, and P. C. Dowden, "Strongly-coupled critical current density values achieved in $YBa_2Cu_3O_{7-\delta}$ coated conductors with crystal-like texture," *Appl. Phys. Lett.* **82**, 4519-4521 (2003).

270. L. S. Li, A. D. Q. Li, and Q. X. Jia, "Effects of self-assembled multilayers on the evolution of surface physical properties of indium-tin-oxide," *Appl. Surf. Sci.* **219**, 199-202 (2003).

271. H. S. Jhon, C. H. Jeon, K. B. Han, M. S. Sik, J. G. Yook, Q. X. Jia, and S. Y. Lee, "Realization of HTS trisection band pass filter," *IEEE Trans. Appl. Supercond.* **13**, 294-296 (2003).

272. D. B. Jan, J. Y. Coulter, M. E. Hawley, L. N. Bulaevskii, M. P. Maley, Q. X. Jia, B. B. Maranville, F. Hellman, and X. Q. Pan, "Flux pinning enhancement in ferromagnetic and superconducting thin film multilayer," *Appl. Phys. Lett.* **82**, 778-780 (2003).

273. X. Z. Liao, A. Serquis, Q. X. Jia, D. E. Peterson, Y. T. Zhu, and F. F. Xu, "Effect of catalyst composition on carbon nanotube growth," *Appl. Phys. Lett.* **82**, 2694-2696 (2003).

274. J. R. Groves, P. N. Arendt, S. R. Foltyn, Q. X. Jia, T. G. Holesinger, L. A. Emmert, R. F. DePaula, P. C. Dowden, and L. Stan, "Improvement of IBAD MgO template layers on metallic substrates for YBCO HTS deposition," *IEEE Trans. Appl. Supercond.* **13**, 2651-2654 (2003).

275. B. H. Park and Q. X. Jia, "Enhanced dielectric properties of $(Ba,Sr)TiO_3$ thin films applicable to tunable microwave devices," *Jpn. J. Appl. Phys.* **41**, 7222-7225(2002).

276. J. R. Groves, P. N. Arendt, S. R. Foltyn, Q. X. Jia, T. G. Holesinger, H. Kung, R. F. DePaula, P. C. Dowden, E. J. Peterson, L. Stan, and L. A. Emmert, "Recent progress in continuously processed IBAD-MgO template meters for HTS applications," *Physica C.* **382**, 43-47 (2002).

277. Q. X. Jia, S. R. Foltyn, P. N. Arendt, J. R. Groves, T. G. Holesinger, M. E. Hawley, and P. Lu, "Role of $SrRuO_3$ buffer layer on the superconducting properties of $YBa_2Cu_3O_7$ films grown on polycrystalline metal-alloy using a biaxially oriented MgO template," *Appl. Phys. Lett.* **81**, 4571-4573 (2002).

278. B. E. Klein, S. Seo, C. Kwon, B. H. Park, and Q. X. Jia, "Imaging transport current distribution in high temperature superconductors using room temperature scanning laser microscope," *Rev. Scientific Instrument*s **73**, 3692-3694 (2002).

279. Q. X. Jia, S. R. Foltyn, J. Y. Coulter, J. F. Smith, and M. P. Maley, "Characterization of superconducting $SmBa_2Cu_3O_7$ films grown by pulsed laser deposition," *J. Mater. Res.* **17**, 2599-2603 (2002).

280. R. D. Avert, V. K. Thorsmolle, Q. X. Jia, S, A. Trugman, and A. J. Taylor, "Nonequilibrium superconductivity in $Y_{1-x}Pr_xBa_2Cu_3O_7$ thin films," *Physica B* **312-313**, 86-87 (2002).

281. Q. X. Jia, J. R. Groves, P. N. Arendt, P. Lu, and F. Miranda, "Monolithic integration of superconducting YBCO and dielectric $SrTiO_3$ films on polycrystalline ferrites," *Integrated Ferroelectrics* **42**, 71-78 (2002).

282. Q. X. Jia, B. H. Park, B. J. Gibbons, J. Y. Huang, and P. Lu, "Dielectric response and structural properties of TiO_2-doped $Ba_{0.6}Sr_{0.4}TiO_3$ films," *Appl. Phys. Lett.* **81**, 114-116 (2002).

283. A. T. Findikoglu, R. Camassa, G. Lythe, and Q. X. Jia, "Dielectric nonlinearity and stochastic effects in strontium titanate," *Appl. Phys. Lett.* **80**, 3391-3393 (2002).

284. L. S. Li, Q. X. Jia, and A. D. Q. Li, "Effects of organic self-assembled polymer and metal phthalocyanine multilayers on the surface photovoltaic properties of indium tin oxide and titanium oxide," *Chem. Mater.* **14**, 1159-1165 (2002).

285. D. B. Jan, Q. X. Jia, M. E. Hawley, G. W. Browne, H. P. Sun, and X. Q. Pan, "*In-vacuo* pulsed laser ablation of $YBa_2Cu_3O_{7-x}$ target for the formation of Y_2O_3 nanostructures," *J. Mater. Res.* **17**, 697-700 (2002).

286. J. Y. Huang, B. H. Park, D. Jan, X. Q. Pan, Y. T. Zhu, and Q. X. Jia, "High-resolution transmission electron microscopic study of defects and interfaces in epitaxial TiO_2 films on sapphire and $LaAlO_3$," *Phil. Mag. A.* **82**, 735-749 (2002).

287. Q. X. Jia, S. R. Foltyn, P. N. Arendt, and J. F. Smith, "High-temperature superconducting thick films with enhanced supercurrent carrying capability," *Appl. Phys. Lett.* **80**, 1601-1603 (2002).

288. B. H. Park, J. Y. Huang, L. S. Li, and Q. X. Jia, "Role of atomic arrangements at interfaces on the phase control of epitaxial TiO_2 films," *Appl. Phys. Lett.* **80**, 1174-1176 (2002).

289. B. H. Park, E. J. Peterson, J. Lee, X. Zeng, W. Si, X. X. Xi, and Q. X. Jia, "Dielectric properties of $Ba_{0.6}Sr_{0.4}TiO_3$ thin films with various strain states," *Integrated Ferroelectrics* **39**, 1221-1230 (2001).

290. B. H. Park, L. S. Li, B. J. Gibbons, J. Y. Huang, and Q. X. Jia, "Photovoltaic response and dielectric properties of epitaxial anatase-TiO_2 films grown on conductive $La_{0.5}Sr_{0.5}CoO_3$ electrodes," *Appl. Phys. Lett*, **79**, 2797-2799 (2001).

291. D. A. Scrymgeour, Y. Barad, V. Gopalan, K. T. Gahagan, Q. X. Jia, T. E. Mitchell, and J. M. Robinson, "Large-angle electro-optic laser scanner on $LiTaO_3$ fabricated by *in-situ* monitoring of ferroelectric-domain micropatterning," *Appl. Optics* **40**, 6236-6241 (2001).

292. Q. X. Jia, P. N. Arendt, S. R. Foltyn, T. G. Holesinger, and R. F. DePaula, "Superconducting YBCO films on polycrystalline yttrium-iron-garnet using IBAD-YSZ as a template," *IEEE Trans. Appl. Supercond.* **11**, 3489-3492 (2001).

293. B. J. Gibbons, B. H. Park, Y. Gim, Y. Fan, A. T. Findikoglu, D. W. Reagor, and Q. X. Jia, "Structure, processing, and property relationships in tunable rf and microwave devices," *Integrated Ferroelectrics* **39**, 1211-1220 (2001).

294. H. Kung, J. P. Hirth, S. R. Foltyn, P. N. Arendt, Q. X. Jia, and M. P. Maley, "A comparison of [001] low-angle tilt grain boundaries of (100) and (110) grain boundary planes in $YBa_2Cu_3O_7$ coated conductors," *Physica C* **357–360**, 959-966 (2001).

295. J. R. Groves, P. N. Arendt, S. R. Foltyn, Q. X. Jia, T. G. Holesinger, H. Kung, E. J. Peterson, R. F. DePaula, P. C. Dowden, L. Stan, and L. A. Emmert, "High critical current density $YBa_2Cu_3O_7$ thick films using ion beam assisted deposition MgO bi-axially oriented template layers on nickel-based superalloy substrates," *J. Mater. Res.* **16**, 2175-2178 (2001).

296. B. H. Park, J. Lee, E. J. Peterson, X. Zeng, W. Si, X. X. Xi, and Q. X. Jia, "Effects of very thin strain layers on dielectric properties of epitaxial $Ba_{0.6}Sr_{0.4}TiO_3$ films," *Appl. Phys. Lett.* **78**, 533-535 (2001).

297. H. Kung, J. P. Hirth, S. R. Foltyn, P. N. Arendt, Q. X. Jia, and M. P. Maley, "On the dissociation of grain boundary dislocations in $YBa_2Cu_3O_{y-\delta}$ coated conductors," *Phil. Mag. Lett.* **81**, 85-93 (2001).

298. B. J. Gibbons, Y. Fan, A. T. Findikoglu, Q. X. Jia, and D. W. Reagor, **"**Effects of ozone assisted deposition on the dielectric properties of 90° off-axis rf-magnetron sputtered $SrTiO_3$,**"** *J. Vac. Sci. Technol. A* **19**, 56-61 (2001).

299. T. G. Holesinger, S. R. Foltyn, P. N. Arendt, Q. X. Jia, J. F. Smith, P. C. Dowden, R. F. DePaula, and J. R. Groves, "Microstructural development in $YBa_2Cu_3O_y$ coated conductors based on ion-beam-assisted deposition of YSZ buffer layers," *IEEE Trans. Appl. Supercond.* **11**, 3359-3364 (2001).

300. Q. X. Jia and P. Lu, "Microstructure of hetero-epitaxially grown RuO_2 thin films on MgO by pulsed laser deposition," *Phil. Mag. B* **81**, 141-149 (2001).

301. A. T. Findikoglu, Q. X. Jia, and S. F. Hahn, "Dynamic time expansion and compression using nonlinear waveguides," *Appl. Phys. Lett.* **77**, 3645-3647 (2000).

302. S. R. Foltyn, P. N. Arendt, R. F. DePaula, P. C. Dowden, J. Y. Coulter, J. R. Groves, L. N. Haussamen, L. P. Winston, Q. X. Jia, and M. P. Maley, "Development of meter-long YBCO coated conductors produced by ion beam assisted deposition and pulsed laser deposition," *Physica C.* **341**, 2305-2308 (2000).

303. C. J. Lu, Z. L. Wang, K. H. Kuo, C. Kwon, and Q. X. Jia, "Lattice mismatch in growth and properties of epitaxial colossal magnetoresistance $La_{0.7}Ca_{0.3}MnO_3$ thin films," *J. Appl. Phys.* **88**, 4032-4043 (2000).

304. B. H. Park, Y. Fan, Y. Gim, and Q. X. Jia, "High nonlinearity of $Ba_{0.6}Sr_{0.4}TiO_3$ films hetero-epitaxially grown on MgO substrates," *Appl. Phys. Lett.* **77**, 2587-2589 (2000).

305. H. Jiang, W. Hu, S. Liang, V. Fouflyguine, J. Zhao, Q. X. Jia, J. R. Groves, P. Arendt, F. Miranda, A. Drehman, S. Wang, and P. Yip, "High quality $Ba_{1-x}Sr_xTiO_3$ films grown by MOCLD and novel ferroelectric/ferrite structures for dual-tuning microwave devices," *Integrated Ferroelectrics* **28**, 63-79 (2000).

306. J. O. Willis, P. N. Arendt, S. R. Foltyn, Q. X. Jia, J. R. Groves, R. F. DePaula, P. C. Dowden, E. J. Peterson, T. G. Holesinger, J. Y. Coulter, M. Ma, M. P. Maley, and D. E. Peterson, "Advances in YBCO coated conductor technology," *Physica C.* **335**, 73-77 (2000).

307. T. G. Holesinger, S. R. Foltyn, P. N. Arendt, H. Kung, Q. X. Jia, E. J. Peterson, J. F. Smith, R. M. Dickerson, P. C. Dowden, R. F. DePaula, J. R. Groves, and J. Y. Coulter, "The microstructure of continuously processed $YBa_2Cu_3O_y$ coated conductors with underlying CeO_2 and IBAD YSZ buffer layers," *J. Mater. Res.* **15**, 1110-1119 (2000).

308. C. C. Battle, S. Kim, V. Gopalan, K. Barkocy, M. C. Gupta, Q. X. Jia, and T. E. Mitchell, "Ferroelectric domain reversal in congruent $LiTaO_3$ crystals at elevated temperatures," *Appl. Phys. Lett.* **76**, 2436-2438 (2000).

309. C. Kwon, L. R. Kinder, Y. Fan, Y. Gim, A. T. Findikoglu, J. F. Bingert, J. Y. Coulter, S. R. Foltyn, D. E. Peterson, and Q. X. Jia, "Improved superconducting properties of $SmBa_2Cu_3O_7$ films using $YBa_2Cu_3O_7$ buffer layer," *Phil. Mag*. B **80**, 45-51 (2000).

310. A. T. Findikoglu, Q. X. Jia, D. W. Reagor, C. Kwon, and K. O. Rasmussen, "Electrodynamic properties of single-crystal and thin-film strontium titanate," *Integrated Ferroelectrics* **28**, 193-200 (2000).

311. R. S. Aga, S. Yan, Y. Xie, S. Han, J. Z. Wu, Q. X. Jia, and C. Kwon, "Microwave surface resistance of $HgBa_2CaCu_2O_{6+\delta}$ thin films," *Appl. Phys. Lett*. **76**, 1606-1608 (2000).

312. Y. Gim, T. Hudson, Y. Fan, C. Kwon, A. T. Findikoglu, B. J. Gibbons, B. H. Park, and Q. X. Jia, "Microstructure and dielectric properties of $Ba_{1-x}Sr_xTiO_3$ films grown on $LaAlO_3$ substrates," *Appl. Phys. Lett.* **77**, 1200-1202 (2000).

313. Q. X. Jia, "Growth and application of conductive ruthenium oxide films," *Recent Res. Devel. Appl. Phys.* **2**, 629-636 (1999).

314. C. Kwon, L. R. Kinder, Y. Gim, J. Y. Coulter, M. P. Maley, S. R. Foltyn, and Q. X. Jia, "Fabrication and characterization of $REBa_2Cu_3O_7$ (RE = Y, Er, Sm, and Nd) films," *IEEE Trans. Appl. Supercond*. **9**, 1575-1578 (1999).

315. X. F. Zhang, H. J. Kung, S. R. Foltyn, Q. X. Jia, E. J. Peterson, and D. E. Peterson, "Speeding up film deposition rate: its effects on microstructures of $YBa_2Cu_3O_y$ superconducting thick films," *J. Mater. Res*. **14**, 1204-1211 (1999).

316. V. Gopalan, A. Itagi, S. Gerstl, P. Swart, Q. X. Jia, T. E. Mitchell, T. E. Schlesinger, and D. D. Stancil, "Ferroelectric domain kinetics congruent $LiTaO_3$," *Integrated Ferroelectrics*, **27**, 1181-1190 (1999).

317. S. R. Foltyn, Q. X. Jia, P. N. Arendt, L. R. Kinder, Y. Fan, and J. F. Smith, "Relationship between film thickness and the critical current of $YBa_2Cu_3O_{7-\delta}$ coated conductors," *Appl. Phys. Lett.* **75**, 3692-3694 (1999).

318. J. P. Zhou, J. T. McDevitt, J. S. Zhou, H. Q. Yin, J. B. Goodenough, Y. Gim, and Q. X. Jia, "Effect of tolerance factor and local distortion on magnetic properties of the perovskite manganites," *Appl. Phys. Lett*. **75**, 1146-1148 (1999).

319. S. R. Foltyn, P. N. Arendt, P. C. Dowden, R. F. DePaula, J. R. Groves, J. Y. Coulter, Q. X. Jia, M. P. Maley, and D. E. Peterson, "High-T_c coated conductors - performance of meter-long YBCO/IBAD flexible tapes," *IEEE Trans. Appl. Supercond*. **9**, 1519-1522 (1999).

320. P. Lu, S. He, F. X. Li, and Q. X. Jia, "Epitaxial growth and structural properties of conductive RuO_2 thin films," *Integrated Ferroelectrics* **26**, 837-853 (1999).

321. J. S. Ahn, J. Bak, H. S. Choi, T. W. Noh, J. E. Han, Y. Bang, J. H. Cho, and Q. X. Jia, "Structural evolution in $(Ca,Sr)RuO_3$ near the Mott-Hubbard transition," *Phys. Rev. Lett*. **82**, 5321-5324 (1999).

322. V. Gopalan, S. Gerstl, A. Itagi, T. E. Mitchell, Q. X. Jia, T. E. Schlesinger, and D. D. Stancil, "*In-situ* video measurement of 180° domain mobility in congruent $LiTaO_3$ using electro-optic imaging microscopy," *J. Appl. Phys.* **86**, 1638-1646 (1999).

323. Q. X. Jia, C. Kwon, and P. Lu, "Structural properties of $Ba_{0.6}Sr_{0.4}TiO_3$ thin films on epitaxial RuO_2 electrodes," *Integrated Ferroelectrics*, **24**, 57-63 (1999).

324. A. T. Findikoglu, Q. X. Jia, C. Kwon, D. W. Reagor, K. O. Rasmussen, A. R. Bishop, N. Gronbech-Jensen, and G. Kaduchak, "Comparative study of broadband electrodynamic properties of single-crystal and thin film strontium titanate," *Appl. Phys. Lett*. **75**, 4189-4191 (1999).

325. A. T. Findikoglu, D. W. Reagor, K. Ø. Rasmussen, A. R. Bishop, N. Gronbech-Jensen, Q. X. Jia, Y. Fan, and C. Kwon, "Electrodynamic properties of coplanar waveguides made from high-temperature superconducting $YBa_2Cu_3O_{7-\delta}$ electrodes on nonlinear dielectric $SrTiO_3$ substrates," *J. Appl. Phys.* **86**, 1558-1568 (1999).

326. V. Gopalan, K. T. Gahagan, M. Kawas, Q. X. Jia, J. M. Robinson, T. E. Mitchell, T. E. Schlesinger, and D. D. Stancil, "Integration of electro-optic lenses and scanners on ferroelectric $LiTaO_3$," *Integrated Ferroelectrics*, **25**, 371-376 (1999).

327. V. Gopalan, Q. X. Jia, and T. E. Mitchell, "*In-situ* video observation of 180° domain kinetics in congruent $LiNbO_3$ crystals," *Appl. Phys. Lett.* **75**, 2482-2484 (1999).

328. A. T. Findikoglu, D. W. Reagor, K. O. Rasmussen, A. R. Bishop, N. Gronbech-Jensen, Q. X. Jia, Y. Fan, and C. Kwon, "Pulse-shaping using nonlinear dielectric $SrTiO_3$," *Appl. Phys. Lett*. **74**, 1770-1772 (1999).

329. J. P. Zhou, C. E. Jones, J. T. McDevitt, Y. Gim, J. B. Goodenough, C. Kwon, and Q. X. Jia, "Improved J_c of bilayer $YBa_2Cu_3O_{7-x}$ thin film structures," *IEEE Trans. Appl. Supercond*. **9**, 2002-2005 (1999).

330. K. T. Gahagan, V. Gopalan, J. M. Robinson, Q. X. Jia, and T. E. Mitchell, "Integrated electro-optic lens/scanner in $LiTaO_3$ single crystal," *Appl. Optics* **38**, 1186-1190 (1999).

331. Y. Gim, K. T. Gahagan, C. Kwon, M. Hawley, V. Gopalan, J. M. Robinson, T. E. Mitchell, and Q. X. Jia, "Growth of $LiNbO_3$ films on single crystal sapphire substrates using pulsed laser deposition," *Integrated Ferroelectrics* **25**, 431-442 (1999).

332. P. Lu, Q. X. Jia, and A. T. Findikoglu, "Effects of homo-epitaxial $LaAlO_3$ layer on microstructural and microwave properties of $SrTiO_3$ films grown on $LaAlO_3$ substrates," *Thin Solid Films* **348**, 38-43 (1999).

333. Q. X. Jia, J. R. Groves, P. Arendt, Y. Fan, A. T. Findikoglu, S. R. Foltyn, H. Jiang, and F. A. Miranda, "Integration of nonlinear dielectric barium strontium titanate with polycrystalline yttrium iron garnet," *Appl. Phys. Lett*. **74**, 1564-1566 (1999).

334. L. Kinder, I. L. Grigorov, C. Kwon, Q. X. Jia, L. Luo, and J. Zhao, "Growth and characterization of $Ba_{0.6}Sr_{0.4}TiO_3$ thin films on Si with Pt electrodes," *J. Vac. Sci. Technol. A* **17**, 2148–2150 (1999).

335. P. Lu, S. He, F. X. Li, and Q. X. Jia, "Epitaxial growth of RuO_2 thin films by metal-organic chemical vapor deposition," *Thin Solid Films* **340**, 140-144 (1999).

336. Q. X. Jia, Y. Fan, C. Kwon, C. Mombourquette, D. Reagor, R. Cantor, J. P. Zhou, Y. Gim, C. Jones, J. T. McDevitt, and J. B. Goodenough, "Development of ramp edge SNS junctions using highly stable normal-metal barrier materials," *IEEE Trans. Appl. Supercond*. **9**, 3374-3377 (1999).

337. D. Li, A. R. Bishop, Y. Gim, X. B. Shi, M. R. Fitzsimmons, and Q. X. Jia, "Conduction properties of metal/organic monolayer/semiconductor heterostructures," *Appl. Phys. Lett.* **73**, 2645-2647 (1998).

338. A. T. Findikoglu, Q. X. Jia, D. Reagor, Y. Fan, G. D. Lythe, R. A. Camassa, D. Cai, N. Gronbech-Jensen, and A. R. Bishop, "New potential applications of nonlinear dielectrics: microwave solitons and stochastic resonance," *Integrated Ferroelectrics* **22**, 779-788 (1998).

339. Q. X. Jia, D. Reagor, Y. Fan, and C. Mombourquette, "Development of ramp-edge SNS Josephson junctions and SQUIDs," *Mater. Sci. Eng. B* **56**, 95-99 (1998).

340. C. Kwon, Q. X. Jia, Y. Fan, M. F. Hundley, and D. W. Reagor, "Observation of spin-dependent tunneling and large magnetoresistance in $La_{0.7}Sr_{0.3}MnO_3$ /$SrTiO_3$/ $La_{0.7}Sr_{0.3}MnO_3$ ramp-edge junctions," *J. Appl. Phys*. **83**, 7052-7054 (1998).

341. Y. Son, S. H. Bang, J. H. Cho, and Q. X. Jia, "Characteristics of $SrBi_2Ta_2O_9$ thin films on (100) $LaAlO_3$ and Pt/Ti/SiO_2/Si," *J. Korean Phys. Soc*. **32**, S1521-1524 (1998).

342. Q. X. Jia, J. M. Roper, P. N. Arendt, S. R. Foltyn, Y. Fan, and J. R. Groves, "Oriented conductive oxide electrodes on SiO_2/Si," *Integrated Ferroelectrics* **22**, 397-406 (1998).

343. C. Kwon, Y. Gim, Y. Fan, M. F. Hundley, J. M. Roper, P. N. Arendt, and Q. X. Jia, "Effect of in-plane epitaxy on magneto-transport properties of $(La_{0.5}Sr_{0.5})CoO_3$ thin films," *Appl. Phys. Lett*. **73**, 695-697 (1998).

344. Q. X. Jia, A. T. Findikoglu, P. N. Arendt, S. R. Foltyn, J. M. Roper, J. R. Groves, J. Y. Coulter, Y. Q. Li, and G. F. Dionne, "Superconducting $YBa_2Cu_3O_{7-x}$ thin films on polycrystalline ferrite for magnetically tunable microwave components," *Appl. Phys. Lett*. **72**, 1763-1765 (1998).

345. V. Gopalan, T. E. Mitchell, Q. X. Jia, J. M. Robinson, M. Kawas, T. E. Schlesinger, and D. D. Stancil, "Ferroelectrics as a versatile solid state platform for integrated optics," *Integrated Ferroelectrics* **22**, 985-991 (1998).

346. Q. X. Jia, A. T. Findikoglu, D. Reagor, and P. Lu, "Improvement in performance of electrically tunable devices based on nonlinear dielectric $SrTiO_3$ using homo-epitaxial $LaAlO_3$ interlayer," *Appl. Phys. Lett*. **73**, 897-899 (1998).

347. Q. X. Jia, P. Arendt, J. R. Groves, Y. Fan, and S. R. Foltyn, "Role of yttria-stabilized zirconia produced by ion-beam-assisted-deposition on the properties of RuO_2 on SiO_2/Si," *J. Mater. Res*. **13**, 2461-2464 (1998).

348. Q. X. Jia, F. Yan, C. Mombourquette, and D. Reagor, "Directly-coupled DC SQUID magnetometers based on edge-geometry Ag:$YBa_2Cu_3O_{7-x}$/$PrBa_2Cu_3O_{7-x}$/Ag:$YBa_2Cu_3O_{7-x}$ junctions," *Appl. Phys. Lett*. **72**, 3068-3070 (1998).

349. J. Zhou, J. T. McDevitt, and Q. X. Jia, "Improved N-layer materials for high-T_c SNS junctions and SQUID sensors," *Appl. Phys. Lett*. **72**, 848-850 (1998).

350. V. Gopalan, T. E. Mitchell, K. E. Sickafus, and Q. X. Jia, "Real-time study of kinetics of 180° domains in congruent $LiTaO_3$ under an external field," *Integrated Ferroelectrics* **22**, 925-929 (1998).

351. J. H. Cho, S. H. Bang, J. Y. Son, and Q. X. Jia, "Control of epitaxial growth for $SrBi_2Ta_2O_9$ thin films," *Appl. Phys. Lett*. **72**, 665-667 (1998).

352. P. Lu, F. Chu, Q. X. Jia, and T. E. Mitchell, "Microstructural characteristics of conductive $SrRuO_3$ thin films formed by pulsed-laser deposition," *J. Mater. Res*. **13**, 2302-2307 (1998).

353. Q. X. Jia, J. L. Smith, L. H. Chang, and W. A. Anderson, "Characteristics of $BaTiO_3$ thin films on Si deposited by rf magnetron sputtering," *Phil. Mag. B* **77**, 163-175 (1998).

354. Q. X. Jia, A. T. Findikoglu, R. Zhou, S. R. Foltyn, X. D. Wu, J. L. Smith, Q. Wang, D. F. Evans, and W. L. Gladfelter, "Structural and dielectric properties of $Ba_{0.5}Sr_{0.5}TiO_3$ thin films with an epi-RuO_2 bottom electrode," *Integrated Ferroelectrics* **19**, 111-119 (1998).

355. C. L. Chen, Q. X. Jia, Y. C. Lu, J. L. Smith, and T. E. Mitchell, "Hetero-epitaxial growth of RuO_2 thin films on α-Al_2O_3 substrates with CeO_2 buffer layers by pulsed laser deposition," *J. Vac. Sci. Technol*. A **16**, 2725-2727 (1998).

356. C. Kwon, Q. X. Jia, Y. Fan, M. F. Hundley, D. W. Reagor, J. Y. Coulter, and D. E. Peterson, "Large magnetoresistance in $La_{0.7}Ca_{0.3}MnO_3$/$SrTiO_3$/$La_{0.7}Ca_{0.3}MnO_3$ ramp-edge junctions," *Appl. Phys. Lett*. **72**, 486-488 (1998).

357. Q. X. Jia, P. N. Arendt, J. R. Groves, and S. R. Foltyn, "Biaxially oriented conductive $La_{0.5}Sr_{0.5}CoO_3$ thin films on SiO_2/Si," *J. Vac. Sci. Technol*. A **16**, 1380-1383 (1998).

358. D. Reagor, Y. Fan, C. Mombourquette, Q. X. Jia, and L Stolarczyk, "A high temperature superconducting receiver for low frequency radio waves," *IEEE Trans. Appl. Supercond.* **7**, 3845-3849 (1997).

359. S. R. Foltyn, E. J. Peterson, J. Y. Coulter, P. N. Arendt, Q. X. Jia, P. C. Dowden, M. P. Maley, X. D. Wu, and D. E. Peterson, "Influence of deposition rate on the properties of thick $YBa_2Cu_3O_{7-\delta}$ films produced by pulsed laser deposition," *J. Mater. Res*. **12**, 2941-2946 (1997).

360. M. E. Hawley, C. D. Adams, P. N. Arendt, E. L. Brosha, F. H. Garzon, R. J. Houlton, M. F. Hundley, R. H. Heffner, Q. X. Jia, J. Neumeier, and X. D. Wu, "CMR films' structure as a function of growth and processing," *J. Crystal Growth* **174**, 455-463 (1997).

361. A. T. Findikoglu, P. N. Arendt, S. R. Foltyn, J. R. Groves, Q. X. Jia, E. J. Peterson, L. Bulaevskii, M. P. Maley, and D. W. Reagor, "Power-dependent microwave properties of superconducting $YBa_2Cu_3O_{7-x}$ films on buffered polycrystalline substrates," *Appl. Phys. Lett.* **70**, 3293-3295 (1997).

362. J. Zhou, R. K. Lo, J. T. McDevitt, J. Tavalcchio, M. G. Forrester, B. D. Hunt, Q. X. Jia, and D. Reagor, "Development of a reliable materials base for superconducting electronics," *J. Mater. Res*. **12**, 2958-2975 (1997).

363. Q. X. Jia, S. R. Foltyn, M. Hawley, and X. D. Wu, "Pulsed laser deposition of conductive $SrRuO_3$ thin films," *J. Vac. Sci. Technol*. A **15**, 1080-1083 (1997).

364. A. T. Findikoglu, Q. X. Jia, and D. W. Reagor, "Superconductor/nonlinear-dielectric bilayers for tunable and adaptive microwave devices," *IEEE Trans. Appl. Supercond.* **7**, 2925-2928 (1997).

365. Q. X. Jia, D. Reagor, C. Mombourquette, Y. Fan, J. Decker, and P. D'Alessandris, "Stability of dc SQUIDs fabricated using ramp-edge superconductor/normal-metal/superconductor technology," *Appl. Phys. Lett*. **71**, 1721-1723 (1997).

366. Q. X. Jia, H. H. Kung, and X. D. Wu, "Heteroepitaxial growth of $Ba_{0.5}Sr_{0.5}TiO_3$ thin films on Si with conductive metallic $SrRuO_3$ as a bottom electrode," *Thin Solid Films* **299**, 115-118 (1997).

367. Q. X. Jia, D. W. Reagor, X. D. Wu, C. Mombourquette, S. R. Foltyn, and D. E. Peterson, "Characterization of ramp edge-geometry Ag:$YBa_2Cu_3O_{7-x}$/$PrBa_2Cu_3O_{7-x}$/ Ag:$YBa_2Cu_3O_{7-x}$ junctions and DC SQUIDs," *IEEE Trans. Appl. Supercond.* **7**, 3005-3008 (1997).

368. L. Smilowitz, Q. X. Jia, X. Yang, D. Q. Li, D. McBranch, S. J. Buelow, J. M. Robinson, "Imaging nanometer-thick patterned self-assembled monolayers via 2nd-harmonic generation microscopy," *J. Appl. Phys*. **81**, 2051-2054 (1997).

369. A. T. Findikoglu, Q. X. Jia, X. D. Wu, and D. W. Reagor, "Paraelectric thin films for microwave applications," *Integrated Ferroelectrics* **15**, 163-171 (1997).

370. Q. X. Jia, D. S. Zhou, S. R. Foltyn, X. D. Wu, A. T. Findikoglu, and J. L. Smith, "Microstructure of $Ba_{0.5}Sr_{0.5}TiO_3$ thin films on (100) $LaAlO_3$ with $SrRuO_3$ as electrodes," *Phil. Mag. B* **75**, 261-269 (1997).

371. A. T. Findikoglu, P. N. Arendt, J. R. Groves, S. R. Foltyn, E. J. Peterson, D. W. Reagor, and Q. X. Jia, "Microwave surface resistance of $YBa_2Cu_3O_{7-\delta}$ films on polycrystalline alumina and Ni-based alloy substrates with ion-beam-assisted-deposited buffer layers," *IEEE Trans. Appl. Supercond*. **7**, 1232-1235 (1997).

372. Q. X. Jia, A. T. Findikoglu, R. Zhou, S. R. Foltyn, and X. D. Wu, "Structural characterization of $Ba_{0.5}Sr_{0.5}TiO_3$ on RuO_2 prepared by pulsed laser deposition," *Integrated Ferroelectrics* **14**, 167-172 (1997).

373. A. T. Findikoglu, S. R. Foltyn, P. N. Arendt, J. R. Groves, Q. X. Jia, E. J. Peterson, X. D. Wu, and D. W. Reagor, "Microwave surface resistance of $YBa_2Cu_3O_{7-x}$ films on polycrystalline ceramic substrates with textured buffer layers," *Appl. Phys. Lett*. **69**, 1626-1628 (1996).

374. H. Safar, S. R. Foltyn, Q. X. Jia, and M. P. Maley, "Bose glass vortex phase transition in twinned $YBa_2Cu_3O_{7-\delta}$ superconductors," *Phil. Mag. B* **74**, 647-654 (1996).

375. F. Chu, Q. X. Jia, G. Landrum, X. D. Wu, M. Hawley, and T. E. Mitchell, "Microstructures and electrical properties of $SrRuO_3$ thin films on $LaAlO_3$ substrates," *J. Electronic Mater*. **25**, 1754-1759 (1996).

376. A. T. Findikoglu, Q. X. Jia, X. D. Wu, G. J. Chen, T. Venkatesan, and D. W. Reagor, "Tunable and adaptive bandpass filter using nonlinear dielectric thin film of $SrTiO_3$," *Appl. Phys. Lett*. **68**, 1651-1653 (1996).

377. M. F. Hundley, J. J. Neumeier, R. H. Heffner, Q. X. Jia, X. D. Wu, and J. D. Thompson, "Transport and magnetism correlations in thin-film ferromagnetic oxides," *J. Appl. Phys*. **79**, 4535-4537 (1996).

378. Q. X. Jia, D. Reagor, H. Kung, M. Hawley, C. Mombourquette, S. R. Foltyn, X. D. Wu, and D. E. Peterson, "High temperature superconductor edge-geometry SNS junctions with engineered normal-metal layers," *Supercond. Sci. Technol.* **9**, 985-990 (1996).

379. Q. X. Jia, F. Chu, X. D. Wu, M. Hawley, J. H. Cho, A. T. Findikoglu, S. R. Foltyn, J. L. Smith, and T. E. Mitchell, "Characteristics of conductive $SrRuO_3$ thin films with different microstructures," *J. Mater. Res*. **11**, 2263-2268 (1996).

380. J. H. Cho, Q. X. Jia, X. D. Wu, S. R. Foltyn, and M. P. Maley, "Magnetotransport properties of $SrRuO_3$ epitaxial thin films on (100) $LaAlO_3$: presence of localized magnetic moments," *Phys. Rev. B* **54**, 37-40 (1996).

381. P. Tiwari, X. D. Wu, S. R. Foltyn, R. E. Muenchausen, P. N. Arendt, I. Campbell, Q. X. Jia, D. E. Peterson, and T. E. Mitchell, "Study of high-quality epitaxial YBCO thin films grown directly on Y-cut $LiNbO_3$," *J. Electronic Mater*. **25**, 131-135 (1996).

382. J. P. Zheng, T. R. Jow, Q. X. Jia, and X. D. Wu, "Proton insertion into ruthenium oxide film prepared by pulsed laser deposition," *J. Electrochem. Soc*. **143**, 1068-1070 (1996).

383. P. Tiwari, X. D. Wu, S. R. Foltyn, I. H. Campbell, Q. X. Jia, R. E. Muenchausen, D. E. Peterson, and T. E. Mitchell, "Synthesis of low resistivity complex oxides on MgO using Pt as buffer layer," *J. Electronic Mater.* **25**, 51- 55 (1996).

384. Q. X. Jia, S. G. Song, J. H. Cho, X. D. Wu, S. R. Foltyn, A. T. Findikoglu, and J. L. Smith, "Epitaxial growth highly conductive RuO_2 thin films on Si," *Appl. Phys. Lett*. **68**, 1069-1071 (1996).

385. Q. X. Jia, X. D. Wu, D. W. Reagor, S. R. Foltyn, C. Mombourquette, and D. E. Peterson, "Edge-geometry dc SNS SQUIDs using Ag-doped $YBa_2Cu_3O_{7-x}$ electrodes," *Electron. Lett*. **32**, 499-501 (1996).

386. Q. X. Jia, S. G. Song, X. D. Wu, and S. R. Foltyn, "Role of substrates for heteroepitaxial growth of conductive RuO_2 thin films," *J. Vac. Sci. Technol. A* **14**, 1107-1110 (1996).

387. A. T. Findikoglu, Q. X. Jia, D. W. Reagor, and X. D. Wu, "Tunable microwave mixing in nonlinear dielectric thin films of $SrTiO_3$ and $Ba_{0.5}Sr_{0.5}TiO_3$," *Electron. Lett.* **31**, 1814-1815 (1995).

388. M. F. Hundley, M. Hawley, R. H. Heffner, Q. X. Jia, J. J. Neumeier, J. Tesmer, J. D. Thompson, and X. D. Wu, "Transport-magnetism correlations in the ferromagnetic oxide $La_{0.7}Ca_{0.3}MnO_3$," *Appl. Phys. Lett.* **67**, 860-862 (1995).

389. Q. X. Jia, S. G. Song, X. D. Wu, and S. R. Foltyn, "Deposition and characterization of crystalline conductive RuO_2 thin films," *J. Mater. Res.* **10**, 2401-2403 (1995).

390. A. T. Findikoglu, Q. X. Jia, D. Reagor, I. H. Campbell, C. B. Mombourquette, D. McMurry, and X. D. Wu, "Electrically tunable coplanar transmission line resonators using $YBa_2Cu_3O_{7-x}/SrTiO_3$ bilayers," *Appl. Phys. Lett.* **66**, 3674-3676 (1995).

391. Q. X. Jia, X. D. Wu, D. W. Reagor, S. R. Foltyn, R. J. Houlton, P. Tiwari, C. Mombourquette, I. H. Campbell, F. Garzon, and D. E. Peterson, "Superconductor $GdBa_2Cu_3O_{7-\delta}$ edge junctions with lattice matched $Y_{0.6}Pr_{0.4}Ba_2Cu_3O_{7-\delta}$ barriers," *J. Appl. Phys.* **78**, 2871-2873 (1995).

392. Q. X. Jia, X. D. Wu, S. R. Foltyn, A. T. Findikoglu, P. Tiwari, J. P. Zheng, and T. R. Jow, "Heteroepitaxial growth of highly conductive metal-oxide RuO_2 thin films by pulsed laser deposition," *Appl. Phys. Lett*. **67**, 1677-1679 (1995).

393. Q. X. Jia, X. D. Wu, D. S. Zhou, S. R. Foltyn, P. Tiwari, D. E. Peterson, and T. E. Mitchell, "Deposition of epitaxial YSZ on single-crystal Si and subsequent growth of an amorphous SiO_2 interlayer," *Phil. Mag. Lett.* **72**, 385-391 (1995).

394. T. C. Pluym, R. E. Muenchausen, P. N. Arendt, X. D. Wu, F. M. Mueller, I. H. Campbell, Q. X. Jia, M. E. Hawley, E. J. Peterson, P. Tiwari, and W. L. Holstein, "Superconducting $Tl_2Ba_2CaCu_2O_8$ thin films prepared by post-annealing in a two-zone furnace," *IEEE Trans. Appl. Supercond.* **5**, 1339-1342 (1995).

395. P. Tiwari, X. D. Wu, S. R. Foltyn, R. E. Muenchausen, P. N. Arendt, I. H. Campbell, Q. X. Jia, D. E. Peterson, T. E. Mitchell, D. Face, and D. B. Laubacher, "High quality epitaxial YBCO thin films directly on $LiNbO_3$," *Phil. Mag. B* **71**, 903-912 (1995).

396. X. D. Wu, S. R. Foltyn, P. Arendt, J. Townsend, I. H. Campbell, P. Tiwari, Q. X. Jia, J. O. Willis, M. P. Maley, J. Y. Coulter, and D. E. Peterson, "Preparation of high quality $YBa_2Cu_3O_{7-\delta}$ thick films on flexible Ni-based alloy substrates with textured buffer layers," *IEEE Trans. Appl. Supercond.* **5**, 2001-2006 (1995).

397. Q. X. Jia, K. Ebihara, and T. Ikegami, "Analytical solution for solar cell model parameters from illuminated current-voltage characteristics," *Phil. Mag. B* **72**, 375-382 (1995).

398. A. T. Findikoglu, Q. X. Jia, D. W. Reagor, and X. D. Wu, "Electrical characteristics of coplanar waveguide devices incorporating non-linear dielectric thin films of $SrTiO_3$ and $Ba_{0.5}Sr_{0.5}TiO_3$," *Micro. Opt. Tech. Lett.* **9**, 306-310 (1995).

399. S. Fleshler, M. P. Maley, Q. X. Jia, X. D. Wu, and A. Lacerda, "Transport properties of $Tl_2Ba_2CaCu_2O_8$ meander lines in high magnetic field," *IEEE Trans. Appl. Supercond.* **5**, 1541-1544 (1995).

400. Q. X. Jia, D. S. Zhou, X. D. Wu, S. R. Foltyn, P. Tiwari, and T. E. Mitchell, "Characterization of $Ba_{0.5}Sr_{0.5}TiO_3$ thin film capacitors produced by pulsed laser deposition," *Integrated Ferroelectrics* **10**, 73-79 (1995).

401. R. J. Houlton, D. W. Reagor, M. E. Hawley, K. N. Springer, Q. X. Jia, C. B. Mombourquette, F. H. Garzon, and X. D. Wu, "Development of materials for high temperature superconductor Josephson junctions," *IEEE Trans. Appl. Supercond.* **5**, 1639-1642 (1995).

402. Q. X. Jia, J. P. Zheng, H. S. Kwok, and W. A. Anderson, "Indium tin oxide on InP by pulsed laser deposition," *Thin Solid Films* **258**, 260-263 (1995).

403. Q. X. Jia, X. D. Wu, S. R. Foltyn, and P. Tiwari, "Structural and electrical properties of $Ba_{0.5}Sr_{0.5}TiO_3$ thin films with conductive $SrRuO_3$ bottom electrodes," *Appl. Phys. Lett.* **66**, 2197-2199 (1995).

404. Q. X. Jia, X. D. Wu, S. R. Foltyn, D. Reagor, M. Hawley, K. N. Springer, P. Tiwari, C. Mombourquette, R. J. Houlton, I. H. Campbell, and D. E. Peterson, "Fabrication and characterization of high temperature superconductor Josephson junctions with a novel device design," *IEEE Trans. Appl. Supercond.* **5**, 2103-2106 (1995).

405. Q. X. Jia, J. Yi, L. H. Chang, and W. A. Anderson, "Low leakage current $BaTiO_3$ thin film capacitors using a multilayer construction," *Thin Solid Films* **259**, 264-269 (1995).

406. Q. X. Jia, L. H. Chang, K. K. Ho, and W. A. Anderson, "Nanolayer structure of ferroelectric thin film capacitors using magnetron sputtering," *Ferroelectrics* **166**, 111-117 (1995).

407. Q. X. Jia, H. Y. Lee, E. Ma, W. A. Anderson, and F. M. Collins, "Stable thin film resistors using multilayer structure," *J. Mater. Res.* **10**, 1523-1528 (1995).

408. D. Reagor, R. Houlton, K. Springer, M. Hawley, Q. X. Jia, C. Mombourquette, F. Garzon, and X. D. Wu, "Development of HTS junctions and SQUIDs using low deposition temperature $YBa_2Cu_3O_{7-x}$ barriers," *Appl. Phys. Lett.* **66**, 2280-2282 (1995).

409. P. Tiwari, X. D. Wu, S. R. Foltyn, Q. X. Jia, I. H. Campbell, P. N. Arendt, R. E. Muenchausen, T. E. Mitchell, and J. Narayan, "Synthesis of epitaxial Pt on (100) Si using TiN buffer layer by pulsed laser deposition," *Appl. Phys. Lett.* **65**, 2693-2695 (1994).

410. Q. X. Jia, D. W. Reagor, S. R. Foltyn, M. Hawley, C. Mombourquette, and X. D. Wu, "Superconducting $YBa_2Cu_3O_{7-x}$ based edge junctions with $Y_{0.7}Ca_{0.3}Ba_2Cu_3O_{7-x}$ barriers," *Physica C* **228**, 160-164 (1994).

411. Q. X. Jia, L. H. Chang, and W. A. Anderson, "Observation of different polarity of charges in metal/ferroelectric/semiconductor structures," *Ferroelectrics* **160**, 1-7 (1994).

412. Q. X. Jia, L. H. Chang, and W. A. Anderson, "Surface and interface properties of ferroelectric $BaTiO_3$ thin films on Si using RuO_2 as an electrode," *J. Mater. Res.* **9**, 2561-2565 (1994).

413. Q. X. Jia, X. D. Wu, D. Reagor, S. R. Foltyn, C. Mombourquette, P. Tiwari, I. H. Campbell, R. J. Houlton, and D. E. Peterson, "High temperature superconductor Josephson junctions with a gradient Pr-doped $Y_{1-x}Pr_xBa_2Cu_3O_{7-\delta}$ (x = 0.1, 0.3, 0.5) as barriers," *Appl. Phys. Lett.* **65**, 2866-2868 (1994).

414. Q. X. Jia, L. H. Chang, and W. A. Anderson, "Interactions between ferroelectric $BaTiO_3$ and Si," *J. Electronic Mater.* **23**, 551-556 (1994).

415. Q. X. Jia, K. Ebihara, T. Ikegami, and W. A. Anderson, "Metal/TaN(~5 nm)/Si diode fabricated by DC magnetron sputtering," *Appl. Phys. A* **58**, 487-491 (1994).

416. Q. X. Jia and W. A. Anderson, "Epitaxial growth of BaF_2 on (100) InP by radio frequency magnetron sputtering," *Thin Solid Films* **245**, 60-63 (1994).

417. Q. X. Jia, Z. Q. Shi, J. Yi, and W. A. Anderson, "Effect of barrier layers on $BaTiO_3$ thin film capacitors on Si substrates," *J. Electronic Mater.* **23**, 53-56 (1994).

418. Q. X. Jia, K. L. Jiao, W. A. Anderson, and F. M. Collins, "Microstructural analysis and modeling of RuO_2 thin film resistors," *Mater. Sci. Eng. B* **20**, 301-307 (1993).

419. Z. Q. Shi, Q. X. Jia, and W. A. Anderson, "Development and fabrication of thin film $BaTiO_3$ capacitors using radio frequency magnetron sputtering," *J. Vac. Sci. Technol. A* **11**, 1411-1413 (1993).

420. K. L. Jiao, Q. X. Jia, and W. A. Anderson, "Stability of RuO_2 thin film resistors," *Thin Solid Films* **227**, 59-65 (1993).

421. Q. X. Jia, K. L. Jiao, W. A. Anderson, and F. M. Collins, "On the nature of zero temperature coefficient of resistance of RuO_2 thin film resistor formation using *in-situ* annealing," *J. Vac. Sci. Technol. A* **11**, 1052-1055 (1993).

422. Q. X. Jia, K. L. Jiao, W. A. Anderson, and F. M. Collins, "Development and fabrication of stable RuO_2 thin film resistors," *Mater. Sci. Eng. B* **18**, 220-225 (1993).

423. Q. X. Jia, Z. Q. Shi, and W. A. Anderson, "$BaTiO_3$ thin film capacitors deposited by RF magnetron sputtering," *Thin Solid Films* **209**, 230-239 (1992).

424. Z. Q. Shi, Q. X. Jia, and W. A. Anderson, "Electrical and dielectric properties of thin film $BaTiO_3$ capacitor deposited by RF magnetron sputtering," *J. Vac. Sci. Technol. A* **10**, 733-736 (1992).

425. Q. X. Jia, S. Y. Lee, W. A. Anderson, and D. T. Shaw, "Preservation of substrate crystal and enhancement of $YBa_2Cu_3O_{7-x}$ thin film growth using YSZ/Si_3N_4 as a buffer layer," *Physica C* **190**, 266-270 (1992).

426. Q. X. Jia, Z. Q. Shi, S. Y. Lee, W. A. Anderson, and D. T. Shaw, "Surface and interface properties of superconducting $YBa_2Cu_3O_{7-x}$ thin films on GaAs using YSZ/Si_3N_4 as a buffer layer," *J. Vac. Sci. Technol. A* **10**, 1544-1546 (1992).

427. Q. X. Jia and W. A. Anderson, "High temperature superconducting $YBa_2Cu_3O_{7-x}$ thin films on metallic substrates grown *in situ* by off-axis sputtering," *Appl. Phys. Lett.* **60**, 2689-2691 (1992).

428. Q. X. Jia and W. A. Anderson, "Conducting metallic oxide contacts on superconducting $YBa_2Cu_3O_{7-x}$ thin films," *IEEE Trans. Comp. Hybrids, Manuf. Technol.* **15**, 121-125 (1992).

429. Z. Q. Shi, Q. X. Jia, and W. A. Anderson, "High performance barium titanate capacitors with double layer structure," *J. Electronic Mater.* **20**, 939-944 (1991).

430. S. Y. Lee, Q. X. Jia, W. A. Anderson, and D. T. Shaw, "*In situ* laser deposition of superconducting $YBa_2Cu_3O_{7-x}$ thin films on GaAs substrates," *J. Appl. Phys.* **70**, 7170-7172 (1991).

431. Q. X. Jia, K. L. Jiao, and W. A. Anderson, "Interactions between superconducting $YBa_2Cu_3O_{7-x}$ and silicon using different buffer layers," *J. Appl. Phys*. **70**, 3364-3366 (1991).

432. Q. X. Jia, S. Y. Lee, W. A. Anderson, and D. T. Shaw, "Role of barrier layers for superconducting $YBa_2Cu_3O_{7-x}$ thin films on GaAs substrates," *Appl. Phys. Lett.* **59**, 1120-1122 (1991).

433. Q. X. Jia, Z. Q. Shi, K. L. Jiao, W. A. Anderson, and F. M. Collins, "Reactively sputtered RuO_2 thin film resistor with near zero TCR," *Thin Solid Films* **196**, 29-34 (1991).

434. Q. X. Jia and W. A. Anderson, "Sputter deposition of $YBa_2Cu_3O_{7-x}$ films on Si at 500 °C with conducting metallic oxide as a buffer layer," *Appl. Phys. Lett*. **57**, 304-306 (1990).

435. Q. X. Jia, W. A. Anderson, J. P. Zheng, Y. Z. Zhu, S. Patel, H. S. Kwok, and D. T. Shaw, "Characterization of the Ag/$YBa_2Cu_3O_{7-x}$ contact in thin films," *J. Appl. Phys.* **68**, 6336-6340 (1990).

436. Q. X. Jia and W. A. Anderson, "Passivation of superconducting $YBa_2Cu_3O_{7-x}$ thin films by a wet fluoride vapor method," *J. Appl. Phys.* **67**, 2528-2531 (1990).

437. Q. X. Jia and W. A. Anderson, "Effect of thermal treatment on the properties of $YBa_2Cu_3O_{7-x}$ thin films with multilayer Al/Cr/Yb metals as Ohmic contact electrodes," *J. Electronic Mater.* **19**, 443-447 (1990).

438. Q. X. Jia and W. A. Anderson, "Low resistance contacts to Y-Ba-Cu-O thin films," *J. Phys. D* **22**, 1565-1567 (1989).

439. Q. X. Jia and W. A. Anderson, "Characterization of hydrofluoric acid treated Y-Ba-Cu-O oxides," *J. Mater. Res*. **4**, 1320-1325 (1989).

440. Q. X. Jia and W. A. Anderson, "SiO_2 and Si_3N_4 passivation layers on Y-Ba-Cu-O thin films," *J. Appl. Phys*. **66**, 452-454 (1989).

441. Q. X. Jia, D. Ren, and W. A. Anderson, "Reproducible technique for deposition of Y-Ba-Cu-O thin films," *Int. J. Modern Phys*. B **3**, 743-749 (1989).

442. X. M. Liu, Q. X. Jia, and E. K. Liu, "High efficiency MIS/IL silicon solar cells with silicon oxynitride as ultra-thin tunneling films," *Solar Energy Mater*. **17**, 257-263 (1988).

443. Q. X. Jia, W. A. Anderson, E. K. Liu, and S. L. Zhang, "A novel approach for evaluating the series resistance of solar cells," *Solar Cells* **25**, 311-318 (1988).

444. Q. X. Jia and E. K. Liu, "A method for the direct measurement of the solar cell junction ideality factor," *Solar Cells* **22**, 15-21 (1987).

445. Q. X. Jia and E. K. Liu, "Analytical approach towards the diode quality factor of solar cells under illumination conditions," *Solid State Electron*. (in Chinese) **9**, 298-303 (1989).

446. Q. X. Jia and E. K. Liu, "Improved short wavelength response silicon solar cells fabricated through mask layer diffusion," *Semiconductor Opto-Electronics* (in Chinese) **9**, 76-78 (1988).

447. E. K. Liu and Q. X. Jia, "New processing to form AR and BSF simultaneously for high efficiency silicon solar cells," *J. Electron. Science* (in Chinese) **10**, 285-288 (1988).

448. Q. X. Jia and E. K. Liu, "High efficiency silicon solar cells - a review," *New Energy Source* (in Chinese) **9**, 1-7 (1988).

449. Q. X. Jia, X. M. Liu, and E. K. Liu, "MIS diode with ultra-thin SiO_2 as tunneling layer treated by NH_3 at low temperature and pressure," *Semiconductor Technol.* (in Chinese) **3**, 28-31 (1988).

450. X. M. Liu, E. K. Liu, and Q. X. Jia, "High efficiency MIS/IL and MINP silicon solar cells with silicon nitride as AR layers," *Acta Energiae Solaris Sinica* (in Chinese) **9**, 127-132 (1988).

451. E. K. Liu, Q. X. Jia, and H. Deng, "Limiting factor of open circuit voltage for MINP solar cells," *J. Xian Jiaotong Univ.* (in Chinese) **22**, 1-8 (1988).

452. X. Y. Wang, E. K. Liu, and Q. X. Jia, "High open circuit voltage MINP solar cells," *J. Semiconductor* (in Chinese) **3**, 19-23 (1987).

453. S. L. Zhang, X. M. Liu, Q. X. Jia, and E. K. Liu, "Characterization of Si_3N_4 thin films deposited by LPCVD and PECVD," *Semiconductor Technol.* (in Chinese) **4**, 26-29 (1987).

454. Q. X. Jia and E. K. Liu, "A new method for the direct measurement of diode quality factor of solar cells," *Acta Energiae Solaris Sinica* (in Chinese) **8**, 196-200 (1987).

455. E. K. Liu, Q. X. Jia, and C. C. Zhu, "Study of high efficiency MINP silicon solar cells," *Semiconductor Opto-Electronics* (in Chinese) **7**, 72-74 (1986).

456. Q. X. Jia, S. L. Zhang, and W. S. Wang, "Studies of double-diffusion for improving the characteristics of silicon solar cells," *Bull. Mater. Energy System* (in Chinese) **4**, 53-56 (1986).

457. Q. X. Jia, C. C. Zhu, and E. K. Liu, "High efficiency ion-implanted silicon solar cells," *Solar Energy Res. Application* (in Chinese) **2**, 31-33 (1986).

INVITED PRESENTATIONS (*over 100*)

1. "Synthesis and characterization of epitaxial nanocomposite films: Effects of interface on the functionalities," Electronic Materials and Applications, Orlando, FL, Jan. 20 - 22, 2016.

2. "Role of interfaces on competing interactions of ferroic films," MRS Fall Meeting, Boston, MA, Nov. 29 - Dec. 4, 2015.

3. "Nanomaterials integration for multifunctionalities: A pathway to materials design and innovation," Materials Research Day at Univ. of Texas, San Antonio, TX, Aug. 24, 2015.

4. "Control and manipulation of competing interactions of ferroic films," International Mater. Res. Congress, Cancun, Mexico, Aug. 16 - 20, 2015.

5. "The role of interfaces on the functionalities of complex metal-oxide films," Quantum Matter Workshop, Santa Fe, NM, May 18 - 21, 2015.

6. "Understanding, exploiting, and controlling competing interactions of complex metal-oxide films," University at Buffalo, Buffalo, NY, March 16, 2015

7. "Effect of interfaces on competing interactions of functional complex metal-oxides," University of Connecticut, Storrs, CT, Oct. 17, 2014.

8. "Microstructural evolution in ion irradiated heteroepitaxial dielectric films," the Mater. Sci. & Technol. 2014 Conf. & Exhibition, Pittsburgh, PA, Oct. 12 - 16, 2014.

9. "Effect of interfaces on ferroic properties of composite films," Int'l Symp. on Emerging Multifunctional & Bio-Directed Mater., San Antonio, TX, Oct. 10 - 11, 2104.

10. "Pushing the limits of polymer-assisted deposition for a wide range of electronic materials," University at Buffalo, Buffalo, NY, Oct. 1, 2014. (*Distinguished lecture*)

11. "Polymer-assisted deposition: one simple process, a large number of electronic materials," Summer Lecture Series, Laboratory's National Security Education Center, Los Alamos National Laboratory, Los Alamos, NM, July 18, 2014.

12. "Electronic materials synthesized by a polymer-assisted deposition," University of Illinois at Urbana Champaign, Urbana, IL, May 2, 2014.

13. "Self-assembled epitaxial nanocomposite films: their strain control and functionalities," New Mexico Tech, Socorro, NM, March 7, 2014.

14. "Polymer-assisted deposition for a wide range of epitaxial ferroic metal-oxide films," Electronic Materials and Applications, Orlando, FL, Jan. 22 - 24, 2014.

15. "Nucleation and growth of epitaxial films using polymer-assisted deposition," University of Texas at San Antonio, San Antonio, TX, Nov. 7, 2013.

16. "Toward tunable functionalities using epitaxial nanoscaffolding films," the Mater. Sci. & Technol. Conf. & Exhibition, Montreal, Quebec, Canada, Oct. 27 - 31, 2013.

17. "Carbon nanomaterials and their derived nanocomposites for improved functionalities," 24th Modern Engineering & Technology Seminar (METS 2012), Taipei, Taiwan, Nov. 11 - 14, 2012.

18. "Designing and understanding enhanced functionalities in epitaxial nanocomposite metal-oxide films," Materials Science & Technology Conference and Exhibition - MS&T'12, Pittsburgh, Pennsylvania, Oct. 7 - 11, 2012.

19. "Polymer-assisted deposition: one simple process, a vast number of materials," Workshop on Advanced Manufacturing, Materials Design Institute, Los Alamos National Laboratory, Los Alamos, NM, July 25 - 26, 2012.

20. "Chemical solution deposition of electronic materials," Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, July 2, 2012.

21. "Effect of lattice strain on the physical properties of complex metal-oxide films," Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China, June 29, 2012.

22. "Synthesis and characterization of thin films by a chemical solution deposition," Texas A&M University, College Station, TX, Feb. 9, 2012.

23. "Synthesis and characterization of metal-oxide, -nitride, and -carbide thin films deposited by a polymer assisted deposition," (*Plenary*) 15th US-Japan Seminar on Dielectric and Piezoelectric Ceramics, Kagoshima, Japan, Nov. 6 - 9, 2011.

24. "Effect of interface on the transport properties of superconducting nanocomposites," The Superconductivity at Oxide Interfaces, The Kavli Royal Society International Center, Chicheley Hall, Buckinghamshire, UK, Sept. 14 - 15, 2011.

25. "Understanding, exploring, and controlling competing interactions in complex oxides," The New Science of Oxide Interfaces, The Royal Society, London, UK, Sept. 12 - 13, 2011.

26. "Chemical solution deposition of thin film electronic materials," Osaka University, Osaka, Japan, Nov. 18, 2010.

27. "Growth and characterization of thin film electronic ceramic materials by polymer-assisted deposition," 3rd International Congress on Ceramics, Osaka, Japan, Nov. 14 - 18, 2010.

28. "Pushing the limit of IBAD template for high performance coated conductors," Joint International Conference on the 7th Asian Meeting on Ferroelectricity and the 7th Asian Meeting on Electroceramics, Jeju, Korea, June 28 - July 1, 2010.

29. "Synthesis and characterization of nanocomposite films," MRS Spring Meeting, San Francisco, CA, April 5 - 9, 2010.

30. "Lattice strain and physical properties of self-assembled epitaxial nanocomposite films," University of Texas at Arlington, Arlington, TX, Feb. 17, 2010.

31. "Tunable lattice strain in self-assembled epitaxial nanocomposite films," New Mexico State University, Los Cruses, NM, Feb. 12, 2010.

32. "Control of lattice strain and electrical properties of epitaxial nanocomposite films," Electronic Materials and Applications 2010, Lake Buena Vista, FL, Jan. 20 - 22, 2010.

33. "Synthesis of electronic materials by polymer-assisted deposition," Konkuk University, Seoul, Korea, Nov. 12, 2009.

34. "Synthesis of electronic materials by a polymer-assisted deposition," International Workshop on Piezoelectric Materials & Applications in Actuators & International Symposium on Electroceramics, Jeju, Korea, Nov. 8 - 11, 2009.

35. "Synthesis of electronic materials by polymer-assisted deposition," Seoul National University, Seoul, Korea, Nov. 12, 2009.

36. "Electronic materials by a polymer-assisted deposition," Xian Jiaotong Univ., Xian, China, Aug. 28, 2009.

37. "Epitaxial nanocomposite films: their strain control and electrical properties," 12th International Meeting on Ferroelectricity and 18th IEEE International Symposium on Applications of Ferroelectrics, Xi'an, China, Aug. 23 - 27, 2009.

38. "Growth and application of ferroelectric thin films," Tutorial Lecture at the 12th International Meeting on Ferroelectricity and 18th IEEE International Symposium on Applications of Ferroelectrics, Xi'an, China, Aug. 23, 2009.

39. "Epitaxial growth of metal-oxide films," Symposium on Correlated Electron Physics, Santa Fe, NM, Aug. 25 - 28, 2008.

40. "Polymer-assisted deposition: an alternative approach to epitaxial growth of metal-oxide films," Department of Physics, The Ohio State University, Columbus, OH, Oct. 16, 2008.

41. "Epitaxial growth of metal-oxide films," Symposium on Correlated Electron Physics, Santa Fe, NM, Aug. 25 - 28, 2008.

42. "Epitaxial growth of simple and complex metal-oxide films by a polymer-assisted deposition," Institute of Semiconductors, Chinese Academy of Science, Beijing, China, June 19, 2008.

43. "Superconducting films with high current carrying capability for 2-G conductors," General Research Institute for Nonferrous Metals, Beijing, China, June 18, 2008.

44. "Epitaxial growth of metal-oxide films by a polymer-assisted deposition," MRS International Materials Research Conf., Chongqing, China, June 9 - 12, 2008

45. "Self-assembled and vertically aligned nanocomposite films: their strain control and electrical properties," Univ. of Electronic Sci. & Technol. of China, Chengdu, China, June 2, 2008.

46. "Synthesis and characterization of metal-oxide films by a solution approach," Xian Jiaotong Univ., Xian, China, May 30, 2008.

47. "Polymer-assisted deposition of metal-oxide films," 17th International Symposium on the Applications of Ferroelectrics (ISAF), Santa Fe, New Mexico, Feb. 24 - 27, 2008.

48. "Epitaxial growth of metal-oxide films by a chemical solution method," Colloquium, Department of Materials Sci. & Eng., North Carolina State Univ., Raleigh, NC, Dec. 7, 2007.

49. "Manipulation of pinning properties in superconducting films through different approaches," Materials Science & Technology Conference and Exhibition - MS&T'07, Detroit, MI, Sept. 16 - 20, 2007.

50. "Novel approach to grow metal-oxide films for electronic devices," International Conference on Materials for Advanced Technologies (ICMAT), Singapore, July 1 - 6, 2007.

51. "Chemical solution approach for high quality metal-oxide films," Seminar Series on Energy Materials and Storage, Lujan Neutron Scattering Center, Los Alamos National Laboratory, Los Alamos, NM, May 24, 2007.

52. "A chemical solution method for the deposition of metal-oxide films," Department of Materials Science & Engineering, The Pennsylvania State University, University Park, PA, Nov. 2, 2006.

53. "Issues related to thickness dependent critical current density in high temperature superconducting films," Materials Science & Technology Conference and Exhibition - MS&T'06, Cincinnati, OH, Oct. 15 - 19, 2006.

54. "Metal-oxide films grown by a chemical solution deposition," Materials Science & Technology Conference and Exhibition - MS&T'06, Cincinnati, OH, Oct. 15 - 19, 2006.

55. "High quality superconducting films for coated conductors," Univ. of Electronic Sci. & Technol. of China, Chengdu, China, June 30, 2006.

56. "Nonlinear dielectric thin films for tunable microwave devices," Univ. of Electronic Sci. & Technol. of China, Chengdu, China, June 30, 2006.

57. "Functional metal-oxide films by polymer-assisted deposition," The E-MRS Spring Meeting (E-MRS - IUMRS - ICEM 06), Nice, France, May 29 - June 2, 2006.

58. "Structural and electrical/magnetic properties of metal-oxide films grown by polymer-assisted deposition," University of Cambridge, Cambridge, UK, May 24, 2006.

59. "Issues Related to the growth of thick high performance superconducting films," MRS Spring Meeting, San Francisco, CA, April 17 - 21, 2006.

60. "Multiferroic oxide films for device applications," Multiferroics Workshop, Lujan Neutron Scattering Center, Los Alamos National Laboratory, Los Alamos, NM, Nov. 8, 2005.

61. "Thickness dependent critical current density in high quality coated conductors," 6th Pacific Rim Conference on Ceramic and Glass Technology, Maui, HI, Sept. 11 - 16, 2005.

62. "Epitaxial growth of multiferroic films for device application," DARPA Workshop on Multiferroics & Magneto-Electric Heterostructures, Arlington, VA, June 30, 2005.

63. "Growth of metal-oxide films by polymer-assisted deposition," The New Mexico American Vacuum Society Chapter Symposium, Albuquerque, NM, May 23 - 25, 2005.

64. "Epitaxial growth of both simple and complex metal-oxide films by polymer-assisted deposition," 107th ACerS Annual Meeting, Baltimore, Maryland, April 18 - 21, 2005.

65. "Limiting factors for high performance second-generation coated conductors," Colloquium, Department of Electrical Eng. at State University of New York at Buffalo, Buffalo, NY, April 8, 2005.

66. "Buffer layers for coated conductors," Wire Development Workshop, St. Petersburg, FL, Jan. 19-20, 2005.

67. "Nonlinear dielectric for microwave applications – materials issues," International Microwave Symposium, Fort Worth, Texas, June 6 - 11, 2004.

68. "Superconducting films with high critical current density for coated conductors," 106th ACerS Annual Meeting, Indianapolis, Indiana, April 18 - 21, 2004.

69. "Effect of the surface and interface on the superconducting properties of $REBa_2Cu_3O_7$ films," 204th Meeting of Electrochemical Society, Orlando, FL, Oct. 12 - 17, 2003.

70. "Effects of strain on the dielectric properties of barium strontium titanate thin films," 204th Meeting of Electrochemical Society, Orlando, FL, Oct. 12 - 17, 2003.

71. "Nonlinear dielectric materials for high frequency electronic devices," Institute of Materials Research and Engineering, Singapore, Aug. 14, 2003.

72. "Barium strontium titanate for tunable microwave devices," School of Electrical & Electronic Eng., Nanyang Technological Univ., Singapore, Aug. 12, 2003.

73. "Growth and characterization of superconducting films for coated conductors," 105th ACerS Annual Meeting, Nashville, Tennessee, April 27 - 30, 2003.

74. "Growth and characterization of barium strontium titanate based thin films for tunable microwave devices," 105th ACerS Annual Meeting, Nashville, Tennessee, April 27 - 30, 2003.

75. "Structural and superconducting properties of rare-earth barium copper oxides," AFOSR HTS Coated Conductor Review, St. Petersburg, FL, Jan. 22-24, 2003.

76. "Issues of buffer layer on IBAD-MgO template for coated conductors," Wire Development Workshop, St. Petersburg, FL, Jan. 21-22, 2003.

77. "Deposition and characterization of superconducting $ReBa_2Cu_3O_7$ films," MRS Fall Meeting, Boston, Massachusetts, Dec. 2 - 6, 2002.

78. "Monolithic integration of high temperature superconductor with ferroelectric and ferrite for microwave devices," News, IEEE Council on Superconductivity, Oct. 2002 (*invited* www.ewh.ieee.org/tc/csc/).

79. "Materials issues for the optimization of barium strontium titanate thin film ferroelectric-based tunable microwave devices," Ferroelectric Workshop in Puerto Rico, San Juan, Puerto Rico, June 1 - 2, 2001.

80. "Optimization of dielectric and structural properties of $Ba_{1-x}Sr_xTiO_3$ films for tunable microwave devices," MRS Spring Meeting, San Francisco, CA, USA, April 16 - 20, 2001.

81. "Metal oxide thin films for electronic devices," Tutorial lecture at the MRS Spring Meeting, San Francisco, CA, USA, April 16-20, 2001.

82. "Structural and dielectric properties of BST films for tunable microwave devices," MRS Fall Meeting, Boston, Massachusetts, Nov. 27 - Dec. 1, 2000.

83. "Monolithic integration of metal-oxides with complimentary functionalities," American Superconductor, Westborough, MA, Sept. 11, 2000.

84. "Film thickness dependence of structural and superconducting properties in coated conductors," International Workshop on Superconductivity, Co-sponsored by ISTEC and MRS, Matsue-Shi, Shimane, Japan, June 19 - 22, 2000.

85. "Tunable microwave devices based on nonlinear dielectrics - materials issues," 102nd ACerS Annual Meeting, St. Louis, Missouri, April 30 - May 3, 2000.

86. "Integrated metal oxide thin films for electronic devices," Colloquium, MSE Department at University of Michigan, Detroit, MI, Nov. 5, 1999.

87. "Josephson junctions and SQUIDs based on different high-temperature superconducting thin films," Workshop on Electronic, Photonic, Electro-optical, and Electro-magnetic Materials, Redstone Arsenal, AL, Oct. 6 & 7, 1999.

88. "Alternative materials for ramp-edge junctions," International Workshop on Superconductivity, Co-sponsored by ISTEC and MRS, Kauai, HI, June 27 - 30, 1999.

89. "Dielectric thin films for electronic devices," Motorola, Albuquerque, NM, June 8, 1999.

90. "Integration of superconducting YBCO and nonlinear dielectric $Ba_{1-x}Sr_xTiO_3$ films with polycrystalline ferrite for tunable microwave devices," 101st ACerS Annual Meeting, Indianapolis, Indiana, April 25 - 28, 1999.

91. "Processing and application of superconducting YBCO thin and thick films," Midwest Superconductivity Consortium Summer Group Meeting and Summer School, Columbia, Missouri, July 29 - 31, 1998.

92. "Ag-doping YBCO on the improvement of junction and SQUID performance," Workshop of Flux, Quantum, and Mesoscopic Effects in Superconducting Materials and Devices, Santa Fe, New Mexico, Aug. 4 - 8, 1997.

93. "Integrated thin films for Josephson junctions, SQUIDs, and electrically tunable microwave devices," 99th ACerS Annual Meeting, Cincinnati, Ohio, May 4 - 7, 1997.

94. "Integrated thin film devices based on conductive oxides and nonlinear dielectric materials," School of Electronic and Informational Engineering, Xian Jiaotong University, Xian, China, Dec. 26, 1996.

95. "Material and processing development in the fabrication of edge-geometry SNS HTS junctions and DC SQUIDs," Dept. of Physics, Peking University, Peking, China, Dec. 9, 1996.

96. "Development and fabrication of ramp edge-geometry SNS HTS Josephson junctions and DC SQUIDs," Institute of Physics, Chinese Academy of Sciences, Peking, China, Dec. 9, 1996.

97. "Material and device engineering in the fabrication of edge-geometry SNS junctions and SQUIDs," TRW, Redondo Beach, CA, Jan. 5, 1996.

98. "Development and fabrication of high performance ramp-edge SNS junctions and SQUIDs," Los Alamos National Laboratory, Nov. 8, 1995.

99. "Thin film oxides and their related devices," NZ Applied Technologies Corporation, Woburn, MA, June 26, 1995.

100. "Research on high T_c superconducting devices in SUNY at Buffalo," Dept. of Electrical Eng., Kumamoto University, Kumamoto, Japan, May 10, 1993.

101. "RuO_2 thin film resistors," Ohmtek, Inc., Niagara Falls, NY, Aug. 15, 1991.

102. "Thin films for semiconductor/superconductor applications using magnetron sputtering," Dept. of Electrical Eng., Texas A&M University, College Station, TX, June 7, 1991.

CONTRIBUTION TO BOOKS (*total 15*)

1. V. Cracium, M. Guilloux-Virt, M. Jain, Q. X. Jia, H. Kozuka, D. Kumar, S. Mathur, X. Obradors, and K. K. Singh, "Synthesis, Characterization, and Applications of Functional materials – Thin Films and Nanostructures," *MRS Symp. Proc*. Vol. 1675, MRS, Cambridge, 2014.

2. M. Jain, Q. X. Jia, T. Puig, and H. Kozuka, Ed. "Solution Synthesis of Inorganic Functional Materials – Films, Nanoparticles, and Nanocomposites," *MRS Symp. Proc*. Vol. 1547, MRS, Cambridge, 2013.

3. M. Jain, X. Obradors, Q. X. Jia, and R. W. Schwartz, Ed. "Solution Synthesis of Inorganic Films and Nanostructured Materials," *MRS Symp. Proc*. Vol. 1449, MRS, Cambridge, 2012.

4. A. K. Burrell, T. M. McCleskey, and Q. X. Jia, "Polymer-Assisted Deposition," P141-161, in *Chemical Solution Deposition of Functional Oxide Thin Films* (chapter 6), Edited by T. Schneller, R. Waser, M. Kosec, and D. Payne, Springer, New York, 2013.

5. K. M. Nair, Q. X. Jia, and S. Priya, Ed. "Advances and Applications in Electroceramics," *Ceramic Transactions* Vol. 226, Wiley, July 2011.

6. B. A. Tuttle, C. L. Chen, Q. X. Jia, and R. Ramesh, Ed. "Advanced Dielectric and Ferroelectric Thin Films," Proceedings of the 106th Annual Meeting of The American Ceramic Society, Indianapolis, Indiana, USA 2004, *Ceramic Transactions* Vol. 162**,** ACerS, 2004.

7. Q. X. Jia, "High-Temperature Superconducting Multilayer Ramp-Edge Junctions and SQUID's," in *Handbook of High Temperature Superconductor Electronics*, Chapter 3, P85-101, edited by N. Khare, Marcel Dekker, Inc., New York, NY, 2003.

8. Q. X. Jia, "Pulsed Laser Deposition of ITO," in *Handbook of Thin Film Process Technology*, edited by D. A. Glocker and S. I. Shah, Institute of Physics Publishing, England.

9. C. Kwon and Q. X. Jia, "Physical Vapor Deposition," in *Handbook of Nanophase and Nanostructured Materials, Vol. 1*, P195-215, edited by Z. L. Wang, Y. Liu, and Z. Zgang, Kluwer Academic/Plenum Publishers, Tsinghua Univ. Press, 2003.

10. Q. X. Jia, "Conductive Metal Oxide Thin Films," in *Handbook of Thin Film Materials*, Vol. 4, chapter 13, P677 – 698, edited by H. S. Nalwa, Academic Press, New York, NY, 2002.

11. Q. X. Jia, F. A. Miranda, D. E. Oates, and X. X. Xi, Ed. "Materials Issues for Tunable RF and Microwave Devices," *MRS Symp. Proc*. Vol. 603, MRS, 2000.

12. Q. X. Jia, "Results of HTSC Deposition," in *LIA Handbook of Laser Materials Processing*, chapter 23 (23.2), P644-647, edited by J. F. Ready and D. F. Farson, Laser Institute of America and Magnolia Publishing, Inc., Orlando, FL, 2001.

13. Q. X. Jia, "Thin Films Capacitors," in *Encyclopedia of Electrical and Electronics Engineering*, P108-118, edited by J. G. Webster, John Wiley & Sons, Inc., New York, NY, 1999.

14. Q. X. Jia, X. D. Wu, and D. Reagor, "Material and Device Engineering in High Temperature Superconductor Josephson Junctions and SQUIDs," in *Studies of High Temperature Superconductors*, chapter 7, P217-234, edited by A. V. Narlikar, New York: Nova Science Publishers, Inc. 1996.

15. Q. X. Jia, "Amorphous Si Solar Cells," in *Solar Cell Theory and Application*, Chapter 8, P264-335, edited by E. K. Liu, Academic Press, Beijing, China, 1989.

REFEREED AND UNREFEREED PROCEEDING ARTICLES (*over 60*)

1. A. Caviezel, U. Staub, S. L. Johnson, S. O. Mariager, G. Ingold, E. Mohr-Vorobeva, M. Garganourakis, S. W. Huang, C. J. Milne, Q. X. Jia, S. W. Cheong, and P. Beaud, "Optical and x-ray time resolved study of the structural transition in mixed valence manganites," *XVIIITH International Conf. on Ultrafast Phenomena, Book Series: EPJ Web of Conferences*, Vol. 41, UNSP 03002 DOI: 10.1051/epjconf/20134103002, 2013.

2. Y. M. Sheu, S. A. Trugman, J. Xiong, Y. S. Park, S. Lee, H. T. Yi, S. W. Cheong, Q. X. Jia, A. J. Taylor, and R. P. Prasankumar, "Ultrafast carrier dynamics and radiative recombination in multiferroic BiFeO3 single crystals and thin films," *XVIIITH International Conf. on Ultrafast Phenomena, Book Series: EPJ Web of Conferences*, Vol. 41, UNSP 03018 DOI: 10.1051/epjconf/20134103018, 2013.

3. R. Singh, J. Xiong, D. R. Chowdhury, H. Yang, A. K. Azad, S. A. Trugman, Q. X. Jia, A. J. Taylor, and H. T. Chen, "Thermal and ultrafast optical running of ultrathin high-temperature superconducting terahertz metamaterials," *Proc. of SPIE* **8423**, 84230Y (2012). (*Invited*)

4. S. C. Wimbush, M. C. Li, M. E. Vickers, Q. X. Jia, and J. L. MacManus-Driscoll, "X-ray determination of mosaic structure in variable thickness $EuBa_2Cu_3O_7$ thin films," *J. Phys. - Conf. Series* **97**, 012214 (2008).

5. T. G. Holesinger, B. J. Gibbons, S. R. Foltyn, P. N. Arendt, V. Matias, Q. X. Jia, L. Stan, S. Kreiskott, J. Y. Coulter, R. F. DePaula, R. Feenstra, A. A. Gapud, E. D. Specht, T. Kodenkandath, and W. Zhang, "TEM studies of interfacial microstructures in $YBa_2Cu_3O_7$ coated conductors," *Proc. of Electrochemical Soc.* **2003-31**, 111-124, 2006.

6. B. Maiorov, J. L. MacManus-Driscoll, H. Wang, Q. X. Jia, P. Arendt, S. R. Foltyn, and L. Civale, "Comparison of different routes for improving vortex pinning in $YBa_2Cu_3O_7$ thin films and coated conductors," *AIP Conf. Proc.* **824**, 763-770 (2006).

7. P. Shukla, Y. Lin, E. M. Minogue, A. K. Burrell, T. M. McCleskey, Q. X. Jia, and P. Lu, "Polymer assisted deposition (PAD) of thin metal films: a new technique to the preparation of metal oxides and reduced metal films," *Mater. Res. Soc. Symp. Proc.* **893**, 183-188 (2006).

8. L. X. Zheng, M. J. O'Connell, S. K. Doorn, X. Z. Liao, Y. H. Zhao, M. A. Hoffbauer, Q. X. Jia, D. E. Peterson, J. Liu, and Y. T. Zhu, "Centimetre-long carbon nanotubes from ethanol decomposition," *Proc. of 2005 NSTI Nanotechnology Conference and Trade Show - NSTI Nanotech 2005*, May 8-12 2005; Anaheim, CA, USA. P126-127.

9. Q. X. Jia, J. S. Lee, B. H. Park, and P. Lu, J. L. MacManus-Driscoll, "Structural and dielectric properties of $Ba_{0.6}Sr_{0.4}TiO_3$ thin films," *Proc. of Electrochemical Soc.* **2003-29**, 161-166 (2005).

10. X. Qi, P. S. Roberts, N. D. Mathur, J. S. Lee, S. Foltyn, Q. X. Jia, and J. L. MacManus-Driscoll, "Multi-ferroic $BiFeO_3$ films prepared by liquid phase epitaxy and sol-gel methods," *Ceramic Trans.* **162**, 69-73 (2005).

11. S. Sathiraju, N. A. Yust, R. N. Nekkanti, I. Martense, A. L. Campbell, T. L. Peterson, T. J. Haugan, J. C. Tolliver, P. N. Barnes, Q. X. Jia, and P. N. Arendt, "Growth optimization of YBa_2NbO_6 buffer layers," *Mater. Res. Soc. Symp. Proc.* **3**, 177-179 (2004).

12. B. Maiorov, B. Gibbons, Y. In, Y. Li, Q. X. Jia and L. Civale, "Natural correlated inclined defects in $DyBa_2Cu_3O_7$," *Mater. Res. Soc. Symp. Proc.* **3**, 69-71 (2004).

13. S. Y. Lee, Y. Li, J. S. Lee, M. Nastasi, S. A. Crooker, Q. X. Jia, H. S. Kang, and J. S. Kang, "Modulation of energy band gap of ZnO thin films grown by pulsed laser deposition," *Mater. Res. Soc. Symp. Proc.* **764**, 413-417 (2003).

14. C. Kwon, B. E. Klein, S. Seo, B. H. Park, and Q. X. Jia, "Imaging transport current distribution in high temperature superconductors using room temperature scanning laser microscope," *Mater. Res. Soc. Symp. Proc.* **689**, E8.35.1-6 (2002).

15. S. Seo, C. Kwon, B. H. Park, and Q. X. Jia, "Spatial distribution analyses of superconducting transition temperature in epitaxial $YBa_2Cu_3O_7$ film using variable temperature scanning laser microscopy," *Mater. Res. Soc. Symp. Proc.* **689**, F7.2.1-6 (2002).

16. H. P. Sun, D. B. Jan, Q. X. Jia, and X. Q. Pan, "Transmission electron microscopy study of Y_2O_3 nanotips grown on $LaAlO_3$," *Proc. of Microscopy and Microanalysis'01(Long Beach, CA, Aug. 5-9, 2001), Microscopy and Microanalysis Vol. **7**, Supplement 2, 320-321* (2001).

17. B. J. Gibbons, A. T. Findikoglu, Q. X. Jia, and D. W. Reagor, "Electrically tunable microwave devices prepared by rf-magnetron sputtering," *Proc. of the 2001 12th IEEE International Symposium on Applications of Ferroelectrics*, **I&II**, 201-204 (2001).

18. L. A. Emmert, B. H. Park, J. R. Groves, R. F. DePaula, Q. X. Jia, and P. N. Arendt, "Integration of biaxially aligned conducting oxides with silicon using ion-beam assisted deposited MgO templates," *Mater. Res. Soc. Symp. Proc.* **666**, E8.22.1-6 (2001).

19. H. Kung, S. R. Foltyn, P. N. Arendt, J. R. Groves, T. G. Holesinger, Q. X. Jia, and M. P. Maley, "Microstructural characterization of YBCO thick film coated conductors on IBAD-YSZ and MgO template layers," *Proc. of the 2001 International Workshop on Superconductivity,* Honolulu, Hawaii, June 24-27, 2001, P241-243.

20. J. R. Groves, P. N. Arendt, S. R. Foltyn, Q. X. Jia, T. G. Holesinger, H. Kung, R. F. DePaula, P. C. Dowden, E. J. Peterson, L. Stan, and L. A. Emmert, "Development of the IBAD MgO process for HTS coated conductors," *Proc. of the 2001 International Workshop on Superconductivity,* Honolulu, Hawaii, June 24-27, 2001, P43-46.

21. J. R. Groves, P. N. Arendt, Q. X. Jia, S. R. Foltyn, R. F. DePaula, P. C. Dowden, L. R. Kinder, Y. Fan, and E. J. Peterson, "High critical current density PLD YBCO deposited on highly textured IBAD MgO buffer layers," *Ceramic Trans.* **104**, 219-226 (2000).

22. A. T. Findikoglu, Q. X. Jia, C. Kwon, B. J. Gibbons, K. O. Rasmussen, Y. Fan, D. W. Reagor, and A. R. Bishop, "Electrodynamic properties of single-crystal and thin-film strontium titanate, and thin-film barium strontium titanate," *Mater. Res. Soc. Symp. Proc.* **603**, 27-36 (2000).

23. B. J. Gibbons, Y. Fan, A. T. Findikoglu, D. W. Reagor, and Q. X. Jia, "RF-magnetron sputtered strontium titanate: structure, processing and property relationships," *Mater. Res. Soc. Symp. Proc.* **603**, 57-62 (2000).

24. Y. Gim, T. Hudson, Y. Fan, A. T. Findikoglu, C. Kwon, B. J. Gibbons, and Q. X. Jia, "Dielectric properties of $Ba_{1-x}Sr_xTiO_3$ films grown on $LaAlO_3$ substrates," *Mater. Res. Soc. Symp. Proc*. **603**, 175-180 (2000).

25. P. N. Arendt, J. R. Groves, S. R. Foltyn, Q. X. Jia, E. J. Peterson, R. F. DePaula, J. Y. Coulter, and M. Ma, "Fabrication of high quality ion-beam deposited cubic oxide template films on meter-length substrates," *Mater. Res. Soc. Symp. Proc* **585**, 67-73 (2000).

26. B. J. Gibbons, A. T. Findikoglu, Q. X. Jia, and D. W. Reagor, "Electrically tunable microwave devices prepared by rf-magnetron sputtering," *Proc. of the 2000 12th IEEE International Symposium on Applications of Ferroelectrics*, Honolulu, Hawaii, July 21 - Aug. 2, 2000, P201-204.

27. Q. X. Jia, S. R. Foltyn, P. N. Arendt, H. Kung, T. G. Holesinger, and J. L. Smith, "Film thickness dependence of structural and superconducting properties in coated conductors," *Proc. of the 2000 International Workshop on Superconductivity*, Matsue-Shi, Shimane, Japan, June 19-22, 2000, P192-195.

28. P. Lu, S. He, F. X. Li, and Q. X. Jia, "Epitaxial and conductive RuO_2 thin films grown on MgO and $LaAlO_3$ by MOCVD," *Mater. Res. Soc. Symp. Proc*, **541**, 147-152 (1999).

29. H. Jiang, W. Hu, S. H. Liang, V. Fouflyguine, Q. X. Jia, and F. Miranda, "Low loss ferroelectric films grown on polycrystalline ferrite substrates for dual-tuning microwave devices," *Mater. Res. Soc. Symp. Proc* **574**, 311-316 (1999).

30. K. T. Gahagan, V. Gopalan, J. M. Robinson, Q. X. Jia, and T. E. Mitchell, "Fabrication and characterization of high-speed integrated electro-optic lens and scanner devices," *Proc. of SPIE - Integrated Optics Devices III*, 25-27 January, 1999, San Jose, California, Vol. 3620, P374-379.

31. Q. X. Jia, Y. Fan, Y. Gim, H. Kung, J. P. Zhou, and J. T. McDevitt, "Alternative materials for ramp-edge SNS junctions," *Proc. of the 1999 International Workshop on Superconductivity*, Kauai Island, Hawaii, June 27-30, 1999, P181-183.

32. M. E. Hawley, G. W. Brown, M. F. Hundley, J. D. Thompson, D. K. Hristova, J. Tesmer, Q. X. Jia, and E. J. Peterson, "Growth-related magnetic and physical structures in CMR films," *Ceramic Trans.* **86**, 127-143 (1998).

33. C. Kwon, Q. X. Jia, Y. Fan, M. F. Hundley, D. W. Reagor, and M. E. Hawley, "Observation of large low field magnetoresistance in ramp-edge tunneling junctions based on doped manganite ferromagnetic electrodes and a $SrTiO_3$ insulator," *Mater. Res. Soc. Symp. Proc.* **494**, 237-242 (1998).

34. Q. X. Jia, D. Reagor, A. T. Findikoglu, and C. Mombourquette, "Integrated thin films for Josephson junctions, SQUIDs, and electrically tunable microwave devices," *Ceramic Trans.* **86**, 61-72 (1998).

35. Q. X. Jia, "Pulsed laser deposition of metal oxide thin films," *Proc. of SPIE - High-Power Laser Ablation*, 27-30 April 1998, Santa Fe, New Mexico, Vol. 3343, P872-876.

36. L. Smilowitz, Q. X. Jia, X. Yang, D. Q. Li, D. McBranch, and J. M. Robinson, "Nonlinear optical microscopy for imaging patterned self-assembled monolayers," *Mater. Res. Soc. Symp. Proc*. **440**, 209-214 (1997).

37. G. W. Brown, Q. X. Jia, E. J. Peterson, D. K. Haristova, M. F. Hundley, J. D. Thompson, C. J. Maggiore, J. Tesmer, and M. E. Hawley, "Growth and magnetic structure of $La_{0.67}Sr_{0.33}MnO_3$ films," *Mater. Res. Soc. Symp. Proc.* **474**, 179-184 (1997).

38. D. Reagor, C. Mombourquette, J. Decker, Y. Fan, M. Hawley, R. Houlton, and Q. X. Jia, "Noise and operational characteristics of magnetometers made from superconducting-normal-superconducting Josephson junctions," *Mater. Res. Soc. Symp. Proc.* **474**, 113-117 (1997).

39. M. F. Hundley, J. J. Neumeier, R. H. Heffner, Q. X. Jia, X. D. Wu, and J. D. Thompson, "Interplay between electronic transport and magnetic order in ferromagnetic manganite thin films," *Mater. Res. Soc. Symp. Proc.* **474**, 167-178 (1997).

40. M. E. Hawley, Q. X. Jia, and G. W. Brown, "STM and x-ray diffraction temperature-dependent growth study of $SrRuO_3$ PLD thin films," *Mater. Res. Soc. Symp. Proc.* **441**, 57-62 (1997).

41. J. P. Zhou, Q. X. Jia, and J. T. McDevitt, "Development of N-layer materials for SNS junction and SQUID applications," *Proc. of the 1997 International Workshop on Superconductivity*, Big Island, Hawaii, USA, June 15-18, 1997, P262-264.

42. A. T. Findikoglu, Q. X. Jia, D. W. Reagor, and X. D. Wu, "Nonlinear dielectric thin films for active and electrically tunable microwave devices," *Mater. Res. Soc. Symp. Proc.* **401**, 303-308 (1996).

43. D. S. Zhou, Q. X. Jia, X. D. Wu, and T. E. Mitchell, "TEM investigation of the YSZ-on-insulator structure," *Proc. of Microscopy and Microanalysis 1995* (Jones and Begell Publishing, New York, NY), P472-473.

44. K. Ebihara, T. Ikegami, M. Okamura, T. Kinjiyo, Y. Yamagata, Q. X. Jia, T. Noguchi, L. S. Hsiang, and L. K. Hong, "High efficiency energy conversion of photovoltaic power generation at Kyushu and Singapore," *Proc. of the 6th Asian Conf. on Electrical Discharge* (Oita, Japan, Nov. 1993), P201-204.

45. L. H. Chang, Q. X. Jia, and W. A. Anderson, "Structural and electrical properties of $BaTiO_3$ thin films grown on p-Si substrates with different device designs," *Mater. Res. Soc. Symp. Proc.* **318**, 501-506 (1994).

46. Q. X. Jia, J. Yi, Z. Q. Shi, L. H. Chang, K. K. Ho, and W. A. Anderson, "Electrical properties of ferroelectric thin film capacitors with different structures," *Mater. Res. Soc. Symp. Proc.* **284**, 523-527 (1993).

47. Q. X. Jia and W. A. Anderson, "Growth and characterization of epitaxial BaF_2 on InP," *Mater. Res. Soc. Symp. Proc.* **281**, 747-751 (1993).

48. Z. Q. Shi, Q. X. Jia, L. He, L. H. Chang, and W. A. Anderson, "Electrical characterization of ITO/p-InP solar cells," *Proc. of the 23rd IEEE Photovoltaic Specialists Conf.*, Louisville, KY, USA, May 10-14, 1993 (New York, NY, USA: IEEE 1993), P1432-1436.

49. S. Y. Lee, Q. X. Jia, W. A. Anderson, and D. T. Shaw, "Processing of $YBa_2Cu_3O_7$ superconducting thin films on GaAs substrates with double buffer layer," *Mater. Res. Soc. Symp. Proc.* **236**, 443-448 (1992).

50. Z. Q. Shi, Q. X. Jia, and W. A. Anderson, "Structural and electrical properties of $BaTiO_3$ thin film capacitor," *Mater. Res. Soc. Symp. Proc.* **243**, 291-295 (1992).

51. Q. X. Jia and W. A. Anderson, "A new buffer layer for high temperature superconducting thin films," *AIP Conf. Proc.* (USA), No. 273, P95-101 (1993). (Superconductivity and Its Applications, 6th Annual Conference, Buffalo, New York, Sept. 15-17, 1992).

52. Q. X. Jia, S. Y. Lee, W. A. Anderson, and D. T. Shaw, "Superconducting $YBa_2Cu_3O_{7-x}$ thin films on GaAs substrates using a double buffer layer structure," *AIP Conf. Proc.* (USA), No. 251, P84-88 (1992). (Superconductivity and Its Applications, 5th Annual Conference, Buffalo, NY, USA, Sept. 24-26, 1991).

53. Q. X. Jia and W. A. Anderson, "Superconducting $YBa_2Cu_3O_{7-x}$ thin films on metallic substrates prepared by RF magnetron sputtering using $BaTiO_3$ as a buffer layer," *AIP Conf. Proc.* (USA), No. 251, P96-101 (1992). (Superconductivity and Its Applications, 5th Annual Conference, Buffalo, NY, USA, Sept. 24-26, 1991)

54. Q. X. Jia, "Fabrication of high temperature superconducting $YBa_2Cu_3O_{7-x}$ films on metallic substrates by an *in-situ* processing," *Res. Rep. Link Energy Fellows* **7**, 111-120 (1991).

55. Q. X. Jia and W. A. Anderson, "Low temperature *in situ* growth of YBCO thin films on semiconductor substrate from single target RF magnetron sputtering," *AIP Conf. Proc.* (USA), No. 219, P518-523 (1991). (Superconductivity and Its Applications, 4th Annual Conference, Buffalo, NY, USA, Sept. 18-20, 1990).

56. Q. X. Jia and W. A. Anderson, "Comparative studies of Ohmic contacts to superconducting YBCO thin films with different contact materials," *AIP Conf. Proc.* (USA), No. 219, P405-409 (1991). (Superconductivity and Its Applications, 4th Annual Conference, Buffalo, NY, USA, Sept. 18-20, 1990).

57. K. L. Jiao, Q. X. Jia, W. A. Anderson, M. F. Collins, and D. T. Wisniewski, "Stable RuO_2 thin film resistors," *Proc. of the 2nd Int. Conf. on Electronic Mater.*, Newark, NJ, USA, Sept. 17-19, 1990 (Pittsburgh, PA, USA, MRS 1990), P533-537.

58. Q. X. Jia and W. A. Anderson, "Surface passivation of Y-Ba-Cu-O oxide using chemical treatment," *Proc. of the 3rd Annual Conf. on Superconductivity and Applications*, Buffalo, New York, Sept. 19-21, 1989 (Plenum Press, 1989), P573-579.

59. P. Y. Hsieh, J. Ye, Z. Shi, D. Ren, Q. X. Jia, and W. A. Anderson, "Electrical conductivity and buffered layer studies of high T_c superconductor by C-V measurements," *Proc. of the 2nd Annual Conf. on Superconductivity and Applications*, Buffalo, New York, April 18-24, 1988 (Elsevier Science Publishing Co., 1988), P214-222.

60. S. L. Zhang, E. K. Liu, and Q. X. Jia, "Research on charge stored effect in silicon nitride for improving the performance of MIS/IL solar cells," *Proc. of 5th Int. Conf. on Energy Options - The Role of Alternatives in the World Energy Scene*, Reading, England, 7-9 April, 1987 (London, England: IEE 1987), P107-110.

61. E. K. Liu, Q. X. Jia, X. M. Liu, Y. Sun, and S. L. Zhang, "Innovative approaches to improve the characteristics of MIS/IL and MINP silicon solar cells," *Proc. of the 19th IEEE Photovoltaic Specialists Conf.*, New Orleans, LA, USA, 4-8 May, 1987 (New York, NY, USA: IEEE 1987), P382-387.

62. Q. X. Jia and E. K. Liu, "High efficiency and high blue response silicon solar cells," *Proc. of 3rd Int. Photovoltaic Science and Eng'g. Conf.*, Tokyo, Japan, Nov. 3-6, 1987, P75-78.

63. S. L. Zhang, Q. X. Jia, and E. K. Liu, "An effective method to improve the characteristics of silicon solar cells," *Proc. of 3rd Int. Photovoltaic Science and Eng'g. Conf.*, Tokyo, Japan, Nov. 3-6, 1987, P525-527.

64. Q. X. Jia, C. C. Zhu, and E. K. Liu, "Ion implanted MINP silicon solar cells," *Proc. of 2nd Int. Photovoltaic Science and Eng'g. Conf.*, Beijing, China, Aug. 19-22, 1986 (Adfield Advertising, Hong Kong, 1986), P223-226.

65. Q. X. Jia, C. C. Zhu, and E. K. Liu, "A new model for MINP silicon solar cells," *Proc. of 2nd Int. Photovoltaic Science and Eng'g. Conf.*, Beijing, China, Aug. 19-22, 1986 (Adfield Advertising, Hong Kong, 1986), P328-331.

66. Q. X. Jia and E. K. Liu, "A method for the direct measurement of solar cell junction ideality factor," *Proc. of 2nd Int. Photovoltaic Science and Eng'g. Conf.*, Beijing, China, Aug. 19-22, 1986 (Adfield Advertising, Hong Kong, 1986), P321-324.