Menka Jain

Associate Professor
Institute of Materials Science and Department of Physics
University of Connecticut, Storrs, CT 06269-3136
Office: (860)-486-4090**.** Fax: (860)-486-4745**.** Email: menka.jain@uconn.edu
Web: http://faculty.ims.uconn.edu/~jain/

Professional Preparation:

04/2005-04/2008	Director's funded postdoctoral fellow, Superconductivity Technology Center, Materials Physics and Applications Division, Los Alamos National Laboratory, Los Alamos, NM
08/2004-12/2004	Postdoctoral fellow, Dept. Physics, University of Puerto Rico, San Juan, PR (USA)
2004	Ph.D., Chemical Physics, University of Puerto Rico, San Juan, PR (USA)
08/1998-05/1999	Project associate, Dept. Physics, Indian Institute of Technology, Kanpur, India
1998	M.S., Physics, Shri Sahu Ji Maharaj University, Kanpur, (India)
1996	B.S., Physics, Mathematics, Shri Sahu Ji Maharaj University, Kanpur, (India)

Appointments:

08/2014-Present	Associate Professor, Institute of Materials Science & Dept. of Physics, UConn; also as Graduate faculty of Materials Science & Engineering, UConn
08/2008-08/2014	Assistant Professor, Institute of Materials Science & Dept. of Physics, UConn; also as Graduate faculty of Chemical, Materials & Biomolecular Engineering, UConn

Publications and Presentations: (*list on page 5*)

Articles published in reviewed scientific journals and conference proceedings: **91**
Conference/Workshop presentations: **110 (24** invited talks**)**

Areas of interest:

- Synthesis of various metal-oxide thin films, powders, nanoparticles, and composites using various chemical solution methods
- Ferroelectric, Piezoelectric, and Pyroelectric materials
- Magnetoelectric multiferroic materials
- Nanostructured and heterostructured composites
- Ferromagnetic thin films: colossal magnetoresistance and tunnel junctions
- Low loss dielectrics for tunable microwave materials
- Thermoelectric materials

Synergistic Activities:

- **Editorial services:**
  - **Editor:** *MRS proceedings*, Vol. 1675, 2014. http://journals.cambridge.org/action/displayIssue?jid=OPL&volumeId=1675&issueId=-1
  - **Guest Co-Editor:** Special issue on *Nanocomposites*, Journal of Nanotechnology (2013) http://www.hindawi.com/journals/jnt/si/261083/cfp/
  - **Editor:** *MRS proceedings*, Vol. 1547, 2013. http://journals.cambridge.org/action/displayIssue?jid=OPL&volumeId=1547&iid=8879103
  - **Guest Co-Editor:** Special Issue on *Nanocomposites*, Journal of Nanotechnology (2012) http://www.hindawi.com/journals/jnt/si/271041/cfp/
  - **Editor:** *MRS proceedings*, Vol. 1449, 2012. http://journals.cambridge.org/action/displayIssue?jid=OPL&volumeId=1449&iid=8539610

- **Guest Co-Editor:** Special Issue on *Nanocomposites*, Journal of Nanotechnology (2011) http://www.hindawi.com/journals/jnt/si/367938/
- **Associate Editor***: International Journal of Micro and Nano Electronics, Circuits and Systems* (04/2011-present). http://www.serialspublications.com/journals1.asp?jid=287&dtype=2&jtype=

- **Committee:**
  - Member, *Edward C. Henry Best Paper Award committee*, American Ceramic Society (2011-present).
  - Member, *Hoffman Scholarship*, American Ceramic Society (2011-present).
  - Member, *Nomination Committee*- Electronics Division, American Ceramic Society (January 2014-December 2014)
- **Reviewer of Journals:** Advanced Materials, Applied Physics Letters, Journal of Applied Physics, Journal of Magnetism and Magnetic Materials, Advanced in Condensed Matter Physics, Journal of Solid State Chemistry, Nanoletters, Advanced Functional Materials, Materials Chemistry and Physics, Nuclear Inst. and Methods in Physics Research A, Physica Status Solidi (a), ACS Applied Materials & Interfaces, Chemistry of Materials, Journal of Materials Science, Thin Solid Films, Electrochemical and Solid-State Letters, Materials Today Magazine, Journal of American Ceramic Society, CrystEngComm, ChemPhysChem, Chinese Physics Letters, International Journal of Applied Ceramic Technology, Transactions on Ultrasonics Ferroelectrics and Frequency Control, Journal of Alloys and Compounds, Journal of Materials Science, Acta Materialia, Materials Science and Engineering B, IEEE Photonics Technology Letters, Solid State Communications, ACS Applied Materials & Interfaces
- **Reviewer of Grant/Proposals (Ad-Hoc):** NSF- Ad-hoc reviews for three CINT-Los Alamos/Sandia National Lab user proposals (April-2015); Ad-hoc review -Division of Materials Research, Ceramics-RUI proposal (January-March 2015); NSF-Ad-hoc review -Division of Materials Research, Ceramics proposal (December 2014-January 2015); Ad-hoc reviews for five CINT-Los Alamos/Sandia National Lab user proposals (September-October 2014); NSF Ad-hoc review–Materials Research Science & Engineering Centers (MRSEC*)*-(January-March 2014); NSF-Division of Materials Research, Ceramics proposal (December 2013-January 2014); NSF-Division of Materials Research-Ceramics proposal (January-February 2014); NSF-Division of Materials Research GOALI proposal (December 2013-January 2014); National Science Foundation (NSF) SBIR-Phase I proposals (July – August 2013); NSF-Division of Materials Research career proposal (July-September 2013); NSF Panel – Materials Research Science & Engineering Centers (MRSEC*)*-(September 2013); American Chemical Society-Petroleum Research Fund (06/08/2012); Member of user proposal review committee for the *Center for Integrated Nanotechnologies* (CINT) at the Los Alamos National Lab (NM), which is a BES-funded nanoscience research center: reviewed 14 proposal till date (June 2012 - present)

- **External International Advisory Board:** Symposium CE, 13th International Conference on Modern Materials and Technologies (to be held in Tuscany, Italy, June 8 to 20, 2014). http://www.cimtec-congress.org/2014/advisory_boards_congress.asp

- **Member:** Materials Research Society, The American Ceramic Society

- **Sessions Chair:** Materials Research Society Spring meeting, April 6-10th, 2015, San Francisco, CA; *7th International Conference on Materials for Advanced Technologies*, Singapore, June 30th-July 5th, 2013; Materials Research Society Spring meeting, April 1-5th, 2013, San Francisco, CA; 37th International Conference on Advanced Ceramics and Composites meeting, Jan 27th-Feb 1st, 2013, Daytona Beach, FL; Materials Research Society Spring meeting, April 9-13th, 2012, San Francisco, CA; International Symposium on Multifunctionality of Ferroics and Multiferroics, October 15th-16th, 2010, San Antonio, TX; Materials Science and Technology, October 5-9th, 2008, Pittsburgh, PA;

Materials Science and Technology, September 16-21st, 2007, Detroit, MI; Materials Science and Technology, October 15-19th, 2006, Cincinnati, OH.

- **Symposium Organizer:**
  - **Member, Symposium**: *Controlled Synthesis, Processing, and Applications of Structural and Functional Nanomaterials*, Materials Science and Technology, Salt Lake City, UT, USA, October 23rd– 27th, 2016.
  - **Member, Symposium S7**: *10th International Symposium on Nanostructured Materials: Functional Nanomaterials and Thin Films for Sustainable Energy Harvesting, Environmental, and Health Applications*, 40th International Conference and Expo on Advanced Ceramics and Composites, Daytona Beach, FL, USA, January 24th-29th, 2016.
  - **Member, *Symposium RR:*** *Solution Synthesis of Inorganic Functional Materials,* Materials Research Society Spring meeting, San Francisco, CA, USA, April 21st-25th, 2014.
  - **Member, *Symposium: Solar Fuels,*** Materials Challenges in Alternative & Renewable Energy, February 17th-20th, 2014.
  - **Chair, *Symposium M:*** *Solution Synthesis of Inorganic Functional Materials-Films, Nanoparticles, and Nanocomposites,* Materials Research Society Spring meeting, San Francisco, CA, USA, April 1st-5th, 2013.
  - **Chair, *Symposium BB:*** *Solution Synthesis of Inorganic Films and Nanostructured Materials*, Materials Research Society Spring meeting, San Francisco, CA, USA, April 9th-13th, 2012.
- **Departmental services:**
  - Member, *Promotion, Tenure, and Reappointment Committee* (2015-present)
  - Member, *Diversity and Multiculturalism committee* (2014-present)
  - Member, *Condensed Matter Physics Faculty Search Committee*, Institute of Materials Science, UConn, (2010-2011)
  - Member, *Faculty Search Committee* (position related to High Field applications), Institute of Materials Science, UConn, (2012-2013)
  - Member, *Outreach Committee*, May, 2011-2015
  - Member, *Advisory Committee*, August, 2011-present
  - Member, *Nanoscale Science Committee*, 2009-2011
  - Chair, *Condensed Matter Physics seminar series* (Aug, 2008- Aug, 2012)
- **UConn campus services:**
  - Member, *Institute of Materials Science Director Search Committee*, UConn, (2013)

Honors and Awards:

- Recipient of Award of Excellence from the group leader of the Superconductivity Technology Center of MPA Division in Los Alamos National Laboratory, April, 2008.
- Recipient of Award of Excellence from the group leader of the Superconductivity Technology Center of MPA Division in Los Alamos National Laboratory, August, 2006.
- Received Director's Funded Postdoctoral Fellowship in Los Alamos National Laboratory in April 2005.
- Recipient of the National Science Foundation (NSF)-EPSCoR graduate fellowship, 2003-2004.
- Recipient of NSF Fellowship, 2001-2003.
- Awarded second prize, "The Ceramograhic competition of The American Ceramic Society", at the annual meeting of ACerS, St. Louis, April, 2002.
- One micrograph of the research appeared on the cover page of a journal (J. of the American Ceramic Society, 85 (7) 2002).
- Honor student award for being among the top five percent of graduate students of the University of Puerto Rico, August, 2001.

- First prize winner of the poster presentation competition at the NASA/DoD sponsored Ferroelectric Workshop, Puerto Rico, June, 2001.
- Recipient of the "Smt. Shyam Lata Nigam Memorial Scholarship award" for securing the highest marks in all the colleges in master degree, Christ Church College, Kanpur, India, 1997.

Other Affiliations

- **Graduate and Postdoctoral Advisors:**

  Ph.D. and Postdoctoral Dr. R.S. Katiyar, University of Puerto Rico, San Juan, PR
  Postdoctoral Dr. Q.X. Jia, Los Alamos National Laboratory, Los Alamos, NM

- **Students Advising:**

  Current Ph.D. student: Mr. Austin McDannald (Advisor), Mr. Shiqi Yin (Advisor), Mr. Hongyu Hu (Co-Advisor), Ms. Shoroog Alraddadi (Co-Advisor), Mr. Xiang Zhang (Co-Advisor)

  Past PhD students: Mr. Margo Staruch (2013, Advisor), Mr. Fahad Alamar (2013, Co-Advisor), Ms. Erica Kramer (2013, Co-Advisor), Mr. P. A. D. S. Navarathne (2011, co-Advisor), Mr. Yogesh Ner (2010, co-advisor), Ms. Claire Weiss (2010, co-advisor), Mr. Y. Ner (2010, co-advisor)

  Past MS students: Ms. Margo Staruch (2009, Advisor), Mr. Hari Sharma (2014, Advisor), Mr. Shiqi Yin (2014, Advisor)

Current and Pending Federal support: Article in Magazine/Highlighted work:

1. 'Material World', M. Jain, *International Innovation*, July 2013, (Research Media, UK, pp 102-104) ISSN 2051-8528. http://www.international-innovation-northamerica.com/magazines/NA14/index.html
2. **Highlighted work from my group:** http://advanceseng.com/chemical-engineering/low-field-magnetoresistance-in-la0-67sr0-33mno3zno-composite-film/

List of Submitted Articles:

1. Modulated magneto-thermal response of $La_{0.85}Sr_{0.15}MnO_3$ and $(Ni_{0.6}Cu_{0.2}Zn_{0.2})Fe_2O_4$ composites, H. C. Song, D. Maurya, Y. Zhou, M.E. Song, D. Gray, N. K. Yamoah, D. Kumar, A. McDannald, **M. Jain,** and S. Priya, *RSC Advances* (2015).
2. Phase Segregation to Produce PEDOT-PSS 'Organic Metal' of >20,000 S/cm, F. Alhashmi Alamer, N. Paziresh, A. F. Baldwin, M. Staruch, M Jain, J. Hancock, G. A. Sotzing, and S. Handunkanda, *Advanced Materials* (2015).

List of Publications in Refereed Journals:

3. Magnetocaloric Properties of Rare-Earth Substituted $DyCrO_3$, A. McDannald and **M. Jain**, *Journal of Applied Physics* 118 (2015) 043904.
4. Dopant-mediated improved structural and magnetic properties of $TbMnO_3$, V. Sharma, A. McDannald, M. Staruch, R. Ramprasad, and **M. Jain**, *Applied Physics Letters* 107 (2015) 012901.
5. Magnetic and Transport Properties of Epitaxial Fe_3O_4 Films Grown at Different Oxygen Pressure, S. Alraddadi, W. Hines, T.Yilmaz, G. Gu, A. McDannald, **M. Jain**, and B. Sinkovic, *Materials Research Express* 2 (2015) 066402.
6. Magnetic Exchange Interactions of Rare-Earth Substituted $DyCrO_3$ Bulk Powders, A. McDannald, L. Kuna, M. Seehra, and **M. Jain**, *Physical Review B* 91 (2015) 224415.
7. Preparation of Conductive Graphene/Graphite Infused Fabrics Using Interface Trapping Method, S. J. Woltornist, F. A. Alamer, A. McDannald, **M. Jain**, G. A. Sotzing, and D. H. Adamson, *Carbon* 81 (2015) 38.
8. Magnetic and magnetocaloric properties of $TbMnO_3$ and $Tb_{0.67}R_{0.33}MnO_3$ (R=Dy, Y, and Ho) bulk powders, M. Staruch, L. Kuna, A. McDannald, and **M. Jain,** *Journal of Magnetism and Magnetic Materials* 377 (2014) 117.
9. An intrinsically magnetic biomaterial with tunable magnetic properties, M.E. Zilm, M. Staruch, **M. Jain** and Mei Wei, *Journal of Materials Chemistry B.* 2 (2014) 7176.
10. Magnetic Ordering in $TbMn_{0.5}Cr_{0.5}O_3$ studied by neutron diffraction and first-principles calculations, M. Staruch, V. Sharma, C. Dela Cruz, R. Ramprasad, and **M. Jain**, *Journal of Applied Physics*, 116 (2014) 033919.
11. Effect of Mn Doping on the Properties of Sol-gel Derived $Pb_{0.3}Sr_{0.7}TiO_3$ Thin Films, M. Staruch, K. Cil, H. Silva, J. Xiong, Q.X. Jia, and **M. Jain**, *Integrated Ferroelectrics*, 470 (2014) 227.
12. Nanocomposite Films with Magnetic Sensing Properties, M. Staruch and **M. Jain**, *Journal of Solid State Chemistry*, 214 (2014) 12.
13. Исследование динамики решетки макро-, микро-и наноструктурированного титаната бария методом спектроскопии комбинационного рассеяния света, О.А. Маслова, Ф.В. Широков,

Ю.И. Юзюк, M.El Marssi, **M. Jain**, N. Ortega, and R.S. Katiyar, *Физика твердого тела,* 2014, том 56, вып. 2.

14. Evidence of Antiferromagnetic and Ferromagnetic Superexchange Interactions in Bulk $TbMn_{1-x}Cr_xO_3$, M. Staruch and **M. Jain**, *Journal of Physics: Condensed Matter*, 26 (2014) 046005.

15. Study of Lattice Dynamics of Macro, Micro, and Nanostructured Barium Titanate by Raman Spectroscopy, O. A. Maslova, F. V. Shirokov, Yu. I. Yuzyuk, M. El Marssi, **M. Jain**, N. Ortega, and R. S. Katiyar, *Physics of the Solid State*, 56, (2014) 310.

16. Magnetic and Magnetocaloric Properties of Bulk $DyCrO_3$, A. McDannald, L. Kuna, and **M. Jain**, *Journal of Applied Physics*, 114, (2013) 113904.

17. Long-Range Magnetic Ordering in Bulk $Tb_{1-x}M_xMnO_3$ (M = Ca, Sr), M. Staruch and **M. Jain**, *Journal of Physics: Condensed Matter*, 25, (2013) 296005.

18. Magnetoelectric Coupling in Solution Derived 3-0 type $PbZr_{0.52}Ti_{0.48}O_3$:$xCoFe_2O_4$ Nanocomposite Films, A. McDannald , M. Staruch, G. Sreenivasulu, C. Cantoni, G. Srinivasan, and **M. Jain**, *Applied Physics Letters*, 102, (2013) 122905.

19. Magnetic and electronic structure of the film-stabilized Mott insulator $BaCrO_3$, Z. H. Zhu, F. J. Rueckert, J. I. Budnick, W. A. Hines, **M. Jain**, H. Zhang, and B. O. Wells, *Physical Review B*, 87, (2013) 195129.

20. Structural and Magnetic Properties of Multiferroic Bulk $TbMnO_3$, M. Staruch, D. Violette, and **M. Jain**, *Materials Chemistry and Physics*, 139, (2013) 897.

21. Effects of Holmium Substitution on Multiferroic Properties in $Tb_{0.67}Ho_{0.33}MnO_3$, M. Staruch , G. Lawes, A. Kumarasiri , L. F. Cótica, and **M. Jain**, *Applied Physics Letters*, 102, (2013) 062908.

22. Systematic Study of Magnetotransport Properties and Enhanced Low-field Magnetoresistance in thin films of $La_{0.67}Sr_{0.33}MnO_3$ + Mg(O), M. Staruch, C. Cantoni, and **M. Jain**, *Applied Physics Letters*, 102, (2013) 062416.

23. Synthesis and Characterization of Iron Substituted Hydroxyapatite via a Simple Ion-Exchange Procedure, E. Kramer, A. Morey-Oppenheim, M. Staruch, S. Suib, **M. Jain**, J. Budnick, and M. Wei, *J. Materials Science*, 48, (2013) 665.

24. ZnO/LSMO Nanocomposites for Energy Harvesting, R. Kinner, A-M. Azad, G. Srinivasan, G. Sreenivasulu, and **M. Jain**, *Smart Nanosystems in Engineering and Medicine*, 2, (2012) 1. ISSN: 2167-5813

25. Surface contributions to the alternating current and direct current magnetic properties of oleic acid coated $CoFe_2O_4$ nanoparticles, A. McDannald, M. Staruch, and **M. Jain**, *J. Applied Physics*, 112, (2012) 123916.

26. Low-field Magnetoresistance in $La_{0.67}Sr_{0.33}MnO_3$:ZnO composite film, M. Staruch, H. Gao, Pu-Xian Gao, and **M. Jain**, *Advanced Functional Materials,* 22, (2012) 3591.

27. Hierarchically-structured free-standing hydrogels with liquid crystalline domains and magnetic nanoparticles as dual physical crosslinkers, Y. Zhou, N. Sharma, P. Deshmukh, R. K. Lakhman, **M. Jain**, and R. Kasi, *J. American Chemical Society*, 134, (2012) 1630.

28. Simple and facile approach to synthesize magnetite nanoparticles and assessment of their effects on blood cells, L. F. Cótica, V. F. Freitas, G. S. Dias, I. A. Santos, S. C. Vendrame, N. M. Khalil, R. M. Mainardes, M. Staruch, and **M. Jain**, *J. Magnetism and Magnetic Materials*, 324, (2012) 559.

29. Structural and magnetic properties of $CoFe_2O_4$ and $Co_{0.5}Zn_{0.5}Fe_2O_4$ nanoparticles for the magnetoelectric composite films, M. Staruch, D. Hires, D. Violette, D. Navarathne, G. A. Sotzing, and **M. Jain**, *Integrated Ferroelectrics*, 131, (2011) 102.

30. Enhanced Low-field Magnetoresistance in $La_{0.67}Sr_{0.33}MnO_3$:MgO Composite Films, M. Staruch, D. Hires, A. Chen, Z. Bi, H. Wang, and **M. Jain**, *J. Applied Physics*, 110, (2011) 113913.

31. Magnetic study of the Co-MCM-41 catalyst: before and after reaction, A. M. Oppenheim, N. Li, W. A. Hines, D. M. Perry, **M. Jain**, G. L. Haller, and S. L. Suib, *J. Applied Physics*, 110, (2011) 103904.

32. $Pr_{0.6}Sr_{0.4}CoO_{3-\delta}$ electrocatalyst for solid oxide fuel cell cathode introduced via infiltration, S. Lee, N. Miller, M. Staruch, K. Gerdes, **M. Jain**, and A. Manivannan, *Electrochimica Acta*, 56, (2011) 9904.

33. Structure and magnetic properties of three-dimensional (La,Sr)MnO_3 nanofilms on ZnO nanorod arrays, H. Gao, M. Staruch, **M. Jain**, Pu-Xian Gao, P. Shimpi, Y. Guo, W. Cai, and Hui-jan Lin, *Applied Physics Letters*, 98, (2011) 123105.

34. Magnetotransport properties of $Pr_{0.5}Ca_{0.5}MnO_3$ thin films grown by a solution route, M. Staruch, L. Stan, J. H. Lee, H. Wang, J. I. Budnick, and **M. Jain**, *J. Applied Physics*, 110, (2011) 013921.

35. Fabrication of DNA–Magnetite Hybrid Nanofibers for Water Detoxification, D. Navarathne, Y. Ner, **M. Jain**, J. G. Grote, and G. A. Sotzing, *Materials Letters,* 65, (2011) 219.

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

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

38. Tensile strain effect on the superconductivity in FeSe thin films, Y. Nie, E. Brahimi, J. I. Budnick, W. A. Hines, **M. Jain**, and B. O. Wells, *Applied Physics Letters*, 94, (2009) 242505.

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

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

41. Composite Carbon Nanotube/Silica Fibers with Improved Mechanical Strengths and Electrical Conductivities, H. Peng, **M. Jain**, D. E. Peterson, Y. Zhu, and Q. X. Jia, *Small*, 4, (2008) 1964.

42. Strong and ductile colossal carbon tubes with walls of rectangular macro-pores, H. Peng, D. Chen, J. Y. Huang, S. B. Chikkannanavar, J. Hänisch, **M. Jain**, D. E. Peterson, S. K. Doorn, Y. Lu, Y. T. Zhu, and Q. X. Jia, *Physical Rev. Letters*, 101, (2008) 145501.

43. Ultrathin epitaxial superconducting niobium nitride films grown by a chemical solution technique, G. Zou, **M. Jain**, H. Zhou, H. Luo, S. A. Baily, L. Civale, E. Bauer. T. M. McClesky, A. K. Burrell, and Q. X. Jia, *Chemical Communications*, 10, (2008) 6022.

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

45. Leakage mechanisms of self-assembled $(BiFeO_3)_{0.5}$:$(Sm_2O_3)_{0.5}$ nanocomposite films, 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, *Applied Physics Letters*, 93, (2008) 142904.

46. Rectifying current-voltage characteristics of $BiFeO_3$/Nb-doped $SrTiO_3$ heterojunctions, 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, *Applied Physics Letters*, 92, (2008) 102113.

47. Mixed-valence perovskite thin films by polymer assisted deposition, **M. Jain**, E. Bauer, F. Ronning, M. F. Hundley, L. Civale, H. Wang, B. Maiorov, A. K. Burrell, T. M. McClesky, S. R. Foltyn, R. F. DePaula, and Q. X. Jia, *Special issue of the Journal of the American Ceramic Society*, 91, (2008) 1858. (Invited paper).

48. Vertically-aligned, pearl-like carbon nanotube arrays for fibre spinning, H. Peng, **M. Jain**, Q. Li, D. E. Peterson, Y. Zhu, and Q. X. Jia, *Journal of the American Chemical Society*, 130, (2007) 1130.

49. Self-assembled epitaxial nanocomposite $BaTiO_3$-$NiFe_2O_4$ films prepared by polymer-assisted deposition, 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, *Journal of the American Chemical Society*, 129, (2007) 14132.

50. High tunability of lead strontium titanate thin films using conductive $LaNiO_3$ as electrodes, **M. Jain**, N. K. Karan, J. Yoon, H. Wang, I. Usov, A. S. Bhalla, R. S. Katiyar, and Q. X. Jia, *Applied Physics Letters*, 91, (2007) 072908.

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

52. Temperature-dependent leakage mechanism of Pt/$BiFeO_3$/$SrRuO_3$ thin film capacitors, 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, *Applied Physics Letters*, 91, (2007) 072911.

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

54. Effective thickness and dielectric constant of interfacial layers at Pt/$Bi_{3.25}Nd_{0.75}Ti_3O_{12}$/$SrRuO_3$ capacitors, H. Yang, N. A. Suvorova, **M. Jain**, B. S. Kang, Y. Li, M. E. Hawley, P. C. Dowden, R. F. DePaula, and Q. X. Jia, *Applied Physics Letters*, 90, (2007) 232909.

55. Structural and ferromagnetic properties of epitaxial $SrRuO_3$ thin films grown by polymer-assisted deposition, H. M. Luo, **M. Jain**, S. A. Baily, R. F. DePaula, P. C. Dowden, L. Civale, Q. X. Jia, T. M. McCleskey, A. K. Burrell, and E. Bauer, *Journal of Physical Chemistry*: *B*, 111, (2007) 7497.

56. Manipulating magnetoresistance near room temperature in $La_{0.67}Sr_{0.33}MnO_3$/$La_{0.67}Ca_{0.33}MnO_3$ films prepared by polymer assisted deposition, **M. Jain**, P. Shukla, Y. Li, M. F. Hundley, H. Wang, S. R. Foltyn, A. K. Burrell, T. M. McCleskey, and Q. X. Jia, *Advanced Materials,* 18, (2006) 2695.

57. Effect of conductive $LaNiO_3$ electrode on the structural and ferroelectric properties of $Bi_{3.25}La_{0.75}Ti_3O_{12}$ Films, **M. Jain**, B. S. Kang, and Q. X. Jia, *Applied Physics Letters*, 89, (2006) 242903.

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

59. Synthesis and characterization of lead strontium titanate thin films by chemical solution technique, **M. Jain**, N. K. Karan, R. S. Katiyar, and A. S. Bhalla, *Integrated Ferroelectrics*, 82, (2006) 55.

60. Local symmetry breaking in $Pb_xSr_{1-x}TiO_3$ ceramics and composites studied by Raman spectroscopy, **M. Jain**, Y. I. Yuzyuk, R. S. Katiyar, Y. Somiya, and A. S. Bhalla, *Journal of Applied Physics,* 98, (2005) 24116.

61. Comparative studies of ferroelectric thin films for high frequency phase shifter applications, R. S. Katiyar, **M. Jain**, N. K. Karan, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Integrated Ferroelectrics*, 71, (2005) 11.

62. Investigations on sol-gel derived highly (100) oriented $Ba_{0.5}Sr_{0.5}TiO_3$:MgO composite thin films for phase shifter applications, **M. Jain**, S. B. Majumder, R. S. Katiyar, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Applied Physics A*, A80, (2005) 645.

63. $Pb_{0.3}Sr_{0.7}TiO_3$ thin film for high frequency phase shifter applications, **M. Jain**, N. K. Karan, R. S. Katiyar, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Applied Physics Letters*, 85, (2004) 275.

64. Fabrication of self-assembled nanostructures of microwave dielectrics, S. Bhattacharyya, **M. Jain**, N. K. Karan, and R. S. Katiyar, *Ceramic Transactions*, 162, (2004) 51.

65. Raman studies of $Pb_xSr_{1-x}TiO_3$ ceramics and composites, **M. Jain**, Y. I. Yuzyuk, R. S. Katiyar, Y. Somiya, and A. S. Bhalla, *Ferroelectrics*, 303, (2004) 159.

66. Raman spectroscopy of bulk and thin layer (Ba,Sr)TiO_3 Ferroelectrics, R. S. Katiyar, **M. Jain**, and Y. I. Yuzyuk, *Ferroelectrics*, 303, (2004) 101.

67. Structural and dielectric properties of heterostructured BST thin films by sol-gel technique, **M. Jain**, S. B. Majumder, R. S. Katiyar, and A. S. Bhalla, *Thin Solid Films*, 447-448, (2004) 537.

68. Tailoring of BST and MgO layers for phase shifter applications, **M. Jain**, S. B. Majumder, R. S. Katiyar, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Integrated Ferroelectrics*, 60 (2004) 59.

69. Dielectric properties and leakage current characteristics of sol-gel derived $(Ba_{0.5}Sr_{0.5})TiO_3$:$MgTiO_3$ thin film composites, **M. Jain**, S. B. Majumder, R. S. Katiyar, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Ferroelectrics Letters*, 30, (2003) 99.

70. Phase transition behavior of highly (100) textured sol-gel derived $Ba_{0.5}Sr_{0.5}TiO_3$ thin films, **M. Jain**, S. B. Majumder, R. S. Katiyar, and S. B. Desu, *Applied Physics A*, 77, (2003) 789.

71. Investigations on solution derived aluminum doped zinc oxide thin films, S. B. Majumder, **M. Jain**, P. S. Dobal, and R. S. Katiyar, *Materials Science and Engineering: B*, 103, (2003) 16.

72. Novel barium strontium titanate $(Ba_{0.5}Sr_{0.5})TiO_3$:MgO thin film composites for tunable microwave devices, **M. Jain**, S. B. Majumder, R. S. Katiyar, and A. S. Bhalla, *Materials Letters*, 57, (2003) 4232.

73. Improvement in electrical characteristics of graded manganese doped barium strontium titanate thin films, **M. Jain**, S. B. Majumder, R. S. Katiyar, F. A. Miranda, and F. W. Van Keuls, *Applied Physics Letters*, 82, (2003) 1911.

74. Dielectric properties of sol-gel derived MgO:$Ba_{0.5}Sr_{0.5}TiO_3$ thin film composites, **M. Jain**, S. B. Majumder, R. S. Katiyar, D. C. Agrawal, and A. S. Bhalla, *Applied Physics Letters*, 81, (2002) 3212.

75. Synthesis and characterization of lead strontium titanate thin films by sol-gel technique, **M. Jain**, S. B. Majumder, R. Guo, A. S. Bhalla, and R. S. Katiyar, *Materials Letters*, 56, (2002) 692.

76. Electrical characteristics of sol-gel derived (100) oriented $Ba_{0.5}Sr_{0.5}TiO_3$ thin films on $LaAlO_3$ (100) substrates, S. B. Majumder, **M. Jain**, A. Martinez, R. S. Katiyar, F. A. Miranda, F. W. Van Keuls, P. K. Sahoo, and V. N. Kulkarni, *Ferroelectrics*, 267, (2002) 409.

77. Evaluation of chemical solution deposited $Ba_xSr_{1-x}TiO_3$ thin films on $LaAlO_3$ for tunable microwave devices, F. W. Van Keuls, C. H. Mueller, R. R. Romanofsky, J. D. Warner, F. A. Miranda, S. B. Majumder, **M. Jain**, A. Martinez, R. S. Katiyar, and H. Jiang, *Integrated Ferroelectrics*, 42, (2002) 207.

78. Highly textured chemical solution deposited $Ba_{0.5}Sr_{0.5}Ti_{1-x}Mn_xO_3$ (x~0 to 5 at %) thin films for microwave dielectric applications, **M. Jain**, S. B. Majumder, A. Martinez, R. S. Katiyar, F. W. Van Keuls, and F. A. Miranda, *Integrated Ferroelectrics*, 42, (2002) 343.

79. Investigations on the optical properties of sol-gel derived lanthanum doped lead titanate thin films, S. B. Majumder, **M. Jain**, and R. S. Katiyar, *Thin Solid Films*, 402, (2002) 90.

80. Sol-gel derived grain oriented BST thin films for phase shifter applications, S. B. Majumder, **M. Jain**, A. Martinez, F. W. Van Keuls, F.A. Miranda, and R.S. Katiyar, *Journal of Applied Physics*, 90, (2001) 896.

81. Studies on the structural, microstructural and optical properties of sol-gel derived lead lanthanum titanate thin films, S. Bhaskar, S. B. Majumder, **M. Jain**, and R. S. Katiyar, *Materials Science and Engineering (B)*, 87, (2001) 178.

82. Growth and properties of $Sr_{1-x}Ba_xBi_2TaNbO_9$ materials and thin films, M. S. Tomar, R. E. Melgarejo, P. S. Dobal, **M. Jain**, and R. S. Katiyar, *Journal of Materials Science*, 36, (2001) 3919.

List of Publications in Conference Proceedings:

83. Temperature-dependent leakage mechanisms of $BiFeO_3$ films, H. Yang, **M. Jain**, H. Zhou, H. M. Luo, and Q. X. Jia, *IEEE International Symposium on Applications of Ferroelectrics*, 3, (2008) article number 4693776.

84. Tunable dielectric properties of lead strontium titanate thin films by sol-gel technique, **M. Jain**, N. K. Karan, J. Yoon, H. Wang, R. S. Katiyar, and Q. X. Jia, *IEEE International Symposium on Applications of Ferroelectrics*, 3, (2008) article number 4693842.

85. Sol-gel derived textured barium strontium titanate thin films for microwave dielectric applications, **M. Jain**, S. B. Majumder, R. S. Katiyar, and A. S. Bhalla, *Proceedings of the Electrochemical Society*, P2003-29, (2005) 131.

86. Investigations of $Pb_xSr_{1-x}TiO_3$ thin films and ceramics for microelectronic applications, **M. Jain**, Y. I. Yuzyuk, R. S. Katiyar, Y. Somiya, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Proceedings of the Materials Research Society Spring Meeting*, 811, (2004) D3.36.1.

87. Structural and electrical investigations of ferroelectric lead strontium titanate thin films and ceramics, **M. Jain**, P. Bhattacharya, Y. I. Yuzyuk, R. S. Katiyar, and A. S. Bhalla, *Proceedings of Materials Research Society Fall meeting*, 784, (2004) C11.15.1

88. Structural and vibrational properties of ferroelectric $Pb_{1-x}Sr_xTiO_3$ thin films and powders, **M.**

Jain, A. Savvinov, P. S. Dobal, S. B. Majumder, R. S. Katiyar, and A. S. Bhalla, *Materials Research Society Symposium Proceedings*, 748, (2003) U3.17.1.

89. Improved dielectric properties of heterostructured $Ba_{0.5}Sr_{0.5}TiO_3$ thin films for high frequency applications, **M. Jain**, S. B. Majumder, R. S. Katiyar, A. S. Bhalla, D. C. Agrawal, F. W. Van Keuls, F. A. Miranda, R. R. Romanofsky, and C. H. Mueller, *Materials Research Society Symposium Proceedings*, 748, (2003) U17.4.1.

90. Raman spectroscopy of ferroelectric thin films, R. S. Katiyar, A. Dixit, **M. Jain**, A. Savvinov, and P. S. Dobal, *Materials Research Society Symposium Proceedings*, 748, (2003) U8.10.1.

91. Investigations on sol-gel derived $Ba_{0.5}Sr_{0.5}Ti_{1-x}Mn_xO_3$ (x~0-5 at%) thin films for phase shifter applications, R. S. Katiyar, **M. Jain**, S. B. Majumder, R. R. Romanofsky, F. W. Van Keuls, and F. A. Miranda, *Proceedings of Materials Research Society*, 720, (2002) H2.1.1.

92. Process induced modification of the high frequency dielectric behavior of (100) Textured $Ba_xSr_{1-x}TiO_3$ (x=0.5 and 0.6) thin films, S. B. Majumder, **M. Jain**, A. Martinez, R. S. Katiyar, E. R. Fachini, F. W. Van Keuls, F. A. Miranda, P. K. Sahoo, and V. N. Kulkarni, *Proceedings of Materials Research Society*, 688, (2002) C7.8.1.

93. Growth, microstructure and micro-Raman studies of RF magnetron sputter deposited $SrBi_2Ta_2O_9$ and $SrBi_2TaNbO_9$ films, **M. Jain**, S. Sathiraju, and R. S. Katiyar, *Proceedings of Materials Research Society*, 580, (2000) 345.

List of Presentations:

1. Magnetoelectric and Magnetotransport Properties of Metal-Oxide Materials, **M. Jain***, University of Michigan*, Ann Harbor, MI, December 11th, 2015 **(Invited)**.

2. Magnetic properties and exchange interactions in rare-earth substituted $DyCrO_3$, A. McDannald and **M. Jain**, *Materials Science and Technology meeting, Columbus*, OH, October 4-8th 2015.

3. Magnetoelectric Multiferroics by Solution Methods, **M. Jain**, *Materials Science and Technology meeting*, Columbus, OH, October 4-8th 2015 **(Invited)**.

4. Ferroelectric and Magnetoelectric Properties of The Biphasic Nanocomposite Films, **M. Jain**, *Materials Science and Technology meeting*, Columbus, OH, October 4-8th 2015.

5. Magnetic, Magnetotransport, and Multiferroic Properties of Functional Metal-Oxide Materials, **M. Jain***, Los Alamos National Laboratory*, Los Alamos, NM, July 21st, 2015 **(Invited)**.

6. Single-Phase Bulk and Nanocomposite Films of Magnetoelectrics, **M. Jain,** *Materials Research Society Fall Meeting*, San Francisco, CA, April 6-10th, 2015 **(Invited)**.

7. Magnetic properties and exchange interactions in rare-earth substituted $DyCrO_3$, A. McDannald and **M. Jain**, *59th Annual Magnetism and Magnetic Materials Conference*, Honolulu, Hawaii, November 3rd-7th, 2014.

8. Physical Properties of Perovskite-Type Rare-Earth Manganites and Chromites, M. Jain, 2014 *ACerS-National Science Foundation Principle Investigator Workshop*, Fairfax, VA, June 17-18th 2014.

9. Determination of preferred c-axis orientation in thin films of $BaFe_{12}O_{19}$, R. G. Paranhos, D. Garcia, and **M. Jain**, *Yale-Rigaku Symposium*, New Haven, CT, June 6th, 2014.

10. Properties of Perovskite Based Functional Metal-Oxides and Nanocomposites Fabricated by solution techniques, **M. Jain**, *Rutgers University*, Piscataway, NJ, 15th April 2014 **(Invited)**.

11. The Magnetocaloric Effect in Manganites and Magnetic Refrigeration, L. Kuna, M. Staruch, A. McDannald, and **M. Jain**, *7th Annual Frontiers in Undergraduate Research Poster Exhibition*, University of Connecticut, CT, April 11-12th, 2014.

12. Magnetic Behavior of Rare-Earth Substituted Orthochromites, A. McDannald, L. Kuna, and **M. Jain**, *American Physical Society March Meeting*, Denver, CO, March 3rd- 7th, 2014.

13. Structural, Microstructural, and Magnetoelectric properties of PZT:CFO Nanocompsoite Thin Films, **M. Jain**, *Electronic Materials & Applications 2014 Conference*, Orlando, FL, January 23-25th, 2014 **(Invited)**.

14. Synthesis, Structural and Magnetic Characterization of $Dy_{1-x}R_xCrO_3$ (R = Y, Ho, Nd), A. McDannald, L. Kuna, and **M. Jain**, *Materials Research Society Fall Meeting*, Boston, MA, December 1st-3rd, 2013.

15. Properties of Perovskite Based Metal-Oxides and Nanocomposite Thin Films, **M. Jain**, *Materials Science & Technology 2013 Conference*, Montreal, Canada, October 27th-31st, 2013 **(Invited)**.

16. Nanocomposite Films with Sensing Properties, **M. Jain**, *7th International Conference on Materials for Advanced Technologies*, Singapore, June 30th-July 5th, 2013 **(Invited)**.

17. Single-Phase and Composite Magnetoelectric Multiferroics, **M. Jain**, *Materials Research Society Spring Meeting*, San Francisco, CA, April 1st-5th, 2013

18. Magnetoelectric Composite Thin Films by Mixed Solution Method, A. McDannald, M. Staruch, G. Srinivasan, G. Sreenivasulu, and **M. Jain**, *Materials Research Society Spring Meeting*, San Francisco, CA, April 1st-5th, 2013.

19. Complex Magnetic Interactions in A-site and B-site Doped Multiferroic $TbMnO_3$, M. Staruch and **M. Jain**, *American Physical Society Meeting*, Baltimore, MD, March 18th-22nd, 2013.

20. Perovskite $BaCrO_3$: completing a materials system with an anomalous Mott transition, Z. H. Zhu, F. J. Rueckert, J. I. Budnick, W. A. Hines, **M. Jain**, H. Zhang, and B. O. Wells, *American Physical Society Meeting*, Baltimore, MD, March 18th-22nd, 2013.

21. Nanocomposite Films With Low-Field Magnetoresistance or Magnetoelectric Properties, **M. Jain**, *37th International Conference and Expo on Advanced Ceramics and Composites*, Daytona Beach, FL, January 27th - February 1st, 2013 **(Invited)**.

22. Single Phase $RMnO_3$ & PZT-Ferrite Multiferroics, **M. Jain**, *International Workshop and symposium on Emerging Frontiers in Multiferroics and Electronic Metamaterials*, Pattaya, Thailand, December 9-10th, 2012 **(Invited)**.

23. Effects of Holmium Doping on the Multiferroic Properties of $TbMnO_3$, M. Staruch, A. Kumarasiri, G. Lawes, and **M. Jain**, *Materials Research Society Fall Meeting*, Boston, MA, November 25th-30th, 2012.

24. Magnetic Properties of $CoFe_2O_4$ Nanoparticles and magnetoelectric Properties of $PbZr_{0.52}Ti_{0.48}O_3$: $CoFe_2O_4$ Nanocomposite Films, A. McDannald, M. Staruch, G. Srinivasan, G. Sreenivasulu, and **M. Jain**, *Materials Research Society Fall Meeting*, Boston, MA, November 25th-30th, 2012.

25. Magnetic Properties of solution-grown $TbMnO_3$ thin films, M. Staruch, A. Chen, C. Li, H. Wang, L. Stan, and **M. Jain**, *Materials Research Society Spring Meeting*, San Francisco, CA, April 9th-13th, 2012.

26. Highly Aligned Carbon Nanotube Forests Coated by Superconducting NbC, G. Zou, H. M. Luo, Y. Zhang, **M. Jain**, A. Burrell, T. McCleskey, and Q. Jia, *Materials Research Society Spring Meeting*, San Francisco, CA, April 9th-13th, 2012.

27. Magnetoelectric Properties of $PbZr_{0.52}Ti_{0.48}O_3$:$CoFe_2O_4$ Composite Films, M. Staruch, A. McDannald, D. Navarathne, G. Sotzing, and **M. Jain**, *Materials Research Society Spring Meeting*, San Francisco, CA, April 9th-13th, 2012.

28. Low-Field Magnetoresistance of $La_{0.67}Sr_{0.33}MnO_3$:MgO Composite Films Grown by Solution Method, M. Staruch, D. Hires, and **M. Jain**, *Materials Research Society Fall Meeting*, Boston, MA, November 28th-December 2nd, 2011.

29. Synthesis and Characterization of Iron and Cobalt Substituted Hydroxyapatite Prepared by a Simple Ion Exchange Soaking Procedure, E. Kramer, **M. Jain**, J. Budnick, and M. Wei, *Materials Research Society Fall Meeting*, Boston, MA, November 28th- December 2nd, 2011.

30. Chemical Solution Routes to Fabricate Functional Materials, **M. Jain**, *International Workshop on Advances in Multifunctional, Multiferroic, Materials and Their Applications and the Meeting of the International Network for Advanced Multifuncitonal Materials*, Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil, November 4th-8th, 2011 **(Tutorial-Invited)**.

31. Ferroic and Multiferroic Thin Films and Composites, **M. Jain**, *International Workshop on Advances in Multifunctional, Multiferroic, Materials and Their Applications and the Meeting of the International Network for Advanced Multifuncitonal Materials*, Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil, November 4th-8th, 2011 **(Invited)**.

32. Functional Oxides: Development and Understanding for Applications, **M. Jain**, Graduate students' visitation day *Institute of Materials Science, University of Connecticut*, Storrs, CT, August 22nd, 2011.

33. Effects of Mn Doping on the Properties of Thin Films of $Pb_{0.3}Sr_{0.7}TiO_3$, M. Staruch, K. Cil, H. Silva, and **M. Jain**, *Materials Research Society Spring Meeting*, San Francisco, CA, April 25th-29th, 2011.

34. Iron-Substitution in Hydroxyapatite Using a Simple Ion Exchange Soaking Procedure, E. Kramer, M. Staruch, **M. Jain**, and M. Wei, *Society For Biomaterials Annual Meeting and Exposition*, Orlando, FL, April 13th-16th, 2011.

35. Magnetotransport in Pure and Nanocomposite Manganite Thin Films, **M. Jain**, *Electronic Materials and Applications*, Orlando, FL, January 19th-21st, 2011 **(Invited)**.

36. Synthesis of epitaxial metal-oxide films by polymer-assisted deposition, H. Luo, **M. Jain**, E. Bauer, A. Burrell, T. McCleskey, and Q. X. Jia, *Electronic Materials and Applications,* Orlando, FL, January 19th-21st, 2011.

37. Effects of Mn Doping on Structural and Electronic Properties of Thin Films of $Pb_{0.3}Sr_{0.7}TiO_3$, M. Staruch, H. Wang, and **M. Jain**, *Materials Science and Technology Meeting,* Houston, TX, October 17th-21st, 2010.

38. Multiferroic Research Activities at U Conn, **M. Jain**, *International Symposium on Multifunctionality of Ferroics and Multiferroics*, San Antonio, TX, October 15th – 16th 2010 **(invited)**.

39. Functional Oxide Materials, **M. Jain**, Graduate student's visitation day *Institute of Materials Science, University of Connecticut*, Storrs, CT, August 23rd, 2010.

40. Piezoelectrics: Smart Materials, **M. Jain**, Physics Club, University of Connecticut, Storrs, CT, April 8th, 2010 **(invited)**.

41. Substrate Effects on Magnetotransport Properties of the $Pr_{0.5}Ca_{0.5}MnO_3$ Thin Films, M. Staruch, J. I. Budnick, H. Wang, and **M. Jain**, and, *Materials Research Society Fall Meeting*, Boston, MA, November 30th-December 4th, 2009.

42. DNA Nanofiber Based Decontamination Membranes, D. Navarathne, Y. Ner, **M. Jain**, J. G. Grote, and G. A. Sotzing, *Materials Research Society Fall Meeting*, Boston, MA, November 30th-December 4th, 2009.

43. Functional Oxides: Development and Understanding for Applications, **M. Jain**, Graduate student's visitation day *Institute of Materials Science, University of Connecticut*, Storrs, CT, February 27th, 2009.

44. Superconductivity of Iron Selenide thin films, Y. Nie, E. Brahimi, J. I. Budnick, W.A. Hines, **M. Jain**, and B.O. Wells, *American Physical Society*, Pittsburgh, PA, March 16-20th, 2009.

45. Functional Oxide Materials: Structure-Property Correlations, **M. Jain**, *Institute of Materials Science Associate Program, University of Connecticut,* Storrs, CT, May 27th, 2009.

46. Solution approaches to grow perovskite metal-oxide thin films for devices, **M. Jain**, *Mechanical and Aerospace Engineering Department, West Virginia University*, Morgantown, WV, October 19th, 2008 **(invited)**.

47. Magnetotransport properties of the $Pr_{0.5}Ca_{0.5}MnO_3$ thin films grown by a solution technique, **M. Jain**, F. Ronning, J. D. Thompson, L. Stan, Q. X. Jia, J. Yoon, H. Wang, and C. B. Eom, *Materials Science and Technology*, Pittsburgh, PA, October 5-9th, 2008.

48. Self-assembled epitaxial multiferroic nanocomposite films prepared by polymer assisted deposition, H. Luo, H. Yang, S. A. Baily, O. Ugurlu, **M. Jain**, M. E. Hawley, E. Bauer, T. McCleskey, A. K. Burrell, L. Civale, T. G. Holesinger, and Q. X. Jia, *Materials Science and Technology*, Pittsburgh, PA, October 5-9th, 2008.

49. Connection of carbon-nanotubes to silicon using chemical route at room temperature, G. Zou, **M, Jain**, H. Zhou, D. Williams, M. Zhou, T. M. Mccleskey, A. K. Burrell, and Q. X. Jia, *American Chemical Society-236th National Meeting and Exposition*, Philadelphia, PA, August 17th-21st, 2008.

50. NbN films grown by chemical solution deposition, G. Zou, **M. Jain**, H. Luo, S. Baily, T. M. McCleskey, E. Bauer, A. K. Burrell, and Q. X. Jia, *American Physical Society March Meeting*, New Orleans, LA, March 10-14th, 2008.

51. Epitaxial growth of complex oxide films by a chemical solution method, Q. X. Jia, **M. Jain**, H. Luo, E. Bauer, H. Wang , A. K. Burrell, and T. M. McCleskey, *American Physical Society March Meeting*, New Orleans, LA, March 10-14th, 2008.

52. Perovskite ferroelectric thin films grown by polymer assisted deposition technique, **M. Jain**, E. Bauer, H. Yang, A. K. Burrell, T. M. McCleskey, R. F. DePaula, and Q. X. Jia, *Materials Research Society Spring Meeting*, San Francisco, CA, March 24-28th, 2008.

53. Tunable lead strontium titanate thin films by sol-gel technique, **M. Jain**, N. K. Karan, J. Yoon, H. Wang, R. S. Katiyar, and Q. X. Jia, *17th International Symposium on Applications of Ferroelectrics*, Santa Fe, NM, February 24-27th, 2008.

54. Temperature-dependent leakage mechanisms of $BiFeO_3$ films, H. Yang, **M. Jain**, H. M. Luo, D. M. Feldmann, P. C. Dowden, R. F. DePaula, S. R. Foltyn, and Q. X. Jia, *17th International Symposium on Applications of Ferroelectrics***,** Santa Fe, NM, February 24-27th, 2008.

55. Structural, dielectric, and electrical properties of relaxor $BaZr_xTi_{1-x}O_3$ thin films grown by polymer assisted deposition technique, **M. Jain**, E. Bauer, H. Yang, H. M. Luo, A. K. Burrell, T. M. McCleskey, R. F. DePaula, and Q. X. Jia, *Materials Research Society Fall Meeting*, Boston, MA, November 26-30th, 2007.

56. Dielectric properties of self-assembled $(BiFeO_3)_{0.5}$:$(Sm_2O_3)_{0.5}$ nanocomposite films. H. Yang, **M. Jain**, H. Wang, J. Yoon, P. C. Dowden, J. L. MacManus-Driscoll, and Q. X. Jia, *Materials Research Society Fall Meeting*, Boston, MA, 26-30th November, 2007.

57. Effective thickness and dielectric constant of interfacial layers of $Pt/Bi_{3.15}Nd_{0.85}Ti_3O_{12}/SrRuO_3$ capacitors. H. Yang, N. A. Suvorova, **M. Jain**, M. E. Hawley, P. C. Dowden, R. F. DePaula, C. J. Lu, and Q. X. Jia, *Materials Research Society Fall Meeting*, Boston, MA, November 26-30th, 2007.

58. Device concepts based on ferroics, **M. Jain**, *Electrical and Computer Engineering Department, University of Texas*, San Antonio, TX, November 19th, 2007 **(invited)**.

59. Physical properties of perovskite metal-oxide thin films, **M. Jain**, Department of Physics, University of Connecticut, Storrs, CT, September 27th, 2007 **(invited)**.

60. Solution approach for the growth of rare earth manganite thin films, **M. Jain**, F. Ronning, M. F. Hundley, T. Park, J. D. Thompson, A. K. Burrell, T. M. McCleskey, B. Maiorov, L. Civale, and Q. X. Jia, *Materials Science and Technology 2007 Conference and Exhibition,* Detroit, MI, September 16-20th, 2007 **(invited)**.

61. Chemical solution approach for the growth of a variety of electronic oxide thin films, **M. Jain**, F. Ronning, M. F. Hundley, A. K. Burrell, T. M. McCleskey, B. Maiorov, L. Civale, A. S. Bhalla, R. S. Katiyar, and Q. X. Jia, *Materials Science and Technology 2007 Conference and Exhibition,* Detroit, MI, September 16-20th, 2007 **(invited)**.

62. Physical properties of perovskite thin films, **M. Jain**, *Department of Physics, University of Tuskegee*, Tuskegee, AL, July 18th, 2007 **(invited)**.

63. Novel approach to grow metal-oxide films for electronic devices, Q. X. Jia, **M. Jain**, Y. Lin, H. Luo, A. K. Burrell, and T. M. McCleskey*, International Conference on Materials for Advanced Technology*, Singapore, July 1-6th, 2007.

64. Magnetoresistance in the multilayer-coated films of hole doped lanthanum manganites grown by polymer assisted deposition, **M. Jain**, P. Shukla, Y. Li, M. F. Hundley, A. K. Burrell, T. M. McCleskey, R. F. DePaula, and Q. X. Jia, *Materials Research Society Spring Meeting*, San Francisco, CA, April 9-13th, 2007.

65. Polymer-assisted deposition of epitaxial $SrRuO_3$ thin films, H. Luo, **M. Jain**, R. F. DePaula, T. M. McCleskey, A. K. Burrell, and Q. X. Jia, *Materials Research Society Spring Meeting*, San Francisco, CA, April 9-13th, 2007.

66. Conduction mechanisms of $BiFeO_3$ thin films, H. Yang, **M. Jain**, B. S. Kang, Y. Li, R. F. DePaula, and Q. X. Jia, *Materials Research Society Spring Meeting*, San Francisco, CA, April 9-13th, 2007.

67. Chemical solution approaches for the growth of a variety of electronic oxide thin films, **M. Jain**, *Materials Science and Technology Division,* Los Alamos National Laboratory, Los Alamos, NM, March 20th, 2007 **(invited)**.

68. Electrical transport and magnetic behavior of $Pr_{0.5}Ca_{0.5}MnO_3$ films grown by chemical solution deposition technique, **M. Jain**, Q. X. Jia, F. Ronning, T. Park, and J. D. Thompson, *American Physical Society March Meeting*, Denver, CO, March 5-9th, 2007.

69. Ferroelectric properties of lanthanum and praseodymium doped bismuth titanate thin films, **M. Jain**, B. S. Kang, and Q. X. Jia, *American Physical Society March Meeting*, Denver, CO, March 5-9th, 2007.

70. Structural and magnetic properties of ferromagnetic metal-oxide films grown by polymer assisted deposition, **M. Jain**, P. Shukla, M. F. Hundley, A. K. Burrell, T. M. McCleskey, and Q. X. Jia, A*merican Physical Society March Meeting*, Denver, CO, March 5-9th, 2007.

71. Comparative studies on dielectric and electrical properties of $Pb_{0.3}Sr_{0.7}TiO_3$ thin films prepared on different substrates, **M. Jain**, N. K. Karan, Q. X. Jia, A. S. Bhalla, and R. S. Katiyar, *Materials Science and Technology 2006 Conference and Exhibition,* Cincinnati, OH, October 15-19th, 2006.

72. Chemical solution approach for the growth of a variety of electronic oxide thin films, **M. Jain**, P. Shukla, Y. Li, M. F. Hundley, B. Maiorov, L. Civale, A. K. Burrell, T. M. McCleskey, A. S. Bhalla, R. S. Katiyar, and Q. X. Jia, *Materials Science and Technology 2006 Conference and Exhibition,* Cincinnati, OH, October 15-19th, 2006 **(invited)**.

73. Metal-oxide films grown by a chemical solution deposition technique, Q. X. Jia, Y. Lin, **M. Jain**, P. Shukla, A. K. Burrell, and T. M. McCleskey, *Materials Science and Technology 2006 Conference and Exhibition,* Cincinnati, OH, October 15-19th, 2006.

74. Tunable dielectric and electrical properties of $PbSrTiO_3$ thin films, N. K. Karan, **M. Jain**, A. S. Bhalla, R. S. Katiyar, and Q. X. Jia, *15th International Symposium on the Applications of Ferroelectrics,* Sunset Beach, NC, July 30th-August 2nd, 2006.

75. Ferroelectric properties of $Bi_{3.25}La_{0.75}Ti_3O_{12}$ films deposited on various substrates with $LaNiO_3$ films as bottom electrode, **M. Jain**, B. S. Kang, Y. Li, and Q. X. Jia, *15thInternational Symposium on the Applications of Ferroelectrics,* Sunset Beach, NC, July 30th-August 2nd, 2006.

76. Magnetoresistance and transport-magnetism correlations in hole-doped lanthanum Manganites grown by polymer assisted deposition, **M. Jain**, P. Shukla, Y. Li, B. Maiorov, M. F. Hundley, M. E. Hawley, A. K. Burrell, T. M. McCleskey, L. Civale, and Q. X. Jia, *Materials Research Society Spring Meeting,* San Francisco, CA, April 17th-21st, 2006.

77. Chemical solution deposition techniques and perovskite ferroelectric films for tunable high frequency devices, **M. Jain**, *Superconductivity Technology Centre, Los Alamos National Laboratory*, Los Alamos, NM, July 19th, 2005 **(invited)**.

78. Tunable dielectric properties of ferroelectric thin films for tunable microwave devices, **M. Jain**, N. K. Karan, R. S. Katiyar, and A. S. Bhalla, *107th Annual Meeting and Exposition of the American Ceramic Society,* Baltimore, MD, April 10th-13th, 2005.

79. Raman spectroscopy of stress effects in perovskite ferroelectric thin films and superlattices, R. S. Katiyar, **M. Jain**, R. R. Das, P. Bhattacharya, and Y. I. Yuzyuk, *107th Annual Meeting and Exposition of the American Ceramic Society,* Baltimore, MD, April 10th-13th, 2005.

80. Ferroelectric thin films and composites for tunable microwave devices**, M. Jain**, N. K. Karan, R. S. Katiyar, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Materials Research Society Fall Meeting,* Boston, MA, November 29th-December 3rd, 2004.

81. Tailoring of Perovskite Ferroelectric Thin Films for Tunable Microwave Devices, R.S. Katiyar, **M. Jain**, A.S. Bhalla, F.A. Miranda, and F.W. Van Keuls, *XIII International Materials Research Congress,* Cancun, Mexico, August 22nd-26th, 2004.

82. Tailoring of perovskite ferroelectric thin films for tunable microwave devices, R. S. Katiyar, **M. Jain**, S. B. Majumder, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *106th Annual Meeting & Exposition of the American Ceramic Society*, Indianapolis, IN, April 18th-21st, 2004.

83. Temperature Induced self-assembled nanostructured microwave dielectrics, **M. Jain**, S. Bhattacharyya, and R. S. Katiyar, *106th Annual Meeting & Exposition of The American Ceramic Society*, Indianapolis, IN, April 18th-21st, 2004.

84. BST/MgO heterostrutured thin films with high figure of merit for tunable microwave devices, **M. Jain**, S. B. Majumder, R. S. Katiyar, and A. S. Bhalla, *Annual APS March Meeting*, Montreal, Canada, March 22nd-26th, 2004.

85. Investigations of $Pb_xSr_{1-x}TiO_3$ thin films and ceramics for microelectronic applications, **M. Jain**, Y. I. Yuzyuk, R. S. Katiyar, Y. Somiya, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Materials Research Society Spring Meeting*, San Francisco, CA, April 12-16th, 2004.

86. Enhanced dielectric and electrical properties of BST heterostructured thin films by sol-gel technique for phase shifter applications, **M. Jain**, S. B. Majumder, R. S. Katiyar, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Materials Research Society Spring Meeting*, San Francisco, CA, April 12-16th, 2004.

87. Tailoring of dielectric properties of ferroelectric films with low loss dielectric material by sol-gel technique, **M. Jain**, S. B. Majumder, R. S. Katiyar, A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *Materials Research Society Fall Meeting*, Boston, MA, December 1st-5th, 2003.

88. Structural and electrical investigations of ferroelectric lead strontium titanate thin films and ceramics, **M. Jain**, P. Bhattacharya, Y. I. Yuzyuk, R. S. Katiyar, and A. S. Bhalla, *Materials Research Society Fall Meeting*, Boston, MA, December 1st-5th, 2003.

89. Investigations of $Pb_xSr_{1-x}TiO_3$ thin films and ceramics for microelectronic applications, **M. Jain**, Y. I. Yuzyuk, R. S. Katiyar, and A. S. Bhalla, *15th AAAS and Puerto Rico EPSCoR Annual Meeting*, Condado, PR, November 19th-23rd, 2003.

90. Heterostructured BST:MgO thin films for phase shifter applications, **M. Jain**, S. B. Majumder, R. S. Katiyar A. S. Bhalla, F. A. Miranda, and F. W. Van Keuls, *15th AAAS and Puerto Rico EPSCoR Annual Meeting*, Condado, PR, November 19th-23rd, 2003.

91. Sol-gel derived textured barium strontium titanate thin films for microwave dielectric applications, R. S. Katiyar, **M. Jain**, S. B. Majumder, and A. S. Bhalla, *204th Electrochemical Society meeting*, Orlando, FL, October 12-16th, 2003.

92. Raman Studies of $Pb_{1-x}Sr_xTiO_3$ Ceramics and Composites, **M. Jain**, Yu. I. Yuzyuk, R.S. Katiyar, Y. Somiya, and A.S. Bhalla, *10th European Meeting on Ferroelectricity*. Cambridge, UK, August 3-8th, 2003.

93. Structural and dielectric properties of heterostructured BST thin films by sol-gel technique, **M. Jain**, S. B. Majumder, and R. S. Katiyar, *International Conference on Metallurgical Coatings and Thin Films,* San Diego, CA, April 28th-May 2nd, 2003.

94. Dielectric and electrical properties of $(Ba_{0.5}Sr_{0.5})TiO_3$:$MgTiO_3$ thin film composites for tunable microwave devices, **M. Jain**, S. B. Majumder, R. S. Katiyar, and A. S. Bhalla, *105th Annual Meeting & Exposition of The American Ceramic Society***,** Nashville, TN, April 27-30th, 2003.

95. Structural and dielectric properties of heterostructured $Ba_{0.5}Sr_{0.5}TiO_3$:MgO thin films by sol-gel technique, **M. Jain**, S. B. Majumder, R. S. Katiyar, and A. S. Bhalla, *The 15th International Symposium on Integrated Ferroelectrics,* Colorado Springs, CO, March 9-12th, 2003.

96. Microstructural and vibrational properties of ferroelectric $Pb_{1-x}Sr_xTiO_3$ thin films and powders, **M. Jain**, A. Savvinov, P. S. Dobal, S. B. Majumder, R. S. Katiyar, and A. S. Bhalla, *Materials Research Society Fall Meeting*, Boston, MA, December 2nd-6th, 2002.

97. Improved dielectric properties of heterostructured $Ba_{0.5}Sr_{0.5}TiO_3$ thin film composites for microwave dielectric devices, **M. Jain**, S. B. Majumder, R. S. Katiyar, A. S. Bhalla, D. C. Agrawal, V. N. Kulkarni, F. W. Van Keuls, F. A. Miranda, R. R. Romanofsky, C. H. Mueller, and F. Fernandez, *Materials Research Society Fall Meeting*, Boston, MA, December 2nd-6th, 2002.

98. Sol-gel derived and modified $Ba_{0.5}Sr_{0.5}TiO_3$ thin films for high frequency applications, **M. Jain**, S. B. Majumder, R. S. Katiyar, R. R. Romanofsky, F. W. Van Keuls, and F. A. Miranda, *PASI Science and Technology of Ferroelectric Materials*, Rosario, Argentina, September 23rd-October 2nd, 2002.

99. Sol-gel derived $Ba_xSr_{1-x}TiO_3$ thin films for microwave dielectric applications, **M. Jain**, S. B. Majumder, R. S. Katiyar, R. R. Romanofsky, F. W. Van Keuls, and F. A. Miranda, *14th AAAS & Puerto Rico EPSCoR Annual Meeting*, Dorado, PR, May 17-19th, 2002.

100. Phase transition behaviour of highly (100) textured sol-gel derived barium strontium titanate thin films for phase shifter applications, **M. Jain**, S. B. Majumder, and R. S. Katiyar, *104th Annual Meeting of the American Ceramic Society,* St. Louis, MO, April 28th-May 1st, 2002.

101. Investigations on sol-gel derived transition metal doped (100) oriented BST (50/50) thin film phase shifter applications, R. S. Katiyar, **M. Jain**, S. B. Majumder, F. W. Keuls, and F. A. Miranda, *Materials Research Society Spring Meeting*, San Francisco, CA, April 1st-5th, 2002.

102. Highly oriented sol-gel derived $MgO/Ba_{0.5}Sr_{0.5}TiO_3$ mutlilayer thin films for tunable microwave devices, **M. Jain**, S. B. Majumder, R. S. Katiyar, P. K. Sahoo, and V. N. Kulkarni, *American Physical Society Meeting*, Indianapolis, IN, March 18th-22nd, 2002.

103. Process induced modification of the high frequency dielectric behavior of (100) textured $Ba_xSr_{1-x}TiO_3$ (x = 0.5 and 0.6) thin films, S. B. Majumder, **M. Jain**, A. Martinez, R. S. Katiyar, E. R. Fachini, F. W. Van Keuls, F. A. Miranda, P. K. Sahoo, and V. N. Kulkarni, *Materials Research Society Fall Meeting*, Boston, MA, November 26-30th, 2001.

104. Barium strontium titanate thin films for microwave dielectric applications, **M. Jain**, S. B. Majumder, R. S. Katiyar, F. W. Van Keuls, and F. A. Miranda, *1st Congress on Integrating NASA Research and Education Projects in Puerto Rico*, Dorado, PR, November, 14-17th, 2001.

105. Electrical characteristics of sol-gel derived (100) oriented $Ba_{0.5}Sr_{0.5}TiO_3$ thin films on $LaAlO_3$ (100) substrates, S. B. Majumder, **M. Jain**, A. Martinez, R. S. Katiyar, F. A. Miranda, F. W. Van Keuls, P. K. Sahoo, and V. N. Kulkarni, *10th International Meeting on Ferroelectricity*, Madrid, Spain, September 3rd-7th, 2001.

106. Highly textured chemical solution deposited $Ba_{0.5}Sr_{0.5}Ti_{1-x}MnO_3$ (x~ 0 to 5 at %) thin films for microwave dielectric applications. **M. Jain**, S. B. Majumder, A. Martinez, R. S. Katiyar, F. W. Van Keuls, and F. A. Miranda, *2nd Ferroelectric Workshop Puerto Rico 2001,* San Juan, PR, June 1st-2nd, 2001.

107. Synthesis and characterization of chemical solution derived aluminium doped zinc oxide thin films for transparent conducting electrodes, **M. Jain,** S. B. Majumder, S. B. Krupanidhi, and R. S. Katiyar, *The ICMCTF Conference*, San Diego, CA, April 30th–May 4th, 2001.

108. Sol-gel derived highly textured $Ba_{0.5}Sr_{0.5}Ti_{1-x}Mn_xO_3$ (x~0 to 5 at %) thin films for microwave dielectric applications, **M. Jain**, S. B. Majumder, A. Martinez, F. W. Van Keuls, F. A. Miranda, and R. S. Katiyar, 13th *AAAS & Puerto Rico EPSCoR Annual Meeting*, Dorado, PR, April 20th–22nd, 2001.

109. Optical and electrical studies of nano-crystalline ZnO thin films, S. B. Majumder, **M. Jain**, W. Jia, S. B. Krupanidhi, and R. S. Katiyar *American Physical Society*, Seattle, WA, March 12-16th, 2001.

110. Growth, microstructure, and micro-Raman studies of RF magnetron sputter deposited $SrBi_2Ta_2O_9$ and $SrBi_2TaNbO_9$ films, **M. Jain**, S. Sathiraju, and R. S. Katiyar, *Materials Research Society Fall Meeting,* Boston, MA, November 29th-December 3rd, 1999.