

Yogesh Sharma

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Professional Preparation

2016.08–	Post-doctoral Research Associate —Materials Science & Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA.
2015.08–2016.04	Visiting Research Associate —3D Visualization Group, Materials Science Division, Argonne National Laboratory, USA
2012.08–2016.07	Ph.D. Chemical Physics—Department of Physics and Institute for Functional Nanomaterials, University of Puerto Rico, Puerto Rico, USA
2010.07–2012.06	M. Tech. Materials Science—Indian Institute of Technology-Kanpur (IIT-K), Kanpur, India
2007.07-2009.06	M. S. Physics—University of Kota, Rajasthan, India (University Gold Medal Award)
2006.07-2007.06	B. Ed. Education—University of Kota, Rajasthan, India
2003.07-2006.06	B. S. Physics and Mathematics—University of Kota, Rajasthan, India

Awards and Honors

- Recipient of NSF Fellowship, University of Puerto Rico, 2014–2016.
- Dean of Graduate Student & Research, University of Puerto Rico Travel Award 2015.
- Indian government (MHRD) Scholarship Award, 2010–2012.
- Council of Scientific & Industrial Research (CSIR) and University Grant Commission (UGC) India, National Eligibility Test CSIR-UGC-NET Award (2010).
- University Gold Medal Award in M.S. (Physics) 2009.
- Dr. H.S. Ekbote Scholarship Award for Securing 1st Rank in M.S (Physics) 2008.

Leadership

- Mentoring: Mentored undergraduate and high school students, and oversaw completion of scientific projects for graduate researchers,
- Effective collaboration with more than 15 research groups.
- Service/Outreach:
 - Departmental Placement Co-ordinator—Materials Science Department, IIT-K, India (2011-12).
 - Student Counsellor—Counselling Services, IIT-Kanpur, India (2011-12).
 - President—C.V. Raman Physics Association, Department of Physics, Govt. College Kota, India (2008-2009).
 - Student Representative—Campus Development Committee, Govt. College Kota, India (2008-2009).

Conference Presentations

Invited Talk

International Union of Materials Research Societies-International Conference on Electronic Materials (IUMRS-ICEM) Meeting, Daejeon, South Korea, August 2018.

Contributed Talks

Materials Research Society—MRS Fall Meetings (3 as speaker)

American Physical Society—APS March Meetings (2 as speaker)

The electrochemical Society—ECS Meetings (2 as speaker)

International Meeting on Ferroelectricity—IMF-2017 Meeting (1 as speaker)

Electronic Materials and Applications—EMA-2019 Meeting (1 as speaker)

Publications

First Author Publications: 13

Total Refereed Publications: 30

Submitted

[30] Y. Sharma, A. T. Wong, A. Herklotz, D. Lee, A.V. Ievlev, H. N. Lee, S. Dai, L. Collins, N. Balke, P. D. Rack, and T. Z. Ward, *Ionic Gating of Ultra-Thin and Leaky Ferroelectric Films* (2018).

[29] A. Huon, A. M. Vibhakar, A. J. Grutter, J. A. Borchers, S. Disseler, Y. Liu, W. Tian, F. Orlandi, P. Manuel, D. D. Khalyavin, Y. Sharma, A. Herklotz, H. N. Lee, M. R. Fitzsimmons, R. D. Johnson, and S. J. May, *Helical magnetism in Sr-doped CaMn₇O₁₂ films* (2018)

Published Articles

[28] A. Herklotz, Z. Gai, Y. Sharma, S. F. Rus, L. Sun, J. Shen, P. D. Rack, and T. Z. Ward, *Designing Magnetic Anisotropy through Strain Doping*, ***Advanced Science***, 1800356 (2018).

[27] Y. Sharma, J. Balachandran, C. Sohn, J. T. Krogel, P. Ganesh, L. Collins, A.V. Ievlev, Q. Li, X. Gao, N. Balke, O. Ovchinnikova, S. Kalinin, O. Heinonen, and H. N. Lee, *Nanoscale Control of Oxygen Defects and Metal-Insulator Transition in Epitaxial Vanadium Dioxides* ***ACS Nano*** 12, 7159 (2018).

[26] Y. Sharma, B. L. Musico, X. Gao, C. Hua, A. F. May, A. Herklotz, A. Rastogi, D. Mandrus, J. Yan, H. N. Lee, M. F. Chisholm, V. Keppens, and T. Z. Ward, *Single-crystal high entropy perovskite oxide epitaxial films*, ***Phys. Rev. Materials*** 2, 060404(R) (2018).

[25] R. Agarwal, Y. Sharma, S. Hong, and R. S. Katiyar, *Modulation of oxygen vacancies assisted ferroelectric and photovoltaic properties of (Nd, V) co-doped BiFeO₃ thin films*, ***J. Phys. D: Appl. Phys.*** 51, 275303 (2018).

[24] R. Agarwal, Y. Sharma, S. Chang, K. C. Pitike, C. Sohn, S. M. Nakhmanson, C. G. Takoudis, H. N. Lee, R. Tonelli, J. Gardner, J. F. Scott, R. S. Katiyar, S. Hong, *Room-temperature relaxor ferroelectricity and photovoltaic effects in tin titanate directly deposited on a silicon substrate*, ***Phys. Rev. B*** 97, 054109 (2018).

[23] B. Kim, F. P. Barrows, Y. Sharma, R. S. Katiyar, C. Phatak, A. K. Petford-Long, S. Jeon, and S. Hong, *Ferroelectric Domain Studies of Patterned (001) BiFeO₃ by Angle-Resolved Piezoresponse Force Microscopy*, ***Scientific Reports*** 8, 203 (2018).

- [22] J. Song, B. M. Hudak, H. Sims, Y. Sharma, T. Z. Ward, S. T. Pantelides, A. R. Lupini, and P. C. Snijders, *Homo-endotaxial one-dimensional Si nanostructures*, **Nanoscale** 10, 260 (2018).
- [21] Y. Sharma, R. Agarwal, C. Phatak, B. Kim, S. Jeon, R. S. Katiyar, and S. Hong, *Long-range Stripe Nanodomains in Epitaxial (110) BiFeO₃ Thin Films on (100) NdGaO₃ Substrate*, **Scientific Reports** 7, 4857 (2017).
- [20] A. T. Wong, J. H. Noh, P. R. Pudasaini, B. Wolf, N. Balke, A. Herklotz, Y. Sharma, A. V. Haglund, S. Dai, D. Mandrus, P. D. Rack, and T. Z. Ward, *Impact of gate geometry on ionic liquid gated ionotronic systems*, **APL Materials** 5, 042501 (2017).
- [19] Y. Sharma, R. Martinez, R. Agarwal, D. Barrionuevo, R. K. Katiyar, A. Kumar, and R. S. Katiyar, *Studies on structural, optical, magnetic, and resistive switching properties of doped BiFe_{1-x}Cr_xO₃ thin films*, **J. Appl. Phys.** 120, 194101 (2016).
- [18] Y. Sharma, S. Sahoo, A. K. Mishra, P. Misra, S.P. Pavunny, A. Dwivedi, S. M. Sharma, and R. S. Katiyar, *Structural Phase Transition of Ternary Dielectric SmGdO₃: Evidence from ADXRD and Raman Spectroscopic Studies*, **J. Appl. Phys.** 117, 094101 (2015).
- [17] Y. Sharma, S. P. Pavunny, E. Fachini, J. F. Scott, and R. S. Katiyar, *Nonpolar resistive memory switching with all four possible resistive switching modes in amorphous ternary rare-earth LaHoO₃ thin films*, **J. Appl. Phys.** 118, 094506 (2015).
- [16] Y. Sharma, P. Misra, D. G. B. Diestra, R. Chatterjee, and R. S. Katiyar, *Room temperature weak multiferroism and magnetodielectric effect in highly oriented (Y_{0.9}Bi_{0.1})(Fe_{0.5}Cr_{0.5})O₃ thin films*, **Materials Research Bulletin** 68, 49–53 (2015).
- [15] Y. Sharma, D. G. B. Diestra, R. Agarwal, S. P. Pavunny, and R. S. Katiyar, *Ferroelectricity in rare-earth modified hafnia thin films deposited by sequential pulsed laser deposition*, **ECS Solid State Letters** 4, 11 (2015).
- [14] R. K. Katiyar, Y. Sharma, D. G. B. Diestra, S. Kooriyattil, S. P. Pavunny, J. S. Young, G. Morell, B. R. Weiner, R. S. Katiyar, and J. F. Scott, *Ferroelectric photovoltaic properties in doubly substituted (Bi_{0.9}La_{0.1})(Fe_{0.97}Ta_{0.03})O₃ thin films*, **Appl. Phys. Lett.** 106, 082903 (2015).
- [13] R. Agarwal, Y. Sharma, and R. S. Katiyar, *Switchable photovoltaic and polarization modulated rectification in Si-integrated Pt/(Bi_{0.9}Sm_{0.1})(Fe_{0.97}Hf_{0.03})O₃/LaNiO₃ heterostructures*, **Appl. Phys. Lett.** 107, (2015).
- [12] S. P. Pavunny, Y. Sharma, S. Kooriyattil, S. Dugu, R. K. Katiyar, J. F. Scott, and R. S. Katiyar, *Holmium hafnate: An emerging electronic device material*, **Appl. Phys. Lett.** 106, 112902 (2015).
- [11] S. Dugu, S. P. Pavunny, Y. Sharma, J. F. Scott, and R. S. Katiyar, *Disorder driven structural and dielectric properties of silicon substituted strontium titanate*, **J. Appl. Phys.** 118, 034105 (2015).
- [10] P. Misra, Y. Sharma, G. Khurana, and R. S. Katiyar, *Resistive Switching Characteristics of Mixed Oxides*, **Emerging Materials Research** 4, 18 (2015). (Review Article)

- [9] [Y. Sharma](#), P. Misra, S. P. Pavunny, and R. S. Katiyar, *Multilevel unipolar resistive memory switching in amorphous SmGdO₃ thin film*, ***Appl. Phys. Lett.*** 104, 073501 (2014).
- [8] [Y. Sharma](#), P. Misra, and R. S. Katiyar, *Unipolar resistive switching behavior of amorphous YCrO₃ films for non-volatile memory applications*, ***J. Appl. Phys.*** 116, 084505 (2014).
- [7] [Y. Sharma](#), S. Sahoo, W. Perez, S. Mukherjee, R. Gupta, A. Garg, R. Chatterjee, and R. S. Katiyar, *Phonons and magnetic excitation correlations in weak ferromagnetic YCrO₃*, ***J. Appl. Phys.*** 115 (2014).
- [6] [Y. Sharma](#), P. Misra, R. K. Katiyar and R. S. Katiyar, *Photovoltaic Effect and Enhanced Magnetization in 0.9(BiFeO₃)-0.1(YCrO₃) Composite Thin Films Fabricated Using Sequential Pulsed Laser Deposition*, ***J. Phys. D: Appl. Phys.*** 47, 425303(2014).
- [5] R. K. Katiyar, [Y. Sharma](#), P. Misra, V. S. Puli, S. Sahoo, A. Kumar, J. F. Scott, G. Morell, B. R. Weiner, and R. S. Katiyar, *Studies of the switchable photovoltaic effect in co-substituted BiFeO₃ thin films*, ***Appl. Phys. Lett.*** 105, 172904 (2014).
- [4] P. Misra, S. P. Pavunny, [Y. Sharma](#), and R. S. Katiyar, *Resistive Switching and Current Conduction Mechanisms in Amorphous LaLuO₃ Thin Films Grown by Pulsed Laser Deposition*, ***Integrated ferroelectrics*** 157, 47 (2014).

Conference Proceedings

- [3] [Y. Sharma](#), S. P. Pavunny, J. F. Scott, and R. S. Katiyar, *Non-Volatile Resistive Memory Switching in Pulsed Laser Deposited Rare-Earth Gallate-GdGaO₃ Thin Films*, ***ECS Transactions*** 66, 287 (2015).
- [2] [Y. Sharma](#), P. Misra, S. P. Pavunny, and Ram S. Katiyar, *Unipolar resistive switching behavior of high-k ternary rare-earth oxide LaHoO₃ thin films for non-volatile memory applications*, ***Materials Research Society (MRS), conference proceedings.1729, 23*** (2015).
- [1] [Y. Sharma](#), P. Misra, and R. S. Katiyar, *Structural and Electrical Characteristics of Ternary Oxide SmGdO₃ for Logic and Memory Devices*, ***Materials Research Society (MRS) Proceedings***, 1633, 111 (2014).

Reviewer Activity

Applied Physics Letters
 Scientific Reports
 Journal of Applied Physics
 APL Materials
 Inorganic Chemistry
 Materials
 Applied Surface Science