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1. Background

A. SYNOPSIS

My current research interests are in organic/hybrid and perovskite optoelectronics, bridging optical spectroscopy of materials to devices. In particular, our focus is on molecular and organic electronics –field-effect transistors and solar cells/photodiodes. Our research utilizes: (1) optical spectroscopic techniques such as Raman scattering, photoluminescence/absorption, modulation spectroscopy including high pressure studies and nonlinear optics; (2) organic device fabrication (spincasting, thermal evaporation, inkjet printing, modified pulsed laser deposition, and chemical vapor deposition techniques); self-assembly processes in bioinspired materials; (3) electrical characterization: current-voltage and capacitance measurements.

B. PROFESSIONAL EMPLOYMENT

September 2013-present	Professor of Physics University of Missouri, Columbia MO
September 2007-August 2013	Associate Professor of Physics University of Missouri, Columbia MO
September 2003-August 2007	Assistant Professor of Physics University of Missouri, Columbia MO
August 2000-August 2003	Assistant Professor of Physics Missouri State University, Springfield MO
August 1998-July 2000	Assistant Professor of Physics* Marquette University, Milwaukee WI
August 1996-July 1998	Postdoctoral Fellow University of Missouri, Columbia MO
May 1992-July 1996	Research Associate Arizona State University, Tempe AZ
August 1990-June 1992	Teaching Assistant Arizona State University, Tempe AZ
May 1989-July 1989	Research Assistant National Physical Laboratory, New Delhi, India

C. EDUCATION

May 1996	Ph.D. in Physics Arizona State University, Tempe, Arizona
Major Area:	Experimental condensed matter physics.
Thesis:	Raman spectroscopic studies of Buckminsterfullerene and related compounds.
Advisor:	José Menéndez, Professor.

* Marquette University announced the closure of their Physics major program in February 2000.

studies with x-ray

- Tuning electronic and structural properties of halide perovskites

Theoretical modeling in organic molecules/polymers

- Calculation of the vibrational spectra of conjugated systems using density-functional theory
- Predicting optical excitations using time-dependent density functional theory
- Modeling dynamic electronic process: electron-hole recombination and triplet state dynamics using time-dependent many-body approaches

Surface-enhanced Raman scattering

- Application in biosensing
- Metal-semiconductor interfaces in organic devices

B. FUNDING

(Overall ~ \$4.0 M)

B1. External Grants (Current)

1. “Textured organic ferroelectric-based transistors as neuromorphic devices”, PI: S. Guha, CoPIs: G. King, S. Gangopadhyay, **National Science Foundation** (ECCS-2324839) (Sept. 2023 – Aug. 2026) \$428,604.
2. “Ice lithography – a novel nanomanufacturing process”, PI: G. King, CoPIs: S. Guha, B. Broderick, **National Science Foundation** (CMMI-2314347) (July 2023 – June 2026) \$510,565 [40% shared credit]

B2. External Grants (Pending)

3. “NSF-MeitY: Charting a path from organic infrared photodetectors to single photon detection with systematic design of molecular semiconductors”, PI: S. Guha, National Science Foundation (Aug. 2024- July 2027) (Pending).
4. “MRI: Track 1 Development of AI-enabled ultrafast time-resolved nonlinear and pump-probe microscope”, PI: S. Guha, **National Science Foundation** (Jul. 2024 – June 2026) (pending).

B3. External Grants (Completed)

5. “MsRI-EW: Precision nanoscale patterning and characterization - From cybernetic proteins to nanoengineered quantum devices”, PI: S. Guha (CoPI: G. King), **National Science Foundation** (ECCS- 2034637) (July 2020-June 2021) \$41,932.
6. “Tuning the spin texture in organic-inorganic halide perovskite” – Equipment upgrade, PI: S. Guha, **National Science Foundation** (DMR-1807263) (January 2020 – July 2023) \$19,436
7. “Tuning the spin texture in organic-inorganic halide perovskite”, PI: S. Guha, **National Science Foundation** (DMR-1807263) (Aug. 2018 – July 2023) \$393,987
8. “MRI: Acquisition of an ultrafast amplified laser system for nonlinear optics and time-resolved spectroscopic studies of condensed matter systems”, PI: S. Guha, CoPIs: P. Yu, G. Bian, R. Glaser, and H. Hunt, **National Science Foundation** (ECCS -1827846), (Oct. 2018 – Sept. 2021) \$352,346 (+\$150,000 cost share)
9. “US-Brazil Workshop on Biosensors: Bioanalytics to Device Integration”, PI: S. Guha (CoPI: B. Lussem), **National Science Foundation** (ECCS-1745328) (August 2017 – July 2019); \$47,858
10. “Carrier dynamics and fast switching by dipole engineering in solution processed thin film transistors”+REU supplement, PI: S. Guha, **National Science Foundation** (ECCS-1707588) (June 2017- May 2020); \$364,914

11. “Polarization-induced transport in all-polymer field-effect transistors” – Equipment upgrade, PI: S. Guha, **National Science Foundation** (ECCS-1305642) (June 2015- May 2016); \$19,747
12. Visiting Researcher – PVE, “Peptide-based electronics”, **CNPq-Brazil** (303443/2014-6), (July 2014-June 2017); \$150,000
13. “Catalyzing New International Collaboration - US-Brazil Collaboration: Peptide nanostructure-based organic electronics”, PI: S. Guha, **National Science Foundation** (IIA-1339011) (December 2013-Nov. 2015); \$48,081
14. “Polarization-induced transport in all-polymer field-effect transistors”+REU supplement, PI: S. Guha, **National Science Foundation** (ECCS-1305642) (June 2013- May 2017); \$328,146
15. “Brazil-US Professorship/Lectureship Program”, PI: S. Guha (CoPI: C. Ullrich), **American Physical Society** and **Sociedade Brasileira de Física** (July 2012); \$4,000
16. “Light scattering studies of organic field-effect transistors”- Equipment upgrade, PI: S. Guha, **National Science Foundation** (ECCS-0823563) (May 2011-August 2012); \$30,280
17. “Light scattering studies of organic field-effect transistors” + REU supplement, PI: S. Guha, **National Science Foundation** (ECCS-0823563) (September 2008-August 2012); \$276,034
18. “Advanced Material Research for Ammunition Application”, **Department of Army**, \$1.2 M (October 2006-Sept. 2008), (PI: S. Gangopadhyay). My part of the project was on the development of organic solar cells. [3% shared credit]
19. “International Research and Education in Engineering supplemental funding”, PI: S. Guha, **National Science Foundation** (September 2007-August 2009); \$23,500
20. REU-Supplement, “Light scattering studies of organic semiconductor based devices” PI: S. Guha; **National Science Foundation** \$6,000 (September 2005-August 2009).
21. “Light scattering studies of organic semiconductor based devices”, PI: S. Guha (CoPI: S. Gangopadhyay), **National Science Foundation** (ECCS-0523656) (September 2005-August 2009); \$239,967
22. “IMR: Acquisition of a thin film deposition system for organic/inorganic materials research and educational training”, PI: S. Guha, **National Science Foundation** (DMR-0413601) (August 2004-July 2005); \$112,000 (+\$48,000 matching)
23. “MRI/RUI: Acquisition of a pulsed laser deposition system for research and educational training in materials science”, CoPI: S. Guha, (with K. Ghosh, B. Breyfogle, R. Giedd and R. Mayanovic) **National Science Foundation** (Sept. 2003-July 2005); \$177,850. [40% shared credit]
24. “Optical spectroscopy of wide band-gap organic semiconductors in organic and hybrid devices”, PI: S. Guha, **ACS-Petroleum Research Fund** (Sept. 2002-August 2005); \$50,000 (+\$15,000 matching)
25. “Raman spectroscopy of organic and hybrid optoelectronic devices under operation”, PI: S. Guha, Cottrell College Science award, **Research Corporation** (May 2001-May 2003); \$19,000
26. “Optical characterization of wide band gap inorganic/organic semiconductors via Raman and micro-Raman spectroscopy”, PI: S. Guha, **ACS-Petroleum Research Fund-GB** (Sept. 2000-Aug. 2002); \$25,000
27. “Molecular imaging of conjugated molecules by Raman spectroscopy “, PI: S. Guha, Cottrell College Science award, **Research Corporation** (May 1999-July 2000); \$27,198 (+\$17,000 matching)

B4. Internal Grants

1. MU Research Council grant, December 2021 (\$10,000)
2. UM South Africa Exchange Program, September 2016 (\$7,000)
3. Research Board, MU, September 2015 (\$19,750)
4. Faculty International Travel grant, MU March 20015 (\$1,500)
5. Arts and Science Alumni Grant, March 2013 (\$1,500)
6. Research Council, MU, May 2010 (\$5,400)
7. Research Board, MU, January 2010 (\$25,000)
8. Faculty International Travel grant, MU May 2007 (\$1,500)
9. Research Council grant, MU, April 2004 (\$1,852)
10. Research Board, MU, January 2004 (\$25,000)
11. SMS Summer Faculty Fellowship, Summer 2001 (\$5,000)
12. SMS Faculty Research Grant, November 2000 (\$7,500)
13. Summer Faculty Fellowship, 1999 -Committee on Research, Marquette University (\$4,300)

C. PUBLICATIONS

Citations > 3600; h-index = 32 (Google Scholar)

C1. Refereed Articles (published/submitted)

#undergraduate students advised by SG

*graduate students/postdoctoral fellows advised by SG

§high school students advised by SG

A) Submitted**B) Published/in press**

1. *Molecularly engineered quinoxaline-pyridyl pyrazine polymers for field-effect transistors and complementary circuits*, J. Barron*, S. Attar, A. Ghobadi*, S. Gangopadhyay, D. Sredojevic, M. Al-Hashimi, and S. Guha, ACS Appl. Electron. Mater. (2024) (10.1021/acsaelm.3c01790).
2. *Insights into growth orientation and phase stability of chemical vapor deposited two-dimensional hybrid halide perovskite films*, C. J. Arendse, R. Burns*, D. Beckwitt, D. Babaian*, S. C. Klue*, D. Stalla, E. Karapetrova, P. F. Miceli, and S. Guha, ACS Appl. Mater Interfaces 15 (50), 59055–59065 (2023).
3. *Joint Forum on Halide Perovskite Materials and Devices for Energy and Electronic Applications*, S. Guha and G. Boschloo, ACS Appl. Electron. Mater. 5 (10), 5258-5260 (2023) ACS Applied Energy Materials 6 (20), 10190-10192 (2023).
4. *Nonlinear optical imaging of carrier transport at the semiconductor-insulator interface in organic field-effect transistors*, P. Bhattacharya*, P. Yu, and S. Guha, Phys. Rev. Appl. **19**, 044059 (2023).
5. *Second order phase transition and stabilizing CH...H and CH...S interactions in naphthyl end-capped bithiophene at 3.5 GPa*, N. Giordano, S. Guha, B. Stewart, J. Kjelstrup-Hansen, M. Knaapila, J. Phys. Chem. C **127**, 1156 (2023).
6. *Looking into a crystal ball: printing and patterning self-assembled peptide nanostructures*, W. A. Alves, G. M. King, and S. Guha, Nanoscale **14**, 15607-15616 (2022).
7. *Visualizing transport in thiazole flanked isoindigo-based donor-acceptor polymer field-effect transistors*, J. Barron*, S. S. Attar, P. Bhattacharya*, P. Yu, M. Al-Hashimi and S. Guha, J. Mater. Chem. C **10**, 14653-14660 (2022).

8. *Temperature-dependent phase stable hybrid halide perovskite films by chemical vapor deposition*, R. Burns*, S. Ngqoloda, S. C. Klue, E. Karapetrova, C. J. Arendse, and S. Guha, ACS Appl. Electron. Mater. **4**, 9, 4258-4264 (2022).
9. *Functionalized polymer dielectrics for low-operating voltage organic field-effect transistors*, J. Barron*, J. Lee, and S. Guha, J. Mater. Research **37**, 1547–1557 (2022).
10. *Weak magnetic field-dependent optical properties of lead bromide perovskites*, R. Butler#, R. Burns*, D. Babaian*, M. J. Anderson, C. A. Ullrich, M. V. Morrell, Y. Xing, P. Yu, and S. Guha J. Appl. Phys. **131**, 125105 (2022).
11. *Organic Electrochemical Transistors in Bioanalytical Chemistry*, A. C. Honorato de Castro, S. Guha, and W. A. Alves, Book Chapter in Tools and Trends in Bioanalytical Chemistry (Springer), 305-312 (2022).
12. *Inorganic Ruddlesden-Popper faults in cesium lead bromide perovskite nanocrystals for enhanced optoelectronic performance*, M. Morrell, A. Pickett*, P. Bhattacharya*, S. Guha, Y. Xing, ACS Appl. Mater. Interfaces **13**, 38579–38585 (2021).
13. *Probing structure–property relationship in chemical vapor deposited hybrid perovskites by pressure and temperature*, R. Burns*, S. Ngqoloda, C. J. Arendse, B. Lavina, A. Dahal, D. K. Singh, and S. Guha, J. Mater. Research **36**, 1805–1812 (2021).
14. *Enhanced third harmonic generation in lead bromide perovskites with Ruddlesden-Popper planar faults*, P Bhattacharya*, M. V. Morrell, Y. Xing, C. J. Mathai, P. Yu, and S. Guha, J. Phys. Chem. Lett. **12**, 4092 (2021).
15. *Solution-processed organic and ZnO field-effect transistors in complementary circuits*, J. Barron*, A. Pickett*, J. Glaser[§], and S. Guha, Electron. Mater. **2**(2), 60-71 (2021).
16. *Mixed-halide perovskites solar cells through PbI₂ and PbCl₂ precursor films by sequential chemical vapor deposition*, S. Ngqoloda, C. J. Arendse, S. Guha, T. F. Muller, S. C. Klue, S. S. Magubane, and C. J. Oliphant, Solar Energy **215**, 179 (2021).
17. *Coupling of organic cation and inorganic lattice in methylammonium lead halide perovskites: Insights into a pressure-induced isostructural phase transition*, S. Yesudhas*, R. Burns*, B. Lavina, S. N. Tkachev, J. Sun, C. A. Ullrich, and S. Guha, Phys. Rev. Materials **4**, 105403 (2020).
18. *Tuning Charge Transport in PVDF-Based Organic Ferroelectric Transistors: Status and Outlook*, A. Laudari*, J. Barron*, A. Pickett*, and S. Guha, ACS Appl. Mater. Interfaces **12**, 26757–26775 (2020).
19. *Air-stable hybrid perovskite solar cell by sequential vapor deposition in a single reactor*, S. Ngqoloda, C. J. Arendse, T. F. Muller, P. F. Miceli, S. Guha, L. Mostert, and C. J. Oliphant, ACS Appl. Energy Mater. **3**, 2350 (2020).
20. *Pressure-induced phase changes in cesium lead bromide perovskite nanocrystals with and without Ruddlesden-Popper faults*, S. Yesudhas*, M. V. Morrell, M. J. Anderson, C. A. Ullrich, C. Kenney-Benson, Y. Xing, and S. Guha, Chem Mater **32**, 785 (2020).
21. *UV-ozone modified sol-gel processed ZnO for improved diketopyrrolopyrrole-based hybrid photodetectors*, A. Pickett*, A. Mohapatra, S. Suman, Q. Lu, G. Bian, K. Ghosh, S. Patil, and S. Guha, ACS Appl. Electron. Mater **1**, 2455 (2019).
22. *Enhanced piezoresponse and nonlinear optical properties of fluorinated self-assembled peptide nanotubes*, S. Khanra*, S. Vassiliades, W. Alves, K. Yang, R. Glaser, K. Ghosh, P. Bhattacharya*, P. Yu, and S. Guha, AIP Advances **9**, 115202 (2019) [Editor's Pick].

23. *Peptide-based assemblies on electrospun polyamide-6/chitosan nanofibers for detecting visceral Leishmaniasis antibodies*, M. S. Liberato, R. S. N. Mancini, I. M. Factori, F. F. Ferreira, V. L. de Oliveira, J. B. T. Carnielli, S. Guha, L. A. Peroni, M. A. L. Oliveira, and W. A. Alves, *ACS Appl. Electron. Mater.* **1**, 2086 (2019).
24. *Atomic deuteration of epitaxial many-layer graphene on 4H-SiC(0001)*, A. R. Mazza, A. Miettinen, M. Conrad, T. R. Charlton, X. He, S. Guha, G. Bian, J. Lin, E. H. Conrad, and P. F. Miceli, *J. Vacuum Science & Technology B* **37**, 041804 (2019).
25. *Revealing interfacial disorder at the growth-front of thick many-layer epitaxial graphene on SiC: a complementary neutron and X-ray scattering investigation*, A. R. Mazza, A. Miettinen, A. A. Daykin, X. He, T. R. Charlton, M. Conrad, S. Guha, Q. Lu, G. Bian, E. H. Conrad, and P. F. Miceli, *Nanoscale* **11**, 14434-14445 (2019).
26. *Interfacial effects of UV-ozone treated sol-gel processable ZnO for hybrid photodetectors and thin film transistors*, A. Pickett, A. A. Mohapatra, S. Ray, C. Robledo, K. Ghosh, S. Patil, and S. Guha, *MRS Advances* **4**, 1793 (2019) doi:10.1557/adv.2019.298
27. *Measuring structural inhomogeneity of a helical conjugated polymer at high pressure and temperature*, T. N. Arge, Z. Konopkova, D. Haase H. P. Liermann, U. Scherf, S. Guha, and M. Knaapila, *J. Poly. Sci. Part B: Polymer Physics* **57**, 392 (2019).
28. *Temperature dependent carrier mobility in organic field-effect transistors: The role of dielectrics*, A. Laudari* and S. Guha, *J. Appl. Phys.* **125**, 035501 (2019). [Editor's Pick]
29. *Textured poling of the ferroelectric dielectric layer for improved organic field-effect transistors*, A. Laudari*, A. Pickett*, F. Shahedipour-Sandvik, K. Hogan, J. E. Anthony, X. He, and S. Guha, *Adv. Mater. Interfaces* **6**, 1801787 (2019).
30. *Polarization modulation in ferroelectric organic field-effect transistors*, A. Laudari*, A. R. Mazza, A. Daykin, S. Khanra*, K. Ghosh, F. Cummings, T. Muller, P. F. Miceli, and S. Guha, *Phys. Rev. Appl.* **10**, 014011 (2018).
31. *Correlating charge transport to structure in deconstructed diketopyrrolopyrrole oligomers: A case study of a monomer in field-effect transistors*, A. Pickett*, M. Torkkeli, T. Mukhopadhyay, A. Laudari*, A. E. Lauritzen, O. Bikondoa, J. Kjelstrup-Hansen, M. Knaapila, S. Patil, and S. Guha, *ACS Appl. Mater. Interfaces* **10** (23), 19844 (2018).
32. *Functionalized self-assembled peptide nanotubes with cobalt ferrite nanoparticles for applications in organic electronics*, S. Khanra*, M. Abdullah-Al., F. Ferreira, K. Ghosh, and S. Guha, *ACS Appl. Nano Mater* **1** (3), 1175 (2018).
33. *High pressure structural studies of conjugated molecules*, M. Knaapila, M. Torkkeli, U. Scherf, and S. Guha, *Conjugated Polymers and Oligomers* (World Scientific Publishing Co. Pte. Ltd) **9**, 175-187 (2018).
34. *Cyclometallated platinum containing diketopyrrolopyrrole complexes and polymers: photophysics and photovoltaic applications*, S. Goswami, J. Hernandez, M. Gish, J. Wang, B. Kim, A. Laudari*, S. Guha, J. Reynolds, J. Papanikolas, and K. Schanze, *Chem. Mater.* **29** (19), 8449 (2017).
35. *Polarization-induced transport in organic field-effect transistors: the role of ferroelectric dielectrics*, S. Guha and A. Laudari*, *Proc. SPIE* **10365**, 103650I-18 Organic Field-Effect Transistors XVI, 103650I (2017) (invited paper).
36. *SERS active self-assembled diphenylalanine micro/ nanostructures: a combined experimental and theoretical investigation*, S. Kogikoski Jr, S. Khanra*, W. A. Alves, and S. Guha, *J. Chem. Phys.* **147**, 084703 (2017).

37. *Polarization-induced transport: A comparative study of ferroelectric and non-ferroelectric dielectric-gated organic field-effect transistors*, A. Laudari*, S. Gangopadhyay, and S. Guha, MRS Advances 1-6. doi:10.1557/adv.2017.324 (2017).
38. *Hybrid ZnO-organic semiconductor interfaces in photodetectors: A comparison of two near-infrared donor-acceptor copolymers*, A. Pickett*, A. Mohapatra, A. Laudari*, S. Khanra, T. Ram, S. Patil, and S. Guha, Organic Electronics **45**, 115 (2017).
39. *Understanding charge transport in lead iodide perovskite thin-film field-effect transistors*, S. P. Senanayak, B. Yang, T. H. Thomas, N. Giesbrecht, W. Huang, E. Gann, B. Nair, K. Goedel, S. Guha, X. Moya, C. R. McNeill, P. Docampo, A. Sadhanala, R. Friend, and H. Sirringhaus, Science Advances **3**, e1601935 (2017).
40. *Probing nonlinear optical properties in self-assembled peptide nanotubes*, S. Khanra*, K. Ghosh, F. Ferreira, W. A. Alves, F. Punzo, P. Yu, and S. Guha, Phys. Chem. Chem. Phys. **19**, 3084 (2017).
41. *Plasmonic nano-protrusions: Hierarchical nanostructures for single molecule Raman spectroscopy*, S. Basuray, A. Pathak, S. Bok, B. Chen, S. Hamm, C. Mathai, S. Guha, K. Gangopadhyay and S. Gangopadhyay, Nanotechnology **28**, 025302 (2017).
42. *Bandlike transport in ferroelectric based organic field-effect transistors*, A. Laudari* and S. Guha, Phys. Rev. Applied **6**, 044007 (2016).
43. *Printed dielectric-based organic diodes and transistors*, K. Gooden#, A. Laudari*, G. Knotts*, and S. Guha, Flex. Print. Electron. **1**, 015004 (2016).
44. *Blue-emitting organic semiconductors under high pressure: status and outlook*, M. Knaapila and S. Guha, Rep. Prog. Phys. **79**, 066601 (2016).
45. *Polycaprolactone Fibers with Self-Assembled Peptide Micro/ Nanotubes: a Practical Route Towards Enhanced Mechanical Strength and Drug Delivery Applications*, M. da Silva Liberato, S. Kogikoski Jr., E. R. da Silva, D. Araujo, S. Guha, and W. A. Alves, J. Mat. Chem. B **4**, 1405 (2016).
46. *Visualization of charge transfer excitations in donor-acceptor molecules using the particle-hole map: a case study*, Y. Li, D. Moghe*, S. Patil, S. Guha, and C. Ullrich, Mol. Phys. **9**, (2016).
47. *Multifunctional biosensors based on peptide-polyelectrolyte conjugates*, S. Kogikoski Jr, C. P. Sousa, M. S. Liberato, T. Andrade-Filho, T. Prieto, F. F. Ferreira, A. R. Rocha, S. Guha, and W. A. Alves, Phys. Chem. Chem. Phys. **18**, 3223-3233 (2016).
48. *Self-Assembled peptide-polyfluorene nanocomposites for biodegradable organic electronics*, S. Khanra*, T. Cipriano, T. Lam, T. A. White, E. Fileti, W. Alves, and S. Guha, Adv. Mater. Interfaces **2**, 1500265 (2015). [selected as inside cover]
49. *Polarization-induced transport in ferroelectric organic field-effect transistors*, A. Laudari* and S. Guha, J. Appl. Phys. **117**, 105501 (2015).
50. *Bio-inspired peptide nanostructures for organic field-effect transistors*, T. Cipriano*, G. Knotts*, A. Laudari, R. Bianchi, W. A. Alves, and S. Guha, ACS Appl. Mater. Interfaces **6**, 21408-21415 (2014).
51. *Visible light photocatalytic activity of NH_4NO_3 ion-exchanged nitrogen-doped titanate and TiO_2 nanotubes*, J. S. Souza, K. Krambrock, M. V. B. Pinheiro, R. A. Ando, S. Guha, and W. A. Alves J. Mol. Cat. A: Chem. **394**, 48-56 (2014).
52. *Enhanced performance of all organic field-effect transistors and capacitors through choice of solvent*, S. Guha, G. Knotts*, and N. B. Ukah*, Proceedings NSTI-Nanotech **3**, 45-48 (2014). (TechConnect World 2014).

53. *Enhanced performance of ferroelectric-based all organic capacitors and transistors through choice of solvent*, G. Knotts*, A. Bhaumik, K. Ghosh, and S. Guha, Appl. Phys. Lett. **104**, 233301 (2014).
54. *Persistence of nematic liquid crystalline phase in a polyfluorene-based organic semiconductor: a high pressure study*, S. Guha, M. Knaapila, D. Moghe*, Z. Konopkova, M. Torkkeli, M. Fritsch, and U. Scherf, J. Poly Science: Polymer Physics B **52**, 1014 (2014).
55. *Photocurrent spectroscopic studies of diketopyrrolopyrrole-based statistical copolymers*, D. Moghe*, G. Dutta, S. Patil, and S. Guha, Phys. Chem. Chem. Phys. **16**, 4291 (2014).
56. *Pressure dependence of singlet and triplet excitations in amorphous polymeric semiconductors*, K. Paudel*, D. Moghe*, P. Yu, M. Chandrasekhar, S. Ramasesha, U. Scherf, and S. Guha, EPL **104**, 27008 (2013).
57. *Measuring structural inhomogeneity of conjugated polymer at high pressures up to 30 GPa*, M. Knaapila, M. Torkkeli, Z. Konopkova, D. Haase, H-P. Liermann, U. Scherf, and S. Guha Macromolecules **46**, 8284 (2013).
58. *Hybrid n-GaN and polymer interfaces: model systems for tunable photodiodes*, P. Kumar, S. Guha, F. Shahedipour-Sandvik, and K. S. Narayan, Organic Electronics **14**, 2818 (2013).
59. *Enhanced mobility and environmental stability in all organic field-effect transistors: the role of high dipole moment solvent*, N. B. Ukah*, S. P. Senanayak, D. Adil*, G. Knotts*, J. Granstrom, K. S. Narayan, and S. Guha, J. Poly Science: Polymer Physics B **51**, 1533 (2013).
60. *Surface-enhanced Raman spectroscopic studies of the Au-pentacene interface: a combined experimental and theoretical investigation*, D. Adil* and S. Guha, J. Chem. Phys. **139**, 044715 (2013).
61. *A structural study of helical polyfluorene under high quasi-hydrostatic pressure*, M. Knaapila, Z. Konopkova, M. Torkkeli, D. Haase, H-P. Liermann, S. Guha, and U. Scherf, Phys. Rev. E **87**, 022602 (2013).
62. *Surface-enhanced Raman spectroscopic studies of metal-semiconductor interfaces in organic field-effect transistors*, D. Adil* and S. Guha, J. Phys. Chem. C **116**, 12779 (2012).
63. *Polarization fluctuation dominated electrical transport processes of polymer-based ferroelectric field-effect transistors*, S. P. Senanayak, S. Guha, and K. S. Narayan, Phys. Rev. B **81**, 115311 (2012).
64. *Charge transfer complex states in diketopyrrolopyrrole polymers and fullerene blends: Implications for organic solar cell efficiency*, D. Moghe*, P. Yu, C. Kanimozhi, S. Patil, and S. Guha, Appl. Phys. Lett. **99**, 233307 (2011).
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D. PRESENTATIONS

D1. Invited Presentations at Conferences and Workshops

1. *Chemical vapor deposited 3D and 2D hybrid halide perovskite films: Insights into phase stability and exciton dynamics*, APS March Meeting 2024, Minneapolis (invited talk)
2. *Beyond silicon electronics: Novel probes and device architectures*, **NSF-MeitY research collaboration workshop**, New Delhi, India (2-3 November 2023) (plenary talk)
3. *Nonlinear optical imaging of carrier transport at the semiconductor-insulator interface in organic field effect transistors*, **SPIE Organic Photonics + Electronics**, San Diego, CA (20-23 August 2023) (invited talk)
4. *Controlling structure and transport in 3D and 2D chemical vapor deposited halide perovskite films*, **ACS Fall Meeting**, San Francisco (13-17 August 2023) (invited talk)
5. *Beyond silicon – the next generation electronics*, **6th Nanoscience and Nanotechnology Summer School**, Cape Town, South Africa (23-25 October 2022)
6. *Shrinking the dimensionality in layered compounds: tunable optical properties*, **NanoAfrica Conference 2022**, Cape Town, South Africa (Oct. 26-28, 2022) (keynote address)
7. *Controlling Structure and Transport in Halide Perovskite Films Using Chemical Vapor Deposition*, **Compound Semiconductor Week 2022**, Ann Arbor, Michigan (May 31-June 3, 2022) (invited talk)
8. *Functionalized polymer dielectrics for low-operating voltage organic field-effect transistors*, **MRS Fall Meeting**, Boston, MA (Nov. 29- Dec. 4, 2021) (invited talk)
9. *Processing polymer dielectrics for improved performance of organic field-effect transistors*, **SPIE Organic Photonics + Electronics**, San Diego, CA (Aug. 1-5, 2021) (invited talk)
10. *Functionalized self-assembled peptide nanostructures: collective phenomena at hybrid interfaces*, **Midscale Research Infrastructure Workshop** -Precision Nanoscale Patterning and Characterization: From Cybernetic Proteins to Nanoengineered Quantum Devices. U. Missouri (Aug. 5- 7, 2020).
11. *Air-stable hybrid perovskite films by sequential vapor deposition: structure, transport, and application in solar cell*, **ACS Fall meeting**, San Francisco, CA (Aug. 16-20, 2020) (invited talk)
12. *Influence of structural variations in diketopyrrolopyrrole-based field-effect transistors*, **SPIE Organic Photonics + Electronics**, San Diego, CA (Aug. 24-26, 2020) (invited talk)
13. *Tuning the structural and optical properties of halide perovskites via pressure: implications in optoelectronic devices*, **International Conference on the Science and Technology of Synthetic Metals**, Glasgow, UK (July 26-31, 2020; postponed to 2022) (invited talk)

14. *Hybrid organic/inorganic photodetectors*, **The 5th South African Nanoscience and Nanotechnology Summer School**, Cape Town, South Africa (Nov. 25-29, 2019) ([invited talk](#))
15. *Metal halide perovskites for next generation displays and solar cells*, **The 5th South African Nanoscience and Nanotechnology Summer School**, Cape Town, South Africa (Nov. 25-29, 2019) ([invited talk](#))
16. *Blue-emitting organic semiconductors under pressure: new perspectives on intermolecular order*, **High Pressure Semiconductor Physics 18 and WHS2** conference in Barcelona, Spain (July 23-27, 2018) ([invited talk](#))
17. *Self-assembled peptide nanostructures: from functional materials to biosensors*, **US-Brazil workshop on Biosensors**, UFABC - Santo Andre, Brazil (Nov. 8-10, 2017) ([invited talk](#))
18. *Polarization-induced transport in organic field-effect transistors: the role of ferroelectric dielectrics*, **SPIE Organic Photonics + Electronics**, San Diego, CA (Aug. 6-10, 2017) ([invited talk](#))
19. *Second harmonic generation in self-assembled peptide nanotubes: Structure-property relationship*, **15th Brazilian Materials Research Society meeting**, Campinas (Sept. 25-29, 2016) ([invited talk](#))
20. *The role of dielectrics and solvents in organic field-effect transistors*, **38th Annual Conference of the Brazilian Chemical Society**, Aguas de Lindoia (May 25-28, 2015) ([plenary talk](#))
21. *Blue-emitting organic semiconductors under pressure: new perspectives on intermolecular order*, **International Conference on Magnetic and Optical Molecular Materials (ICMOMM)**, Indian Institute of Science – Bangalore (March 2-3, 2015) ([invited talk](#))
22. *Enhanced performance of all organic field-effect transistors and capacitors through choice of solvent*, **TechconnectWorld 2014**, Washington DC (June 16-18, 2014) ([invited talk](#))
23. *Visualizing structural changes at the nanoscale: a SERS investigation of metal-organic interfaces in field-effect transistors*, **Workshop on Nanomaterials and Functional Materials**, Federal University ABC, Santo Andre, Brazil (Dec. 9-10, 2013) ([plenary talk](#))
24. *Pressure dependence of singlet and triplet excitons in polymeric semiconductors*, **Study of Matter at Extreme Condition 2013**, Miami-Eastern Caribbean (March 23-30, 2013) ([invited talk](#))
25. *The role of charge transfer excitations in organic solar cells*, **International Conference on Molecular Materials**, Coorg, India (Nov 25-28, 2012) ([Plenary talk](#))
26. *Excitations in organic semiconductors*, **Pak-US workshop** on the application of Nanotechnology, University of Karachi, Karachi, Pakistan (May 29, 2012) ([Plenary talk](#))
27. *Light scattering studies of organic field-effect transistors*, **Pak-US workshop** on the application of Nanotechnology, University of Karachi, Karachi, Pakistan (May 30, 2012) ([Plenary talk](#))
28. *Laser safety and its implication on health*, **Workshop on safety and security**, ICCBS, University of Karachi, Pakistan (June 5-6, 2012) ([invited talk](#))
29. *Light scattering studies of organic field-effect transistors*, **2010 NSF ECCS Grantees' Conference**, Honolulu, Hawaii (Dec. 1, 2010) ([invited talk](#))
30. *Tuning structural and optical properties of blue-emitting polymeric semiconductors*, **High Pressure Semiconductor Physics XIV** conference in Changchun, China, 2-5 August, 2010 ([invited talk](#))
31. *Can theory help in understanding photoexcitations in organic semiconductors? An experimentalist's perspective*, **Excitations in Condensed Matter workshop**, Kavli Institute of Theoretical Physics, University of California-Santa Barbara, October 2009 ([invited talk](#))

32. *Triplet excitons in a ladder-type polymer: applications in solar cells*, **International Conference of Science and Technology of Synthetic Materials**, Porto de Galinhas, Brazil, July 2008 (invited talk)
33. *Chain morphologies in blue-emitting polyfluorenes: impact on light-emitting diodes*, **Materials Research Society Spring Meeting**, San Francisco, April 2006 (invited talk)
34. *Plastic power*, Dedication of the **Center for Nano- and Micro-Electromechanical (NEMS/MEMS) Systems and Nanotechnology**, Univ. of Missouri-Columbia, April. 2006 (invited talk)
35. *Photophysics of light-emitting organic semiconductors*, **Midwest Solid State Conference**, Purdue University, October 2004 (invited talk)
36. *Photophysics of organic emissive semiconductors under hydrostatic pressure*, **High Pressure Semiconductor Physics XI**, conference in Berkeley Ca, 2-5 August, 2004 (invited talk)
37. *Emissive organic semiconductors: a new generation of optoelectronic devices*, **Symposium on NEMS/MEMS Systems and Nanotechnology at MU for Defense Needs**, Univ. of Missouri-Columbia, August 2004 (invited talk)
38. *Raman spectroscopy of GaN*, Workshop on Inorganic /Organic Optoelectronic Devices, **Virginia Tech. Blacksburg**, April 21, 2000 (invited talk)
39. *Optical properties of organic wide band-gap semiconductors under high pressure*, **International Symposium on Anisotropic Organic Materials, Division of Organic Chemistry - 218th National Meeting of the American Chemical Society, New Orleans**, August 1999, (invited poster presentation).

D2. Invited Colloquia and Seminars

1. Colloquium (Physics) at Western Illinois University, April 20, 2023, *Beyond Silicon – The Next Generation Electronics*
2. Condensed Matter Seminar (Department of Physics and Astronomy) at the University of Missouri-Columbia, March 2, 2022, *Ultrafast laser system in MU: new tools for nonlinear optics and time-resolved spectroscopy*
3. Colloquium (Physics) at the University of Cincinnati, Oct. 28, 2021, *Beyond Silicon- What Will the Next Generation Materials be for Optoelectronics?*
4. Condensed Matter Seminar (Department of Physics and Astronomy) at the University of Missouri-Columbia, Nov. 11, 2020, *Tuning the structural and optical properties of halide perovskites via pressure: Implications in optoelectronic devices*
5. Colloquium (Physics) at the University of Vermont, Burlington, March 25, 2020, *Emerging thin film transistor technologies: organic ferroelectric transistors*
6. Colloquium (Nanoscience and Nanoengineering) at SUNY Polytechnic Institute, Albany, Feb. 14, 2020, *Metal halide perovskites for next generation displays and solar cells*
7. Seminar (Physics and Materials Science) at Missouri State University, Springfield, MO, Feb. 21, 2019, *Emerging thin film transistor technologies: organic ferroelectric transistors*
8. Seminar (Physics) at the University of Western Cape, Cape Town, South Africa, May 3, 2017, *Beyond silicon: plastic electronics*
9. Condensed Matter Physics Seminar at the Centro Atomico Inst. Bariloche, Argentina, Nov. 1, 2016, *Self-assembled peptide nanostructures as templates for organic electronics and photonics*

10. Seminar (Materials Science and Engineering) at U. Tennessee, Knoxville, April 19, 2016, *Polarization-induced-transport in organic field-effect transistors: the role of ferroelectric dielectrics*
11. Seminar (Physics) at University of Sao Paulo, Sao Carlos, Brazil, April 29, 2015, *Polarization-induced-transport in organic field-effect transistors*
12. Seminar (Nanoscience) at Universidade Federal do ABC – Santo Andre, Brazil, August 7, 2014, *Beyond Si: Organic field-effect transistors and the role of polymer dielectrics*
13. Condensed Matter Seminar (Department of Physics and Astronomy) at the University of Missouri-Columbia, October 16, 2013, *Organic thin film transistors: The good, the bad, and the ugly*
14. Colloquium (Physics) at Missouri State University, Springfield MO, Sept. 26, 2013, *Organic thin film transistors: The good, the bad, and the ugly*
15. Seminar (Electrical Engineering) at NED University, Karachi, June 4, 2012, *Organic semiconductors: application in transistors and solar cells*
16. Colloquium (Physics) at Northern Iowa University, April 4, 2012, *Donor-acceptor-donor organic semiconductors: application in transistors and solar cells*
17. Seminar (Solid State Structural Chemistry Unit) at the Indian Institute of Science, Bangalore, India, March 29/30, 2011, *Vibronics in organic semiconductors*
18. Colloquium (Chemistry and Physics of Materials Unit) at the Jawaharlal Nehru Center for Advanced Scientific Research, Bangalore, India, March 18, 2011, *Tuning optical and structural properties of organic semiconductors*
19. Seminar (Mizzou Advantage-Sustainable energy) at the University of Missouri-Columbia, Dec. 8, 2010, *Fantastic plastics: the future of organic solar cells*
20. Seminar (Smart Lighting Engineering Research Center) at the Rensselaer Polytechnic Institute, Troy NY, Nov. 11, 2010, *Polymers with a twist: impact on blue light-emitting diodes*
21. Seminar (Department of Physics) at the University at Buffalo (SUNY), Buffalo, NY, October 19, 2010, *The role of triplet excitations in polymer optoelectronics*
22. Seminar (Department of Physics) at the University of York, York, UK, March 29, 2010, *Blue-emitting plastics: the role of triplet excitons*
23. Colloquium (Department of Physics) at the University of Cincinnati, Cincinnati, February 11, 2010, *Blue-emitting plastics: the role of triplet excitons*
24. Condensed Matter Seminar (Department of Physics and Astronomy) at the University of Missouri-Columbia, December 2, 2009, *Triplet excitons in polymer devices*
25. Colloquium (College of Arts and Science) Lincoln University, Jefferson City, MO, February 18, 2009, *Fantastic plastics*
26. Colloquium (Department of Chemistry) at the Indian Institute of Science, Bangalore, India, April 24, 2008, *Polymers with a twist: impact on light-emitting diodes*
27. Colloquium (Department of Physics) at Truman State University, Kirksville, Nov. 8, 2006, *Blue-emitting polymers: application in organic optoelectronics*
28. Condensed Matter Seminar (Department of Physics and Astronomy) at the University of Missouri-Columbia, Nov. 1, 2006, *Space-charge-limited conduction in polyfluorenes*

29. Colloquium (Department of Physics) at National Taiwan Normal University-Taipei, Taiwan, June 7, 2006, *Chain morphologies in blue-emitting polyfluorenes: impact on light-emitting diodes*
30. Colloquium (Civil and Environmental Engineering) at the University of Missouri-Columbia, Nov. 17, 2005, *A pedestrian approach to Raman scattering: applications in materials science*
31. Colloquium (Physics and Materials Science Dept.) at Missouri State University-Springfield, Nov. 10, 2005, *Chain morphologies in polyfluorenes: what does one learn from Raman scattering studies?*
32. Seminar (Department of Materials Physics and Mechanics) at the University of Sao Paulo, Sao Paulo, Brazil, June 1, 2005, *Structure/Property relationships in emissive organic semiconductors: impact on optoelectronic devices*
33. Seminar (Polymer Physics) at the University of Sao Paulo, Sao Carlos, Brazil, May 23, 2005, *Structure/Property relationships in emissive organic semiconductors: impact on optoelectronic devices*
34. R.G. Herb Solid State Seminar (Physics Dept.) at the University of Wisconsin-Madison, April 28, 2005, *Light scattering studies of conjugated polymers and biomolecules*
35. Colloquium (College of Nanotechnology), University at Albany-SUNY, March 4, 2005, *Structure/Property relationships in emissive organic semiconductors: impact on optoelectronic devices*
36. Soft-Matter Seminar at Arizona State University, October 6, 2004, *Photophysics of light-emitting organic semiconductors*
37. O. M. Stewart Colloquium (Physics Dept.) at the University of Missouri-Columbia MO, March 17, 2003, *Photophysics of emissive organic semiconductors-a new generation of optoelectronic devices*
38. Colloquium (Joint Physics and Chemistry Dept.) at Georgetown University, Washington DC, April 10, 2002, *Photophysics of emissive organic semiconductors*
39. Colloquium (Physics Dept.) at the University of Missouri-Rolla, October 4, 2001, *Photophysics of emissive organic semiconductors*
40. R. G. Herb Solid State Seminar (Physics Dept.) at the University of Wisconsin-Madison, May 18, 2000, *Optical properties of poly(para-phenylenes) under high pressure*
41. Colloquium (Physics Dept.) at Virginia Tech. Blacksburg, April 20, 2000, *Vibrational spectroscopy of fullerenes-the isotope effect*
42. Chemistry Colloquium, Marquette University, April 9, 1999, *Isotope effect on the Raman spectrum of C₆₀*
43. Solid State Seminar (Physics Dept.) at the University of Missouri-Columbia, Feb 4, 1998. *Optical properties of conjugated polymers under high pressure*
44. Colloquium at the Indian Institute of Science, Bangalore, India, January 2, 1996, *Isotope effect on the Raman spectrum of C₆₀*
45. Solid State Seminar at the University of Missouri-Columbia, February 21, 1996, *Isotope effect on the Raman spectrum of C₆₀*
46. Solid State Seminar at the Rowland Institute of Science, Boston, June 12, 1996, *Isotope effect on the Raman spectrum of C₆₀*

D3. Public Lectures

1. Saturday Morning Science, University of Missouri, Columbia, October 25, 2008, *Plastic Power*
2. A TIME for Physics First, University of Missouri, Columbia, June 15, 2011, *Plastic Power*
3. Cosmic Conversations, University of Missouri, Columbia, Dec. 3, 2014, *Power up with Plastics*

D4. Contributed Presentations at Conferences and Workshops

> 200 contributed talks/posters at international conferences such as the March Meeting of the American Physical Society and the Materials Research Society. (Details are not shown here.)

3. Teaching**A. COURSES TAUGHT****Since 2003**

*initiated and developed these courses in the undergrad/grad curriculum

(FS = fall semester; WS = winter semester)

Physics 4620*	Undergrad	Intro to Materials Science	FS 2015-2022 (4 times)
Physics 8101*	Graduate	Materials of the 21 st Century Electronics	FS 2013
Physics 8150	Graduate	Condensed Matter Physics-I	WS2013
Physics 176/2760	Undergrad	University Physics II	FS03, WS09, FS12, F21
Physics 2760 (REC)	Undergrad	University Physics II	WS2007
Physics 2750 (REC)	Undergrad	University Physics I	FS2007
Physics 7600/4600*	Grad/Undergrad	Semiconductor Optics	FS04, 07, 11, 18, 20, 23
Physics 3150	Undergrad	Modern Physics	WS2005-2018 (9 times)
Physics 4140	Undergrad	Classical Mechanics	FS 2005
Physics 4060*	Undergrad	Advanced Physics Lab.	FS2006-2014 (3 times)
Physics 8090/9090	Grad	Graduate Research	Since WS2004
Physics 4950	Undergrad	Undergraduate Research	Since FS2003

- April 2017 (U. Western Cape, South Africa) – Two weeks course on *Electronic structure and excitations in nanomaterials* for MS students in Nanoscience (co-taught with C. Ullrich).
- July 2012 (Federal University of ABC, Brazil)– Two weeks course on *Electronic excitations in materials: theory and applications* for graduate/upper level undergraduate students (co-taught with C. Ullrich).
- March 2011 (Jawaharlal Nehru Center for Advanced Scientific Research Institute, Bangalore, India) –One week course on *Photophysics of organic semiconductors* for graduate students.

At Marquette University and Missouri State University (1998-2003)Undergraduate

- Introductory Physics (both algebra and calculus based), including laboratory sections.
- Modern Physics (juniors/seniors)-Semester I and II
- Electronics Circuit Design (laboratory based class for juniors/seniors)

Graduate

- Condensed Matter Physics
- Materials of the 21st Century Electronics
- Statistical Applications in Materials Science

B. POST-DOC/VISITORS MENTORING

- Prof. Wendel Alves, (UFABC, Brazil), Dec. 2023- Feb. 2024

- Prof. Chris Arendse (U. Western Cape, South Africa), Jan 2022- Oct. 2022 (visitor – on Fulbright)
- Dr. Sorb Yesudhas, Nov. 2018- Aug. 2020
- Dr. Mohammad Arif, July 2007-July 2008
- Dr. Samuel Ling, July 2009-Aug. 2010 (visitor)
- Prof. Wendel Alves, Sept. 2014-Nov. 2014 (visitor)
- Dr. Theo Muller, April 2016 (visitor)
- Dr. Thiago Cipriano, July 2018 (visitor)

C. GRADUATE STUDENT MENTORING

C1. As Research Advisor

1. Stephen Klue (Ph.D. in Physics), Fall 2022-present (joint supervision with Prof. Ping Yu)
2. Arash Ghobadi (Ph.D. in Physics), Summer 2022-present
3. Dallar Babaian (Ph.D. in Physics), Summer 2021- present
4. Randy Burns (Ph.D. in Physics), Spring 2019-present
5. John Barron (Ph.D. in Physics), Summer 2018-May 2023 (**Graduated 2023**)
6. Payal Bhattacharya (Ph.D. in Physics), Spring 2018-May 2023 (**Graduated 2023**)
7. Alec Pickett (Ph.D. in Physics), Fall 2014-2019 (**Graduated 2019**)
8. Amrit Laudari (Ph.D. in Physics), Summer 2013-2019 (**Graduated 2019**)
9. Soma Khanra (Ph.D. in Physics), Spring 2013-May 2018 (**Graduated 2018**)
10. Grant Knotts (Ph.D. in Physics), Spring 2012-May 2016 (**Graduated 2016**)
11. Thiago Cipriano (Ph.D. in Nanomaterials, UFABC-Brazil), Spring 2014 [visiting researcher in MU] (**Graduated 2016**)
12. Dhanashree Moghe (Ph.D. in Physics), Fall 2008-May 2014 (**Graduated 2014**)
13. Danish Adil (Ph.D. in Physics), Fall 2008-Dec. 2013 (**Graduated 2013**)
14. Kevin Tarwater (MS in Physics), Fall 2012-May 2013 (**Graduated 2013**)
15. Ndubuisi Ukah (Ph.D. in Physics), Fall 2009-Fall 2012 (**Graduated 2012**)
16. Keshab Paudel (Ph.D. in Physics), Fall 2007-Fall 2012 (**Graduated 2012**)
17. Minseong Yun (Ph.D. in ECE) [joint supervision with Prof. S. Gangopadhyay] (**Graduated December 2009**)
18. Jeff Owens (M.S. Physics), Fall 2008-May 2009 (**Graduated May 2009**)
19. Kai Yang (M.S. Physics), Fall 2006-May 2009 (**Graduated May 2009**)
20. Mohammad Arif (Ph.D. in Physics), Spring 2004-Summer 2007 (**Graduated August 2007**)
21. Vijaya Kattumuri (Ph.D. in Physics) (co-advisor - unofficial) (**Graduated December 2006**) [Advisor: Prof. M. Chandrasekhar]

C2. As Committee Member

1. Jared Williams (Ph.D. Physics) [Fall 2021-present]
2. Mariia Goriacheva (Ph.D. Chemical Engineering) [Spring 2019-Spring 2021]
3. Anna Pittman (Ph.D. Physics) [Spring 2018-2019]
4. Kanokpron Chattrakun (Ph.D. Physics) [Spring 2018-2020]
5. Alessandro Mazza (Ph.D. Physics)[Spring 2017-2019]
6. Fengfei Wang (Ph.D. Physics)[Fall 2016 –May 2017]
7. Andrew Gillespie (Ph.D. Physics)[Fall 2016-May 2017]
8. Kyala Essner (MS, Mathematics) [Spring 2016]
9. Haider Alwzawzy (MS, ECE) [Spring 2016]
10. Hayder Al-Behadili (Ph.D. ECE) [Spring 2015 – Jan 2016]
11. Somik Majumdar (Ph.D. ECE)[Fall 2014-August 2015]
12. Miao Zhang (Ph.D. Physics) [Fall 2014-May 2015]
13. Yonghui Li (Ph.D. Physics) [Fall 2011-May 2014]

14. Shawn Hayden (Ph.D. Physics) [Fall 2010-Sept. 2014]
15. Lakshmi Nilakantan (Ph.D. Chemistry) [Spring 2010-August 2015]
16. Sangho Bok (Ph.D. ECE) [Sept. 2009-May 2010]
17. Mihir Tungare (Ph.D. Nanotechnology, SUNY Albany) [Fall 2008-April 2012]
18. Haibo Lin (Ph.D. Physics) [September 2007-May 2009]
19. Han Baek Lee (Ph.D. Chemistry) [September 2004-August 2007]
20. Richard F. Murphy III (M.S. Chemistry) [September 2004-May 2007]
21. Maslina Tasrin Othman (Ph.D. Electrical Engineering) [September 2004-May 2007]
22. Ravindran Ramasamy (M.S. Electrical Engineering) [September 2005-May 2006]

D. UNDERGRADUATE STUDENT MENTORING

1. Evan Restuccia, Physics, Fall 2023- present
2. Rory Butler, Physics, Spring 2020-May 2022
3. Ogonna Annunoby, Physics, Spring 2019-Summer 2019
4. Joshua Sadler, Physics, Fall 2017 – May 2018
5. Joshua Miles, Physics, Spring 2017-2018
6. Mengya Shi, REU intern from Nankai University, China, Summer 2015
7. Jacob Mieso, Physics REU intern, Summer 2015
8. Daniel von Hoesen, Physics, Spring 2015
9. Kristin Gooden, Physics, Summer 2014 –Dec. 2015
10. Christopher Lutsch, Physics, Spring 2012-2013
11. Luke Andrea, Physics, Fall 2009-Fall 2010
12. Harrison Knoll, Physics & Engineering, Winter 2009-Winter 2010
13. Nick Criswell, Physics, Winter 2009-Winter 2010
14. Alex Ispa-Cowan, Physics, Winter 2008-Summer 2008
15. Zach Childers, Physics, Fall 2006-Summer 2007
16. Christopher Volz, Physics, Summer 2005-Summer 2007
17. Michael Gramlich, Physics, Summer 2005
18. Yvonne Solbrekken, Physics, Fall 2003-Fall 2004

E. HIGH SCHOOL STUDENT MENTORING

1. James Glaser, Rockbridge High School, Columbia MO (Sept 2018-2020)
2. Josh Yoon, Hickman High School, Columbia MO (October 2007-August 2009)
3. QinQin Yu, Rockbridge High School, Columbia MO (January 2009-2010)
4. Sarah Kang, Rockbridge High School, Columbia MO (January 2009-2010)

F. STUDENT MENTORING PRIOR TO MU (1998-2003)

Graduate Students (MS thesis projects)

1. Artur Erlacher (Exchange student, MS 2002 –Technical University, Graz, Austria), “*Raman Spectroscopy of Sc₃N@C₈₀, CdS, Alq₃, PF and BPAPC*”
2. Tony Yau, “*Photoluminescence studies of organic semiconductors and device fabrication*”
3. John Young, “*Raman spectroscopy of organic optoelectronic devices under operation*”

Undergraduate Students (Senior research projects/other projects)

1. John Young (August 2002), “*Organic light emitting diodes using polyfluorenes*”
2. Jonathan Keeth (2003), “*Optical studies of ferromagnetic semiconductors*”
3. Jeff Rice (May 2001), “*Temperature dependent photoluminescence of organic semiconductors with varying backbone conformation*”
4. Daniel Parlow (2000) – Chemistry, Marquette University

5. Robert Keller (1999-2000) –Physics, Marquette University
6. V. Yang (1999-2000) – Physics, Marquette University

4. Service

A. PROGRAMMATIC EFFORTS

- International cooperation between MU Physics and the U. Western Cape (UWC) – Cape Town, South Africa. Coordinated a PEER team between UWC and Brazil (Jan 2018).
- International consultant of the National Institute of Science and Technology in Bioanalysis (INCTBio), a consortium of universities and research laboratories in Brazil, 2017 –2020.
- International cooperation efforts between MU Physics & Astronomy, the Indian Institute of Science-Bangalore, and the International Center of Materials Institute. (Received seed money from the International Research and Education in Engineering Program of the NSF.)
- International cooperation between MU Physics & Astronomy and UFABC (in Santo Andre, Brazil) in the area of peptide nanostructure-based electronics. (Received seed money from the Catalyzing New International Collaboration Program of the NSF.)
- Involved with multi-PI grant proposals in the area of nanoparticles for cancer therapy with the University of Missouri Cancer Nanotechnology Platform.
- Involved with multi-PI grant proposals in the area of nanoscale patterning and nanotechnology with the College of Engineering, MU.

B. PROFESSIONAL SERVICE

- Associate Editor – ACS Applied Electronic Materials; 2018- present
- Symposium Organizer: “Fundamental electronic processes and the role of interfaces in organic semiconductor devices” at the American Physical Society March Meeting, Chicago, March 2022
- Organizer and Chair: Midscale Research Infrastructure Workshop: Precision nanoscale patterning and characterization - From cybernetic proteins to nanoengineered quantum devices; Aug 5-7, 2020 (U. Missouri)
- Organizer and Chair: US-Brazil workshop on Biosensors: Bioanalytics to Device Integration; Federal University of ABC, Santo Andre- Sao Paulo; Nov. 8-10, 2017
- Associate Editor – Journal of Electronic Materials (Springer Verlag); 2014 – 2018
- External PhD examiner – PhD thesis from IIT-Guwahati, India (2015, 2017); PhD thesis from JNCASR-Bangalore, India (2010)
- Organizing committee – “Nanofrontiers Symposium 2013”, University of Missouri, Columbia, June 2013
- Symposium Organizer (and Session chair): “Interface controlled organic thin films for enhancing device performance” at the American Physical Society March Meeting, Portland, Oregon, March 2010
- Symposium Organizer (and Session chair): “Organic photonics”, The International Conference on Optical, Optoelectronic and Photonic Materials and Applications, London, UK, 07-31-2007
- Scientific committee member-Interface controlled organic thin films, European Materials Research Society meeting, May 2008

- National Science Foundation-Panel Review, Nov. 2007 (CAREER), May 2009, Dec. 2009, Oct. 2011(CAREER), 2012 MRI, March 2014, March 2015, Jan. 2016, Jan. 2017, April 2018, Sept. 2018 (CAREER), 2019 MRI, 2019 (CAREER), 2020 MRI, 2020 (CAREER), June 2023 ('was invited 15 additional times but had to decline.)
 - National Science Foundation – MRSEC site visit (April 2021); STC site visit (June 2023).
 - Journal reviewer for ACS journals (J. Am. Chem. Soc., J. Phys. Chem., Macromolecules, ACS – Appl Mater. Interfaces), AIP journals (J. of Applied Physics, J. Chemical Physics, and Appl. Phys. Lett.), APS journals (Phys. Rev. Mater., Phys. Rev. Res.) Elsevier journals, Wiley Journals (Adv. Funct. Mat. and Adv. Mat.), and Nature
 - Reviewer for manuscripts submitted to conference proceedings -Materials Research Society symposium and AIP conference proceedings
 - Proposal reviewer for NSF, Research Corporation, ACS-Petroleum Research fund, Department of Energy, and MU Research Board
 - External reviewer for tenure and promotion [Northwestern University (2022); University of Memphis (2004); Virginia Commonwealth University (2009, 2013); Virginia Commonwealth Univ. Qatar (2015)]
 - APS-Professional Skills Development Workshop (March 2006)
 - Materials Research Society Spring meeting- Judge: Materials Research Society Graduate Student Award Finalists (April 2006)
 - Member of the Advisory Board: Missouri State University (Physics and Materials Science) Fall 2006-2017
- ❖ Member of the American Physical Society since 1991
- ❖ Member of the Materials Research Society since 2000

C. UNIVERSITY SERVICE

- Diversity Committee-College of Arts and Science (2009-2015)
- Adjunct Professor-Electrical and Computer Engineering, MU (2007-present)
- Women in Science (FIG) Guest Speaker: Guest speaker for the freshman group of women students interested in science.
- Brazil Steering Committee (2014-2016)
- Mizzou-India Advisory Group (2017-2018)
- A&S Non-Academic Careers Committee (2018-2020)
- A&S Executive Committee (2020-2023)
- Mizzou Forward Committee (2021-2024)
- EAS Building Committee (2022-present)

D. DEPARTMENT SERVICE

- Physics Ph.D. Qualifying Examination Committee (Fall 2003-Fall 2008)

- Graduate Studies Committee (Spring 2007-2020)
- Physics Personnel Committee (2010-2011; 2020-present)
- Physics Curriculum Committee (2011-2020)
- Physics Strategic Planning Committee (2011-present)
- Chair, Physics Colloquium Committee (2011-2020)
- Faculty Search Committee (2013, 2016, 2018, 2021, 2023)
- Departmental Chair Search Committee (2014)
- Chair, Promotion and Tenure Guideline Committee (2019)
- Director of Graduate Studies (Fall 2020-present)