

Bharat Jalan

Department of Chemical Engineering and Materials Science

University of Minnesota

46 Amundson Hall, 421 Washington Ave, University of Minnesota, Minneapolis, MN 55455

Tel: (612) 625-4088; Fax: (612) 626-7246

E-mail: bjalan@umn.edu, Group Webpage: <http://research.cems.umn.edu/jalan>

Academic Rank

2017-present	Associate Professor, Department of Chemical Engineering and Materials Science, University of Minnesota
2011-2017	Assistant Professor, Department of Chemical Engineering and Materials Science, University of Minnesota
2016-Present	Graduate Faculty Appointment in the School of Physics and Astronomy, University of Minnesota

Education

2006-2011	PhD, Materials Department, University of California, Santa Barbara, CA
2001-2006	Bachelor/Master, Materials Science and Engineering, IIT Madras, India

Honors and Awards

2017	AVS Paul Holloway Young Investigator Award, Tampa, Florida USA
2017	American Association for Crystal Growth Young Author Award, Santa Fe, USA
2017	Emerging Young Investigator recognized by the Royal Society of Chemistry
2016	International MBE Young Investigator Award, Montpellier, France
2016	AFOSR Young Investigator Award
2011	DMP Iris Ovshinsky Award, APS March Meeting, Dallas, USA
2010	Graduate Student Gold Award - Materials Research Society, San Francisco, USA
2010	Best Student MBE Award - 16 th International MBE Conference, Berlin, Germany
2009	Young Scientist Award - 36 th Conf. on the Phys. and Chem. of Surf. & Interfaces, USA

Publications (*corresponding author)

- [39] T. Wang, L. R. Thoutam, A. Prakash, G. Haugstad, and B. Jalan* "Defect-driven Localization Crossovers in MBE-Grown La-doped SrSnO₃ films", *Phys. Rev. Mater.* (2017) (under review)
- [38] Y. Ayino, P. Xu, J. T.-Lazo, J. Yue, B. Jalan, and V. S. Pribiag* "Spin-dependent transport at a ferromagnetic complex oxide interface", *Nat. Commun.* (2017) (under review)
- [37] A. Prakash, P. Xu, A. Faghaninia, S. Shukla, J. W. Ager, C. S. Lo, and B. Jalan* "Wide Band-gap Oxide with Room Temperature Conductivity Exceeding 10⁴ S/cm", *Nat. Commun.* 8, 15167 (2017)
- [36] K. Ganguly, A. Prakash, B. Jalan*, and C. Leighton* "Mobility-Electron Density Relation Probed via Controlled Oxygen Vacancy Doping in Epitaxial BaSnO₃" *APL Mater.* 5, 056102 (2017)
- [35] H. Yun, M. A. Prakash, K. Ganguly, C. Leighton, B. Jalan, R. M. Wentzcovitch, K. A. Mkhoyan*, and J. S. Jong* "Electronic structure of BaSnO₃ investigated by high-energy-resolution electron energy-loss spectroscopy and ab initio calculations" *Phys. Rev. B. (Rapid Comm.)* (2017) (under review)
- [34] A. Prakash, P. Xu, X. Wu, G. Haugstad, X. Wang, and B. Jalan* "Adsorption-Controlled Growth and the Influence of Stoichiometry on Electronic Transport of Hybrid Molecular Beam Epitaxy-Grown BaSnO₃ Films" *J. Mater. Chem. C* 5, 5730 (2017) (Emerging Investigator invited article)

- [33] T. Wang, K. C. Pitike, Y. Yuan, S. M. Nakhmanson, V. Gopalan, and B. Jalan* "Chemistry, Growth Kinetics and Epitaxial Stabilization of Sn^{2+} in Sn-doped SrTiO_3 using $(\text{CH}_3)_6\text{Sn}_2$ Tin Precursor ", *APL Mater.* 4, 26111 (2016).
- [32] P. Xu, Y. Ayino, C. Cheng, V. Pribiag, R. Comes, P. V. Sushko, S. Chambers, and B. Jalan* "Predictive control over charge density in the two-dimensional electron gas at the polar/non-polar $\text{NdTiO}_3/\text{SrTiO}_3$ interface", *Phys. Rev. Lett.* 117, 106803 (2016).
- [31] S. Arezoomandan, A. Chanana, H. Condori, P. Xu, A. Nahata, B. Jalan, and B. S. Rodriguez*, "Terahertz conductivity of ultra-high electron concentration 2DEGs in $\text{NdTiO}_3/\text{SrTiO}_3$ heterostructures" *APL Mater.* 4, 076107 (2016).
- [30] J. Jeong*, M. Topsakal, P. Xu, B. Jalan R. Wentzcovitch and K. A. Mkhoyan*, "New linear defect in NdTiO_3 and new possibilities in complex oxide perovskites" *Nano Lett.* 16, 6816 (2016).
- [29] J. Jeong, M. Odlyzko, P. Xu, B. Jalan and K. A. Mkhoyan*, "Probing core-electron orbitals by scanning transmission electron microscopy and measuring the delocalization of core-level excitations" *Phys. Rev. B* 93, 165140 (2016).
- [28] P. Ambwani, P. Xu, G. Haugstad, J. S. Jeong, R. Dong, K. A. Mkhoyan, B. Jalan, C. Leighton*, "Defects, stoichiometry, and electronic transport in SrTiO_3 epilayers: A high pressure oxygen sputter deposition study", *J. Appl. Phys.* 120, 055704 (2016).
- [27] S. A. Chambers*, T. C. Kaspar, A. Prakash, G. Haugstad, B. Jalan*, "Band alignment at epitaxial $\text{BaSnO}_3/\text{SrTiO}_3(001)$ and $\text{BaSnO}_3/\text{LaAlO}_3(001)$ heterojunctions" *Appl. Phys. Lett.* 108, 152104 (2016).
- [26] P. Xu, T. C. Droubay, J. S. Jeong, K. A. Mkhoyan, P. V. Sushko, S. A. Chambers, B. Jalan*, "Quasi two-dimensional ultra-high carrier density in a complex oxide broken-gap heterojunction", *Adv. Mater. Interfaces* 3, 1500432 (2016).
- [25] A. Prakash, J. Dewey, H. Yun, J. S. Jeong, K. A. Mkhoyan and B. Jalan*, "Hybrid molecular beam epitaxy growth for stoichiometric BaSnO_3 ", *J. Vac. Sci. Technol. A* 33, 060608 (2015). (editor's pick)
- [24] R. B. Comes, P. Xu, B. Jalan, and S. A. Chambers*, "Band alignment of epitaxial SrTiO_3 thin films with $(\text{LaAlO}_3)_{0.3}(\text{Sr}_2\text{AlTaO}_6)_{0.7}(001)$ ", *Appl. Phys. Lett.* 107, 131601 (2015).
- [23] K. Ganguly, P. Ambwani, P. Xu, J. S. Jeong, K. A. Mkhoyan, C. Leighton*, and B. Jalan* "Structure and transport in high pressure oxygen sputter-deposited BaSnO_3 ", *APL Mater.* 3, 062509 (2015).
- [22] T. Wang, A. Prakash, E. Warner, W. L. Gladfelter, and B. Jalan*, "Molecular beam epitaxy growth of SnO_2 using a tin chemical precursor", *J. Vac. Sci. Technol. A* 33, 020606 (2015).
- [21] P. Xu, D. Phelan, J. S. Jeong, K. A. Mkhoyan, and B. Jalan*, "Stoichiometry-driven metal-to-insulator transition in $\text{NdTiO}_3/\text{SrTiO}_3$ heterostructures", *Appl. Phys. Lett.* 104, 082109 (2014).
- [20] T. Wang, K. Ganguly, P. Marshal, P. Xu, and B. Jalan*, "Critical thickness and strain relaxation in molecular beam epitaxy grown SrTiO_3 films", *Appl. Phys. Lett.* 103, 212904 (2013).
- [19] S. J. Allen*, B. Jalan, S. B. Lee, D. Ouellette, G. Khalsa, J. Jaroszynski, S. Stemmer* and A. MacDonald, "Conduction band edge and Shubnikov-de Haas effect in low-electron density SrTiO_3 " *Phys. Rev. B* 88, 045114 (2013).
- [18] J. S. Jeong, P. Ambwani, B. Jalan, C. Leighton, and K. A. Mkhoyan*, "Observation of electrically-inactive interstitials in Nb-doped SrTiO_3 " *ACS Nano*, 7, 4487 (2013).
- [17] A. M. Kaiser*, A. X. Gray, G. Conti, B. Jalan, A. P. Kajdos, A. Gloskovskii, S. Ueda, Y. Yamashita, K. Kobayashi, W. Drube, S. Stemmer, and C. S. Fadley*, "Electronic structure of delta-doped La:SrTiO_3 layers by hard x-ray photoelectron spectroscopy" *Appl. Phys. Lett.* 100, 261603 (2012).

Before UMN:

- [16] A. Janotti, B. Jalan, S. Stemmer, and C. G. Van de Walle*, "Effects of doping on the lattice parameter of SrTiO_3 " *Appl. Phys. Lett.* 100, 262104 (2012).

- [15] D.J. Keeble*, B. Jalan, L. Ravelli, W. Egger, G. Kanda, and S. Stemmer, "Suppression of vacancy defects in epitaxial La-doped SrTiO₃ films" *Appl. Phys. Lett.*, 99, 232905 (2011).
- [14] J. Son, B. Jalan, A. P. Kajdos, L. Balents, S. J. Allen, and S. Stemmer*, "Probing the metal-insulator transition of NdNiO₃ by electrostatic doping", *Appl. Phys. Lett.*, 99, 192107 (2011).
- [13] Dong-Wook Oh, J. Ravichandran, C. W. Liang, W. Siemons, B. Jalan, C. M. Brooks, M. Huijben, D. G. Schlom, S. Stemmer, L. W. Martin, A. Majumdar, R. Ramesh, and D. G. Cahill*, "Thermal conductivity as a metric for the crystalline quality of SrTiO₃ epitaxial layers," *Appl. Phys. Lett.*, 98, 221904 (2011).
- [12] B. Jalan*, S. J. Allen, G. Beltz, P. Moetakef and S. Stemmer*, "Enhancing the electron mobility in SrTiO₃ with strain," *Appl. Phys. Lett.*, 98, 132102 (2011).
- [11] P. Moetakef, J. Y. Zhang, A. Kozhanov, B. Jalan, R. Seshadri, S. J. Allen and S. Stemmer*, "Transport in ferromagnetic GdTiO₃/SrTiO₃ heterostructures," *Appl. Phys. Lett.*, 98, 112110 (2011).
- [10] B. Jalan* and S. Stemmer*, "Large Seebeck coefficients and thermoelectric power factor of La-doped SrTiO₃ thin films," *Appl. Phys. Lett.*, 97, 042106 (2010).
- [9] B. Jalan*, S. Stemmer*, S. Mack and S. J. Allen, "Two-dimensional electron gas in delta-doped SrTiO₃," *Phys. Rev. B*, 82, 081103 (2010).
- [8] J. Son¹, P. Moetakef¹, B. Jalan^{1*}, O. Bierwagen¹, N. J. Wright, R. Engel-Herbert and S. Stemmer*, "Epitaxial SrTiO₃ films with electron mobilities exceeding 30,000 cm²/Vs," *Nat. Mater.*, 9, 482 (2010). ¹Contributed equally.
- [7] J. M. Lebeau*, R. Engel-Herbert, B. Jalan, J. Cagnon, P. Moetakef and S. Stemmer*, "Stoichiometry optimization of homoepitaxial oxide thin films using x-ray diffraction," *Appl. Phys. Lett.*, 95, 142905 (2009).
- [6] B. Jalan*, J. Cagnon, T. E. Mates, and S. Stemmer*, "Analysis of carbon in SrTiO₃ grown by hybrid molecular beam epitaxy," *J. Vac. Sci. Technol. A*, 27, 1365 (2009).
- [5] B. Jalan*, P. Moetakef, and S. Stemmer*, "Molecular beam epitaxy of SrTiO₃ with a growth window," *Appl. Phys. Lett.*, 95, 032906 (2009).
- [4] B. Jalan*, R. Engel-Herbert, N. J. Wright, and S. Stemmer*, "Growth of high-quality SrTiO₃ films using a hybrid molecular beam epitaxy approach," *J. Vac. Sci. Technol. A*, 27, 461 (2009).
- [3] B. Jalan*, R. Engel-Herbert, J. Cagnon, and S. Stemmer*, "Growth modes in metal-organic molecular beam epitaxy of TiO₂ on r-plane sapphire," *J. Vac. Sci. Technol. A*, 27, 230 (2009).
- [2] R. Engel-Herbert, B. Jalan*, J. Cagnon, and S. Stemmer*, "Microstructure of epitaxial rutile TiO₂ films grown by molecular beam epitaxy on r-plane Al₂O₃," *J. Cryst. Growth*, 312, 149 (2009).
- [1] B. Jalan*, R. Engel-Herbert, T. E. Mates and S. Stemmer*, "Effects of hydrogen anneals on oxygen deficient SrTiO₃ single crystals," *Appl. Phys. Lett.*, 93, 052907 (2008).

Invited Seminars/Lectures/Presentations

2018

Electronic Advanced Materials, Orlando, January, 2018

Orlando, FL

" Novel Radical-based Molecular Beam Epitaxy Approach for Metal Oxide Films Containing Elements of Low Oxidation Potential"

Lawrence Symposium on Epitaxy, February, 2018

Scottsdale, AZ

" Novel Radical-based Hybrid Molecular Beam Epitaxy for Stannate Films and Heterostructures"

2017

- HESTEC Engineering and Science Symposium, October, 2017
"Atomically-Precise Layer Controlled Synthesis of Functional Oxides of Stubborn Metals" Edinburg, Texas
- Department Colloquium, Institute for Materials Science, Christian-Albrechts-Universitaet zu Kiel, September, 2017
"Novel Molecular Beam Epitaxy Approach for High Quality Perovskite Thin Films" Kiel, Germany
- Department Seminar, Technical University of Denmark, September, 2017
"Charge Transfer at Complex Oxide Interfaces" Copenhagen, Denmark
- XXVI International Materials Research Congress, August, 2017
"Novel Radical-based Molecular Beam Epitaxy Approach for Metal Oxide Films Containing Elements of Low Oxidation Potential" Cancun, Mexico
- Plenary talk, 21st American Conference on Crystal Growth and Epitaxy, July, 2017
"Band-Engineered Complex Oxide Interfaces: Role of Defects and Growth Approaches" Santa Fe, NM
- 21st American Conference on Crystal Growth and Epitaxy, July, 2017
"Novel Radical-based Molecular Beam Epitaxy Approach for Metal Oxide Films Containing Elements of Low Oxidation Potential" Santa Fe, NM
- Compound Semiconductor Week (CSW), May, 2016
"Band Engineered Complex Oxides" Berlin, Germany
- Physics Colloquium, Department of Physics, Auburn University, April, 2017
"Transport in Band Engineered Complex Oxide Heterostructures" Auburn, AL
- American Physical Society March Meeting, March, 2017
"Structure, Defects and Electronic Transport in High-Mobility BaSnO₃ Films and Heterostructures" New Orleans, LA
- Workshop on Phase transformations in oxides for energy conversion and storage, University of Minnesota, February, 2017
"MBE Growth and Stoichiometry Control of Complex Oxide Films" Minneapolis, MN
- Department Seminar, Department of Aerospace Engineering and Mechanics University of Minnesota, March, 2017
"Hybrid Molecular Beam Epitaxy for highly Stoichiometric Oxide Thin Films and Heterostructures" Minneapolis, MN
- Electronic Materials and Applications, Orlando, January, 2017
"Chemistry, Growth kinetics and Epitaxial Stabilization of Sn²⁺ in Sn-doped SrTiO₃ using (CH₃)₆Sn₂ precursor" Orlando, FL
- Electronic Materials and Applications, Orlando, January, 2017
"Metal-Insulator Transition, Charge Compensation, and Mobility-Limiting Scattering Mechanisms in MBE Grown La-doped BaSnO₃ Films and Heterostructures" Orlando, FL
- 2016**
- ARPA E Workshop, December, 2016
"Multiferroic Energy Conversion" San Francisco, CA
- Department Seminar, Department of Physics, Hamline University, October, 2016
"Multiferroic Energy Conversion" Minneapolis, MN

2016

*"Band-Engineered Complex Oxide Interfaces: New Insights and Opportunities"*Condensed Matter Seminar, Department of Physics, Harvard University,
September, 2016

Harvard, MA

*"MBE Growth, Structure, Defects and Transport in High-Mobility Epitaxial La-doped BaSnO₃ Films"*Department Seminar, Materials Science and Engineering, North Carolina
State University, September, 2016

Raleigh, NC

*"Stoichiometry Control, Defects and Transport in High-Mobility Epitaxial La-doped BaSnO₃ Films"*Functional Oxides – Synthesis, Structure, Properties and Applications - 5th
European Materials Research Society (EMRS) Fall Meeting, September, 2016

Warsaw, Poland

*"Radical-Based Oxide MBE and Electronic Transport of La-doped BaSnO₃ Thin Films"*Annual User Meeting, Center for Nanophase Materials Science (CNMS) at
Oak Ridge National Lab, August, 2016

Oak Ridge, TN

*"MBE Growth, Structure, Defects and Transport in High-Mobility Epitaxial La-doped BaSnO₃ Films"*Symposium on Complex Oxides: Current state and future challenges - 5th
International Conference from Nanoparticles and Nanomaterials to
Nanodevices and Nanosystems (IC4N), June, 2016

Porto Heli, Greece

*"Band-Engineered Complex Oxide Interfaces: New Insights and Opportunities"*Department Colloquium, Department of Materials Science and
Engineering, University of California, Berkeley, April, 2016

Berkeley, CA

*"MBE Growth, Structure, Defects and Transport in High-Mobility Epitaxial La-doped BaSnO₃ Films"*2nd Functional Oxide Thin Films for Advanced Energy and Information
Technology Conference, March, 2016

Cancun, Mexico

*"Hybrid MBE for BaSnO₃ films and heterostructures using tin radicals"*Department Seminar, Department of Chemical Engineering and Materials
Science, University of Southern California, February, 2016

Los Angeles, CA

*"Band-Engineered Complex Oxide Interfaces: New Insights and Opportunities"***2015**Department Seminar, Materials Science and Engineering, University of
Michigan, Ann Arbor, September, 2015

Ann Arbor, MI

"Internal Charge Transfer at MBE-Grown Complex Oxide Interfaces: New Insights and Opportunities"

AVS Symposium, Minnesota, September, 2015

Minneapolis, MN

*"New Insights and Opportunities at the MBE-Grown Complex Oxide Heterostructures"*Condensed Matter Colloquium, Center for Nanophysics and Advanced
Material, University of Maryland, May, 2015

Baltimore, MD

"New Insights and Opportunities at the MBE-Grown Complex Oxide Heterostructures"

Electronic Materials and Applications, Orlando, January, 2015

Orlando, FL

"Ultra-High Density 2D Electron Gases at MBE-Grown Titanate Interfaces via Internal Charge Transfer"

2014

- Center for Nanoscale Science and Technology, NIST, Maryland, December, 2014
Gaithersburg, MD
"Emergent Phenomena at MBE-Grown Complex Oxide Interfaces"
- Department seminar, Physics and Astronomy at the University of Utah, Salt Lake City, October, 2014
Salt Lake City, UT
"Tailoring Electronic Properties in Complex Oxides Via Stoichiometry Control"
- Oxide workshop "Physics at the Falls: Structural and Electronic Instabilities in Oxide Nanostructures", University at Buffalo, May, 2014
Buffalo, NY
"Stoichiometry Control of Metal-insulator Transition in Complex Oxide Heterostructures"
- Workshop on Correlated Oxides and Oxide Interfaces, William I. Fine Theoretical Physics Institute, University of Minnesota, May, 2014
Minneapolis, MN
"MBE Growth and Study of Electronic Transport of NdTiO₃/SrTiO₃ Heterostructures via Stoichiometry Control"
- Department seminar, Materials Science and Engineering, University of Wisconsin, Madison, March, 2014
Madison, WI
"Stoichiometry Control of Emergent Phenomena at Complex Oxide Interfaces: Opportunities and Challenges"
- ECE Magnetic Seminar, University of Minnesota, February, 2014
Minneapolis, MN
"Hybrid Molecular Beam Epitaxy for Functional Oxide Thin Films and Heterostructures"

2013

- 3M Research Center, 3M, Minneapolis, December, 2013
Minneapolis, MN
"Emergent Phenomena at MBE-Grown Complex Oxide Interfaces"
- IPrime Annual Meeting, University of Minnesota, May, 2013
Minneapolis, MN
"Novel thin film approaches: Towards oxide electronics"
- Center for Nanostructure Appl., University of Minnesota, January, 2013
Minneapolis, MN
"Molecular Beam Epitaxy of High-Purity, High Mobility Complex Oxide Thin Films"

2012

- Workshop on Oxide Semiconductors, University at Buffalo, 2012
Buffalo, NY
"Emergent Phenomena at Complex Oxides Interfaces: Opportunities and Challenges"

2011

- Condensed Matter Seminar, Department of Physics, University of Minnesota, November, 2011
Minneapolis, MN
"Novel Approaches to Molecular Beam Epitaxy for Complex Oxides and Strain Engineering"
- 7th Annual Minnesota Nanotechnology Workshop, University of Minnesota, November, 2011
Minneapolis, MN
"Hybrid Molecular Beam Epitaxy for the Growth of Complex Oxides"

Before UMN:

- Solid State Seminar, University of Notre Dame, February, 2011
Notre Dame, IL
"High-mobility complex oxides via stoichiometry control in MBE"
- Electronics Materials and Applications, Orlando, Florida, January, 2011
Orlando, FL

"Novel Approaches to Complex Oxide Thin Film Growth and Characterization"

Material Research Outreach Program, UCSB, February, 2011 Santa Barbara, CA
"Two-dimensional Electron Gas in Complex Oxide Heterostructures"

Focused Workshop on Semiconducting Oxides, UCSB, September, 2010 Santa Barbara, CA
"Realization of the Two-Dimensional Electron Gas in Delta-doped SrTiO₃"

Selected Professional Service

2017 Co-organizer of the 3rd Functional Oxide Thin Films for Advanced Energy and Information Technology Conference, Rome, Italy
 2017 Co-organizer of the 23rd Workshop on Oxide Electronics (WOE), Chicago, USA
 2017 Served on the Panels for NDSEG Fellowship
 2016 Editorial Board Member, Scientific Reports
 2016, 2017 Symposium Co-organizer for the Electronic Materials Applications Conference, Orlando, USA
 2015 Focus Session Co-organizer "Complex Oxide Interface & Heterostructures" APS March meeting, San Antonio, USA
 2014-present Symposium Co-organizer "Oxides Thin Films and Dielectrics" MRS Electronic Materials Conference, USA
 2013-present Member of Advisory Board for Normandale's Vacuum & Thin Film Technol. Program, Minneapolis, USA
 2012-present Member of the Board of Directors of the American Vacuum Society, MN, USA

University Service

2016-present Member of CEMS Safety Committee, UMN
 2015-present Materials Science Faculty Search Committee, CEMS, University of Minnesota
 2015-present Co-Program leader of Electronic Materials and Devices, IPRIME UMN, USA
 2015-present Faculty Mentor of the MN student Chapter of the American Vacuum Society
 2013-2016 Materials Science Graduate Student Admissions Committee, UMN
 2013-2015 Member of CSE Undergraduate Scholarship and Awards Committee, UMN
 2012-present Materials Science Undergraduate Student Course Adviser, UMN

Teaching and Curriculum Development

Developed curriculum for Mass Transport and Diffusion, Mats 3002 (Junior undergraduate level) (Spring 2015, Spring 2016, Spring 2017)
 Primary instructor for Introduction to Materials Science (Mats 3011) (Sophomore & Junior level) (Spring 2013, Spring 2014)
 Recitation instructor for Introduction to Materials Science (Mats 3011) (Sophomore & Junior level) (Spring 2012)
 Primary Instructor for Ceramics (Mats 4212) (Senior undergraduate level) (Spring 2011-2016)

Students Honors and Awards

2015	Peng Xu	1 st Prize for the Best Poster Award, AVS Symposium, MN, September, 2015
2015	Peng Xu	UMN Doctoral Dissertation Fellowship, 2015-2016
2015	Koustav Ganguly	2 nd Prize for the Best Poster Award, AVS Symposium, MN, September, 2015
2016	Peng Xu	IPRIME Best Student Poster Award, UMN, Minneapolis, 2016
2016	Tianqi Wang	UMN Doctoral Dissertation Fellowship, 2016-2017
2016	Abhinav Prakash	CEMS Outstanding TA Award, 2015-2016
2017	Abhinav Prakash	DMP Ovsinsky Travel Award, APS-March meeting 2017

2017	Abhinav Prakash	UMN Doctoral Dissertation Fellowship, 2017-2018
2017	Tianqi Wang	IPRIME Best Student Poster Award, UMN, Minneapolis, 2017

Student Supervision

Postdoctoral Fellows:

Ryan Haislmaier	MSE	Start date: 12/01/2016
Laxman R. Thoutam	Physics	Start date: 10/01/2016

Doctoral Students:

Peng Xu	MSE	9/11-1/17	Now at Micron, Idaho
Tianqi Wang	MSE	9/12-present	Expected 8/2017
Koustav Ganguly (Co-advised with C. Leighton)	MSE	9/12-present	Expected 8/2017
Abhinav Prakash	MSE	9/13-present	Expected 8/2018
Jin Yue	MSE	9/15-present	Expected 8/2020
William Nunn	ChemE	9/15-present	Expected 8/2020

Master Students:

Robert Newman	MSE	9/11-12/12	Now at Seagate, MN
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Undergraduate Students:

Patrick Marshal	MSE	1/12-7/13	PhD Student at UCSB
Emilie Benson	Physics	5/15-8/15	PhD student at UPenn
Chris Cheng	MSE	5/14-5/16	PhD Student at PSU
John Dewey	MSE	5/15-5/16	PhD Student at UMN
Andres Marroqin	MSE	6/16 -8/16	UG student at UT RGV

Current and Recent Collaborators

Joe Stroschio	National Institute of Standards & Techno., Gaithersburg
Brian Kirby	National Institute of Standards & Techno., Gaithersburg
Scott Chambers	Pacific Northwestern National Laboratory
Peter V. Sushko	Pacific Northwestern National Laboratory
Christian Schlepuetz	Argonne National Laboratory
Seungbum Hong	Argonne National Laboratory
George Sawatzky	University of British Columbia, Canada
Kookrin Char	Seoul National University, Korea
Roger De Souza	RWTH Aachen University
David K. Keeble	University of Dundee, UK
Abhay Pasupathy	Columbia University
Jeremy Levy	University of Pittsburg
Venkat Gopalan	Penn State University
Jenny Hoffman	Harvard University
Kyle Shen	Cornell University
Louis Piper	Binghamton University
Joel Ager	University of California, Berkeley
Paul Evans	University of Wisconsin, Madison
Mark Rzchowski	University of Wisconsin, Madison
Serge Nakhmanson	University of Connecticut
David Singh	University of Missouri
Cynthia Lo	Washington University
V. Srivastava	General Electric
W.L. Gladfelter, C. Cramer, R. James, B. Shklovskii, M. Greven, V. Pribiag, X.J. Wang,	University of Minnesota, twin cities

S. Koester, R.M. Wentzovitch, K.A. Mkhoyan, C. Leighton, M. Tsapatsis, T. Birol	
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