Masahiro Ishigami

University of Central Florida
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Orlando, FL 32816-2385
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Higher Education History

Massachusetts Institute of Technology (Physics) B.S. (1997)
Thesis: Superconductivity in Lanthanum Cuprate
Advisor: Marc Kastner

University of California, Berkeley (Physics) Ph.D. (2004)
Thesis: Scanning tunneling microscopy of novel nanoscale materials
Advisor: Alex Zettl

University of Maryland, College Park (Physics) Postdoctoral (2004-2007)
Advisor: Ellen Williams

Employment History

Associate Professor, Department of Physics and Nanoscience and Technology Center, University of Central Florida (2014-Present)

Assistant Professor, Department of Physics and Nanoscience and Technology Center, University of Central Florida (2008-2014)

Postdoctoral Fellow, Department of Physics, University of Maryland, College Park (2004-2007)

Awards

Intelligence Community Postdoctoral Fellowship	2005-2007
Hertz Foundation Graduate Research Fellowship	1997-2002

Publications

Sum of times cited: 6148 with h-index 19 (8/24/16)

1. P. G. Collins, J. C. Grossman, M. Cote, **M. Ishigami**, C. Piskoti, S. G. Louie, M. L. Cohen, A. Zettl, Scanning Tunneling Spectroscopy of C_{36}. *Physical Review Letters* **82***,*165 (1999).
2. C. Shen, S. G. Mayorga, R. Biagioni, C. Piskoti, **M. Ishigami**, A. Zettl, N. Bartlett, Intercalation of Hexagonal Boron Nitride by Strong Oxidizers and Evidence for the Metallic Nature of the Products, *Journal of Solid State Chemistry* **147,** 74 (1999).
3. **M. Ishigami**, J. Cumings, A. Zettl, A. Chen, A Simple Method for the Continuous Production of Carbon Nanotubes, *Chemical Physics Letters* **319**, 457 (2000).

4. P. G. Collins, K. Bradley, **M. Ishigami**, A. Zettl, Extreme Oxygen Sensitivity of Electronic Properties of Carbon Nanotubes, *Science* **287**, 1801 (2000).
5. P.G. Collins, **M. Ishigami**, A. Zettl, Electronic Effects of Oxygen Adsorption on Carbon Nanotubes, in Cluster and Nano, (World Scientific, 2000) p. 411
6. **M. Ishigami**, Shaul Aloni, A. Zettl, Scanning Tunneling Microscopy and Spectroscopy of Boron Nitride Nanotubes, in *Structural and Electronic Properties of Molecular Nanostructures*, Proceedings for International Winter School of Novel Materials 2003, vol. 685 of AIP Conference Proceedings (American Institute of Physics, Melville, NY 2003), p. 389.
7. **M. Ishigami**, Shaul Aloni, A. Zettl, Properties of Boron Nitride Nanotubes, in Proceedings of 12th International conference on scanning tunneling microscopy /spectroscopy and related techniques, vol. 696 of AIP Conference Proceedings (American Institute of Physics, Melville, NY 2003), p. 94.
8. **M. Ishigami**, Hyoung Joon Choi, Shaul Aloni, S.G. Louie, and M.L. Cohen, Identifying Defects in Nanoscale Materials, *Physical Review Letters*, **93**, 196803 (2004)
9. **M. Ishigami**, Jay Deep Sau, S. Aloni, M.L. Cohen, and A. Zettl, Observation of the Giant Stark Effect in Boron Nitride Nanotubes, *Physical Review Letters,* **94**, 056804 (2005).
10. **M. Ishigami**, J.H. Chen, E.D. Williams, D. Tobias, Y.F. Chen, M.S. Fuhrer, Hooge's Constant for Carbon Nanotube Field Effect Transistor, *Applied Physics Letters* **88**, 203116 (2006).
11. **M. Ishigami**, Jay Deep Sau, S. Aloni, M.L. Cohen, and A. Zettl, Symmetry Breaking in Boron Nitride Nanotubes, *Physical Review Letters,* **97**, 176804 (2006).
12. G. Esen, **M. Ishigami**, E.D. Williams, and M.S. Fuhrer, Transmission Line Impedance of Carbon Nanotube Thin Films for Chemical Sensing, Applied Physics Letters, *Applied Physics Letters* **90**, 123510 (2007).
13. **M. Ishigami**, J.H. Chen, W.G. Cullen, M.S. Fuhrer, and E.D. Williams, Atomic Structure of Graphene on SiO_2, *Nano Letters* **7**, 1643 (2007).
14. J.H. Chen, **M. Ishigami**, M.S. Fuhrer, and E.D. Williams, Printed Graphene Circuits, *Advanced Materials*, 19, 3623(2007).
15. D. Tobias, **M. Ishigami**, E.D. Williams, C.J. Lobb, and M.S. Fuhrer, Origins of 1/f noise in individual semiconducting carbon nanotube field effect transistors, *Physical Review B*, 77, 033407 (2008).
16. J.H. Chen, C. Jang, S. Xiao, **M. Ishigami**, and M.S. Fuhrer, Intrinsic and Extrinsic Performance Limits of Graphene Devices on SiO_2, *Nature Nanotechnology*, 3, 206 (2008).
17. J.H. Chen, C. Jang, E.D. Williams, M.S. Fuhrer and **M. Ishigami**, Charged Impurity Scattering in Graphene, *Nature Physics*, 4, 377-381 (2008).
18. J.H. Chen, C. Jang, **M. Ishigami**, S. Xiao, W.G. Cullen, E.D. Williams, and M.S. Fuhrer, Diffusive charge transport in graphene on SiO_2, *Solid State Communications*, 149, 1080 (2009).
19. J.W. Cleary, R.E. Peale, D.J. Shelton, G.D. Boreman, C.W. Smith, **M. Ishigami**, R. Soref, A. Drehman, W.R. Buchwald, IR Permittivities of Silicides and doped Silicon, *Journal of the Optical Society of America B*, 27, 730 (2010).
20. J. Katoch, J.H. Chen, R.Tsuchikawa, C.W. Smith, E.R. Mucciolo, and **M. Ishigami**, Uncovering the dominant scatterer in graphene sheets on SiO_2, *Physical Review B Rapid*

Communications, 82, 081417 (2010).

21. Rahul Rao, Ramakrishna Podila, **Ryuichi Tsuchikawa, Jyoti Katoch, Derek Tishler**, Apparao M. Rao, and **Masa Ishigami**, Effects of Layer Stacking on the Combination Raman Modes in Graphene, *ACS Nano*, nn1031017 (2011).
22. **R.Tsuchikawa**, H.Y. Ahn, S. Yao, K.D. Belfield, **M. Ishigami**, Photosensitization of carbon nanotubes using dye aggregates, *Journal of Physics: Condensed Matter*, 23, 202204 (2011). *[IOP select]*
23. InP- and graphene-based grating-gated transistors for tunable THz and mm-wave detection, R. E. Peale, Nima Nader Esfahani, Christopher J. Fredricksen, Gautam Medhi, Justin W. Cleary, Joshua Hendrickson, Walter R. Buchwald, Himanshu Saxena, Oliver J. Edwards, **Michael S. Lodge, Ben D. Dawson, and M. Ishigami**, *Proc. SPIE* 8164 - 7 (2011).
24. Rahul Rao, **Derek Tishler, Jyoti Katoch, and M. Ishigami**, Multiphonon scattering in graphene, *Physical Review B*, 84 113406 (2011).
25. B. Chandra, V. Perebeinos, S. Berciaud, **Jyoti Katoch, M. Ishigami**, P. Kim, T. F. Heinz, and J. Hone, Low bias electron scattering in structure-identified single walled carbon nanotubes: role of substrate polar phonons, *Physical Review Letters*, 107, 146601 (2011).
26. **Jyoti Katoch and Masa Ishigami**, Impact of calcium on transport property of graphene, *Solid State Communications*, 152, 60 (2012).
27. **Jyoti Katoch**, Sang Nyon Kim, Zhifeng Kuang, Barry L. Farmer, Rajesh R. Naik, Suren A. Tatulian, and **Masa Ishigami,** Structure of a peptide on graphene, *Nano Letters*, 12, 2342 (2012).
28. Ramakrishna Podila, Rahul Rao, **Ryuichi Tsuchikawa, Masa Ishigami**, and Apparao M. Rao, Raman Spectroscopy of Folded and Scrolled Graphene, *ACS Nano* 6, 5784 (2012).
29. Brian Shevitski, Matthew Mecklenburg, William A. Hubbard, E. R. White, **Ben Dawson, M. S. Lodge, Masa Ishigami**, and B. C. Regan, Dark-field transmission electron microscopy and the Debye-Waller factor of graphene, *Physical Review B*, 87, 045417 (2013).
30. **Jyoti Katoch**, **Cameron Glasscock**, **and Masa Ishigami**, Ultra high vacuum-compatible sockets for pin grid arrays used in nanoscale and atomic physics, *Journal of Vacuum Science and Technology B*, 31 023201 (2013).
31. **Christian W. Smith, Jyoti Katoch, and Masa Ishigami**, Impact of charged impurities on transport properties of graphene nanoribbons, *Applied Physics Letters,* 102 133502 (2013).
32. Jaekyun Jeon, **M.S. Lodge, B.D. Dawson, Masa Ishigami**, F. Shewmaker, B. Chen, Superb resolution and contrast of transmission electron microscopy images of unstained biological samples on graphene-coated grids, *Biochimica et Biophysica Acta-General Subjects,* 1830, 3807 (2013).
33. C.R. Dean, L. Wang, P. Maher, C. Forsythe, F. Ghahari, Y. Gao, **J. Katoch, M. Ishigami**, P. Moon, M. Koshino, T. Taniguchi, K. Watanabe, K. L. Shepard, J. Hone, P. Kim, Hofstadter's butterfly in Moiré superlattices: a fractal quantum hall effect, *Nature,* 497, 598 (2013).
34. Rahul Rao, G. Chen, L. M. R. Arava, K. Kalaga, **Masa Ishigami**, T.F. Heinz, P. M. Ajayan, and A.R. Harutyunyan, Graphene as an atomically thin interface for vertically aligned carbon nanotubes, *Scientific Reports*, 3, 1891 (2013).

35. **C.W. Smith,** D. Maukonen, R.E. Peale, C.J. Fredricksen, **M. Ishigami**, C.W. Cleary, Wavelength-selective visible-light detector based on integrated graphene transistor and surface plasmon coupler, *Proc. SPIE,* 9083, 90832Q (2014).
36. **J. Katoch**, D. Le, S. Singh, R. Rao, T.S. Rahman, and **M. Ishigami**, Scattering strength of the scatterer inducing variability in graphene on silicon oxide, Journal of Physics Condensed Matter, 28, 115301 (2016).
37. **R. Tsuchikawa, D. Heligman, B.T. Blue**, Z.Y. Zhang, A. Ahmadi, E.R. Mucciolo, J. Hone and **M. Ishigami**., Scattering strength of potassium on a carbon nanotube with known chirality, Physical Review B, 94, 045408 (2016).
38. **M.S. Lodge**, C. Tang, **B.T. Blue**, W.A. Hubbard, A. Martini, **B.D. Dawson**, and **M. Ishigami**, Lubricity of gold nanocrystals on graphene measured using quartz crystal microbalance, Scientific Reports, 6, 31837 (2016).

Presentations
Invited Talks

National

1. "Graphene Devices and Sensors", Nanoelectronics Devices for Defense & Security, 6/07, Crystal City, VA
2. "Nano-Enabled Electronics and Sensors from Carbon Nanostructures", Intelligence Community Academic Conference, 6/2008, College Park, MD
3. "Transport Properties of Atomically-Clean Graphene", Florida American Vacuum Society at University of Central Florida, 3/09
4. "Transport Properties of Atomically-Clean Graphene", Integrative Graduate Education and Research Traineeship Program, University of Texas at Austin, 3/25/09
5. "Properties of Boron Nitride Nanotubes", NATO Advanced Research Workshop on Boron Rich Solids, University of Central Florida, 12/18/09
6. "Revealing the dominant scatterers in graphene on SiO_2", American Physical Society march meeting, Dallas, TX, 3/22/2010
7. "Dominant scattering mechanisms in graphene", University of California, Riverside, Riverside, CA, 5/25/11
8. "Dominant scattering mechanisms in graphene", University of California, Los Angeles, Los Angeles, CA, 5/26/11
9. "Introduction to the potential of graphene in space technologies", Florida Space Institute, University of Central Florida, Orlando, FL, 2/6/13.
10. "Physics of graphene: our unique experimental approach", North Carolina State University, Raleigh, NC, 3/11/13.
11. "Physics of graphene: our unique experimental approach", University of Massachusetts, Boston, Boston, MA, 4/10/13.
12. "Physics of graphene: our unique experimental approach", Boston College, Chestnut Hill, MA, 4/12/13.
13. "Physics of graphene: our unique experimental approach", Georgia Institute of Technology, Atlanta, GA, 5/2/13.
14. "Charged impurity scattering in carbon nanotubes: towards testing the pseudospin conjecture", *Workshop on defects in carbon nanotubes,* Telluride, CO, 7/11/13.

15. "Understanding electronic and mechanical properties of graphene down to atomic scale", 80th Annual Meeting of the South East Section of the American Physical Society, Bowling Green, KY, 11/21/13.
16. "Determining and enhancing the performance of graphene-based technologies", Air Force Research Laboratory, Wright-Patterson Air Force Base, OH, 3/12/14.
17. "Physics of graphene: our unique experimental approach", Ohio State University, Columbus, OH, 3/12/14.
18. "Physics of graphene: our unique experimental approach", Honda Research Institute, Columbus, OH, 3/13/14.
19. "Physics of graphene: our unique experimental approach", University of California, Riverside, Riverside, CA, 4/23/14.
20. "Ultimate performance limits of nanoscale materials", Tufts University, Boston, MA, 11/18/14.
21. "Building nanotechnology from atomic scale", Applied Physics Laboratory, Johns Hopkins University, Laurel, MD, 8/25/15.
22. "Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes", Department of Physics, Georgetown University, Washington, DC, 2/2/16.
23. "Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes", NIST, Gaithersburg, MD, 2/24/16.
24. "Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes", University of Wisconsin, Madison, Madison,WI, 5/12/16.

International

1. "Carbon nanotubes", 2001 Volkswagen Foundation symposium on single molecule microscopy and spectroscopy, March 2001, Bamberg, Germany
2. "Structure and electronic properties of boron nitride nanotubes", 12th International conference on scanning tunneling microscopy /spectroscopy and related techniques, June 2003, Eindhoven, Netherlands
3. "Three important scientific questions on nanotubes", Tohoku University – Conference for Center of Excellence program, October 2005, Sendai, Japan
4. "Intrinsic Transport Properties of Graphene", Institute for Solid State Physics, University of Tokyo, October 2007, Tokyo, Japan
5. "Revealing the dominant scatterers in graphene on SiO_2", 2nd International Meeting on Silicene, November 2011, Marrakech, Morocco
6. "Understanding Nanoscience from Atomic Scale" Institute for Solid State Physics, University of Tokyo, May 2015, Tokyo, Japan
7. "Measuring resistance induced by an atom on a nanotube", National Institute of Advanced Industrial Science and Technology, June 2015, Tsukuba, Japan.
8. "Understanding Nanoscience from Atomic Scale" Hamamatsu Photonics, June 2015, Hamamatsu, Japan.
9. "Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes: understanding the impact of a model scatterer for nanoscale sensors", 9th International Workshop on Metrology, Standardization and Industrial Quality of Nanotubes, June 2015, Nagoya, Japan

Contributed Talks (since 1/2009)

National

1. Jyoti Katoch and Masa Ishigami, Impact of Atomic Hydrogen on Transport Properties of Graphene Sheets, the March meeting of the American Physical Society, Pittsburgh, 3/2009
2. Masa Ishigami and Jyoti Katoch, Impact of Calcium on Transport Properties of Graphene Sheets, the March meeting of the American Physical Society, Pittsburgh, 3/2009
3. Ryuichi Tsuchikawa and Masa Ishigami, Measurement of scattering cross section of long-range and short-range scatterers on single-walled carbon nanotubes, APS March Meeting 2010, 3/2010
4. Christian Smith and Masa Ishigami, Impact of coulomb impurities on transport properties of graphene nanoribbons, APS March Meeting 2010, 3/2010
5. Ryuichi Tsuchikawa and Masa Ishigami, Transport properties of graphene on strontium titanate, APS March Meeting 2011, 3/2011
6. Jyoti Katoch and Masa Ishigami, Scanning tunneling microscopy of adsorbates and vacancies in graphene, APS March Meeting 2011, 3/2011
7. Jyoti Katoch and Masa Ishigami, Direct determination of the dominant scatterer in graphene on silicon oxide, APS March Meeting 2012, 3/2012
8. Jyoti Katoch, Sang Nyon Kim, Rajesh Naik, Suren A. Tatulian, and Masa Ishigami, Biomimetic graphene sensors: functionalizing graphene with peptides, APS March Meeting 2012, 3/2012
9. Ben Dawson, Michael Lodge, Nima Esfahani, Robert Peale, and Masa Ishigami, Measurement of plasmon dispersion in graphene: tunable graphene plasmonics, APS March Meeting 2012, 3/2012
10. Christian Smith and Masa Ishigami, Impurity-limited carrier transport in graphene nanoribbons, APS March Meeting 2012, 3/2012
11. Jyoti Katoch, Duy Le, Talat Rahman and Masa Ishigami, Direct determination of the dominant scatterer in graphene on silicon oxide, AVS meeting 2012, 11/2012
12. Ryuichi Tsuchikawa, Zengyi Zhang, Xiao Guo, James Hone, and Masa Ishigami, Observation of pseudospin conservation in carbon nanotubes, AVS meeting 2012, 11/2012
13. Jyoti Katoch, Sang Nyon Kim, Rajesh Naik, Suren A. Tatulian, and Masa Ishigami, Structure of a peptide on graphene and graphite, AVS meeting 2012, 11/2012
14. Ben Dawson, Michael Lodge, and Masa Ishigami, Diffusion of gold islands on graphene, AVS meeting 2012, 11/2012
15. Christian Smith, Michael Lodge, and Masa Ishigami, Impact of cleaning procedure on the performance of graphene-based field effect transistors, AVS meeting 2012, 11/2012
16. Masa Ishigami and Jyoti Katoch, Impact of hydrogen on graphene on hexagonal boron nitride, APS March Meeting 2013, 3/2013
17. Ben Dawson, Michael Lodge, Zach Williams, and Masa Ishigami, Temperature and size dependence of gold nanoislands on graphene, APS March Meeting 2013, 3/2013
18. Jyoti Katoch, Duy Le, Talat Rahman, and Masa Ishigami, Determination of the dominant scatterer in graphene on silicon oxide, APS March Meeting 2013, 3/2013

19. Ryuichi Tsuchikawa, Jon Edmiston, Daniel Heligman, Masa Ishigami, Zengyi Zhang, Xiao Guo, and James Hone, Impact of charged impurity scattering in carbon nanotubes, APS March Meeting 2013, 3/2013
20. Ryuichi Tsuchikawa, Daniel Heligman, Masa Ishigami, Zengyi Zhang and James Hone, Testing the pseudospin conjecture in carbon nanotubes, APS March Meeting 2014, 3/2014
21. Jyoti Katoch, Duy Le, Talat Rahman, Simran Singh, Enrique del Barco, Laurene Tetard, and Masa Ishigami, Electronic properties of functionalized MoS_2, APS March Meeting 2014, 3/2014
22. Ryuichi Tsuchikawa, Amin Ahmadi, Daniel Heligman, Zhengyi Zhang, Eduardo, Mucciolo, James Hone and Masa Ishigami, Measurement of the resistance induced by a single atomic impurity on a (7,6) semiconducting carbon nanotube: scattering strength of individual potassium atoms as a function of gate voltage, APS March Meeting 2015, 3/2015.
23. Amin Ahmadi, Ryuichi Tsuchikawa, Daniel Heligman, Zhengyi Zhang, Eduardo, Mucciolo, James Hone and Masa Ishigami, Unusual conductance suppression in metallic carbon nanotubes, APS March Meeting 2015, 3/2015.
24. M. Lodge, C. Glasscock, and M. Ishigami, Scanning Tunneling Microscopy of Tungsten Disulfide, APS March Meeting 2016, 3/16.

International

1. Masa Ishigami, Revealing the dominant scatterers in graphene on SiO_2, Graphene Week 2011, Austria, 4/2011

Grants

Current grants

1. ***"Intrinsic transport properties of graphene: approaching elusive ground states on crystalline substrates"***
   CAREER program, National Science Foundation, $550,000, 2/15/10 to present.
2. ***"Tunneling microscopy and spectroscopy of a new molecule on silicon surface"***, High Precision Lithography (start up), $40,000, 8/29/16 to present.
3. ***"Mechanisms underlying microgravity-induced delays in the immune system of an animal-bacteria model system"***, $25,000, 6/1/16 to present.

Past grants (newer grants at higher numbers)

1. ***"Atomic Resolution Nanodevice Measurement System"***
   Presidential initiative for major research instrumentation, UCF Office of Research and Commercialization, $350,000, 2008
2. ***"Biomimetic graphene-based sensor for detecting explosives, VOCs, and pathogens"***
   Air Force Research Laboratory Summer Faculty Fellowship, American Society for Engineering Education, $13000, 2010
3. ***"Acquisition of Central Florida Nanofabrication (Wafer Fabrication) Facility"***
   Air Force Research Laboratory, $1.5 million (co-PI with Robert Peale, the physics department, and the college of sciences)
4. ***"Graphene-based mid- and long-wave infrared emitters for high speed data transmission"***
   Intelligence community postdoctoral fellowship program, $240,000, 7/12/2010-7/11/2013

5. ***"Graphene-based uncooled far infrared spectrometers on chip"***
   Florida Space Institute, $29,960, 6/30/12-7/1/13
6. ***"Origin of resistance in carbon nanotubes: semi-classical to quantum transport in one-dimension"***
   National Science Foundation, $220,000 (62.5% credit), since 7/15/10 (co-PI with Eduardo Mucciolo)
7. ***"Graphene phototransistor tunable from ultraviolet to mm-waves"***
   Air Force Research Laboratory, Wright-Patterson Air Force Base, $149942 (50% credit), (co-PI with Robert Peale)
8. ***"Acquisition of a hybrid mask-aligner/nanoimprinter lithography tool"***
   Major Research Instrumentation Award, National Science Foundation, co-PI, $143,675 (total $718,375) (co-PI with Sasan Fathpour, Peter Delfyett, Winston Schoenfeld, Dennis Deppe).
9. **"Electron absorptivity measurements of graphene"**
   Unnamed (due to the contract agreement) start up company, $19,094, 10/1/14-2/28/15.
10. **"Tunneling microscopy and spectroscopy of a new molecule on silicon surface"**, High Precision Lithography (start up), $34,926, 12/7/15 to 3/3/16.

Internal undergraduate support

1. Undergraduate research initiative, UCF Office of Research and Commercialization, $2800, 9/2008-5/2009
2. Undergraduate research initiative, UCF Office of Research and Commercialization, $3872, 9/2009-8/2010
3. Undergraduate research initiative, UCF Office of Research and Commercialization, 7/2010-5/2011
4. Undergraduate research initiative, UCF Office of Research and Commercialization, 12/2010-5/2011

Classes Taught

Honors Physics for Engineers and Scientists I (PHY 2048H), Honors Physics for Engineers and Scientists II (PHY 2049H), Physics for Engineers and Scientists II (PHY 2049c), Thermal and Statistical Physics (PHY 3513), Advanced Physics Laboratory (PHY 4083L)

Spring 2008	3 recitation sections
Fall 2008	Honors Physics for Engineers and Scientists I and 1 recitation section
Spring 2009	Honors Physics for Engineers and Scientists II and 1 recitation section
Fall 2009	Honors Physics for Engineers and Scientists I and 1 recitation section
Spring 2010	Honors Physics for Engineers and Scientists II and 1 recitation section
Fall 2010	Physics for Engineers and Scientists II
Spring 2011	Advanced Physics Laboratory
Fall 2011	Physics for Engineers and Scientists II
Spring 2012	Advanced Physics Laboratory
Fall 2012	Thermal and Statistical Physics
Spring 2013	Advanced Physics Laboratory
Fall 2013	Thermal and Statistical Physics
Spring 2014	Advanced Physics Laboratory

Fall 2014 Thermal and Statistical Physics
Spring 2015 Advanced Physics Laboratory

Students Supervised

Graduate Students

1. **Jyoti Katoch (1/2008-5/2014), Ph.D.**
2. Daeha Joung (8/2008-12/2008)
3. Gautam Medhi (1/2009-5/2009)
4. **Ryuichi Tsuchikawa (8/2009-5/2015), Ph.D.**
5. **Christian Smith (8/2010-12/2014), Ph.D.**
6. Michael Lodge (8/2011-Present)
7. **Jon Edmiston (8/2011-5/2013), Masters**
8. **Cameron Glasscock (6/2014-12/2015), Masters**
9. Brandon Blue (8/2015-Present)

Undergraduate Students

1. Ryuichi Tsuchikawa (5/2008-8/2008)
2. Milton Guy (10/2008-1/2010)
3. Christian Smith (1/2008-8/2010)
4. Derek Tishler (Summer 2010)
5. Jonathan Edmiston (11/2010-8/2011)
6. Cameron Glasscock (5/2012-10/2012)
7. Daniel Heligman (5/2012-7/2014)
8. Zach Williams (5/2012-5/2013)
9. Qing Wang (5/2012-5/2016)
10. Daniel Kepler (3/2013-12/2013)
11. Benjamin Oenbrink (5/2013-8/2013)
12. Landon Meahl (5/2013-5/2014)
13. Brandon Blue (9/2013-8/2014)
14. Kursti Delollo (1/2016-5/2016)
15. David Gorlin (1/2016-5/2016)

Service Activities

National

1. Member of the proposal review board, Molecular Foundry, Lawrence Berkeley National Laboratory, 3/2014-

Department

1. Machine Shop/Shared Facility Committee, 1/2008-12/2012
2. Diversity Committee, 1/2010-5/2010
3. Bio/Nano Search Committee, 12/2010-3/2011
4. Graduate Recruitment Committee, 10/2011-5/2015
5. Designed laboratory space for future faculty member, room 116, Physical Sciences Building, (2008-2009)
6. Relocated and reinstalled shared atomic force microscope and electron beam evaporator
7. Maintained the shared atomic force microscope

8. Maintained the shared electron beam evaporator

Outreach

1. Operated scanning electron microscopy demonstrations at the Orlando Science Center: Summer 2010-Spring 2015
2. Participated in a panel discussion on career in science for similar program offered by local Advancement Via Individual Determination (AVID) program: 5/2008
3. High school student research program with the ASPIRE program at Lake Highland Preparatory School, 7/2008-7/2010