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Highlights

- A total of 83 peer-reviewed journal publications, 80 peer reviewed conference papers, 1 edited book, 4 book chapters, 1 US patent, and 3 US patent applications. Total Google Scholar citations: 5293
- 2 Plenary and 35 invited presentations, work inclusion in PSMA power technology roadmap.
- Total funding raised ~ $ 11.8 million as PI/co-PI, with total project funding value of $32.5 million. Multiple sources of funding include NSF, ONR, AFOSR, ARO, SRC, NASA, ARPA-E, NY State, private foundation, and industry.
- Advised 10 PhD and 11 MS (Thesis) students, 1 post-doctoral scholar, currently advising 6 PhD, 1 MS student and 2 post-doctoral researchers. PhD graduate Ke Zeng is a tenure track faculty member in UNCC.
- Senior Member IEEE, IEEE EDS Technical Committee on Compound Semiconductor Devices and Circuits, Program Chair GOX 2023, TPC Device Research conference, Guest editor International Journal of High-Speed Electronics and Systems, IEEE TPEL, Scientific Reports, JVST A, APL Materials.
- SEAS Associate Professor Tenure and Promotions Committee Member (2017-2020) and Chair (2019-2020), Mentored to 2 tenure track faculty.
- Integrated microwave laboratory and design to UG/G microwave courses

Research Impact

- Pioneering work on emerging UWB Ga_2O_3 devices, demonstrated highest breakdown (8 kV) Ga_2O_3 FETs, first demonstration of kV-class Ga_2O_3 MOSFET, demonstrated highest frequencies in Ga_2O_3 FETs. This work led to the inclusion of Ga_2O_3 in the power sources manufacturers association (PSMA) power technology roadmap.
- Seminal work on electron transport in UWB Ga_2O_3: identified the mobility limiting mechanism, calculation of velocity identifying its potential for RF applications, use of heterostructure to increase mobility, calculation of ionization coefficient.
- Developed a supercell-based electron transport model that is validated in the AlGaN system.
- Demonstrated the scalability of ferroelectric tunnel junctions to nanoscale dimensions for beyond-CMOS computing.
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- First demonstration of enhancement-mode N-polar GaN technology for mm-wave power amplifier applications.
- Demonstrated low resistance contacts to III-V and first fully self-aligned III-V MOSFET technology.

Education

- **PhD, University of California, Santa Barbara (UCSB).**

Electrical and Computer Engineering. [Sep 2009].
Dissertation : "$In_{0.53}Ga_{0.47}As$ MOSFETs with 5 nm channel and self-aligned Source/Drain by MBE regrowth."
Advisor : Dr Mark Rodwell, Professor, Electrical Engineering, University of California at Santa Barbara.

- **MS, Arizona State University.**

Interdisciplinary Science and Engineering of Materials Program, [May 2004].
Thesis: "Ultra-shallow junctions for sub-100nm Si n-MOSFETs"
Advisor : Dr Stephen M Goodnick, Professor, Electrical Engineering, Arizona State University

- **Bachelor of Technology**, **Indian Institute of Technology (IIT), Madras.**

  Department of Materials Science and Engineering, India [May 2001]. Concentration in Electronic Materials.

Employment History

- **Professor** (Tenured), Electrical Engineering, University at Buffalo (UB), Aug 2021-present.
- **Associate Professor** (Tenured), Electrical Engineering, University at Buffalo (UB), Jun 2017-Jul 2021.
- **Assistant Professor,** Electrical Engineering, University at Buffalo (UB), Sep 2011- May 2017.
- **Assistant Project Scientist,** Electrical and Computer Engineering, UCSB, Sep 2009-Aug 2011.
- **Graduate Student Researcher,** Electrical and Computer Engineering, UCSB, Sep 2004-Sep 2009.
- **Summer Research Intern,** Advanced Transistor and Nanotechnology group, Intel Corporation, Jun-2006-Sep-2006.
- **Graduate Research Assistant,** Center for Solid State Electronics Research, Electrical Engineering, Arizona State University- May-2002 –May-2004
- **Undergraduate Researcher,** Magnetism and Magnetic Materials Lab, Dept of Physics, IIT Madras India, May 2000-May 2001

Honors, Awards, Media

- Cover Page article on IEEE Electron Device Letters, May 2025 issue.
- Work featured in Forbes Technology Council Report[1]
- 2024 UB Exceptional Scholar: Sustained Achievement Award
- Advisor to Chinmoy Nath Saha, Best Student Paper Award, GOX 2023 conference, August 2023.
- Coherent II-VI Foundation Block Gift
- Featured Article in AIP Advances, Jan 2023 on band-structure of AlGaO alloys.
- Editor's Pick article in IEEE EDL, June 2020 issue for highest breakdown in Ga_2O_3 MOSFETs
- Work featured in IEEE Spectrum Magazine[2], MRS Bulletin[3].
- SEAS senior researcher of the year (2019-2020) award.
- Advisor to Ke Zeng, EE department graduate student poster award winner, 2017.
- Advisor to Mohammad Abuwasib, best outstanding EE PhD student of the year, 2015.
- Advisor to Mohammad Abuwasib, best poster award winner at 2nd annual review meeting of Center for Nano-Ferroic Devices (CNFD), University of Nebraska, Lincoln, 2013.
- Golden Reviewer list, IEEE Electron Device Letters, 2010, 2017, 2018.
- Best Poster award at the 2010 International Workshop on Nitride Semiconductors (IWN 2010).
- Co-author, Best Student Paper in Indium Phosphide and Related Materials Conference 2010 (IPRM 2010).
- Best Student Paper finalist in Indium Phosphide and Related Materials Conference 2009 (IPRM 2009).
- Merit Award for Highest Junior GPA in the class at Indian Institute of Technology (IIT) Madras.

1. https://www.forbes.com/councils/forbestechcouncil/2024/09/06/why-gallium-oxide-can-help-deliver-a-sustainable-ai-future/
2. https://spectrum.ieee.org/tech-talk/semiconductors/materials/gallium-oxide-transistors-can-handle-over-8000-volts
3. https://www.cambridge.org/core/journals/mrs-bulletin/news/passivation-coating-increases-power-capabilities-of-ga2o3-semiconductor

Research Publications

83 peer-reviewed journal publications, 76 peer reviewed conference papers, 2 Plenary talks, 31 invited presentations, 1 edited book, 4 book chapters, and 1 patent granted, 1 patent application. Total Google Scholar **citations** (Accessed 09/21/2025): **5293, h-index: 37 and i-10 index: 73**. ** Outcome from supervised student research. Supervised student underlined

Journal Publications:

1. **(Editor's Pick, Cover page)**"E-Mode Vertical β-Ga2O3 (010) U-Trench MOSFETs With In-Situ Mg-Doped Current Blocking Layers," Sudipto Saha, Walid Amir; Jiawei Liu; Lingyu Meng; Dongsu Yu; Hongping Zhao, in *IEEE Electron Device Letters*, vol. 46, no. 5, pp. 725-728, May 2025, doi: 10.1109/LED.2025.3554401.**
2. "Effective phonon dispersion and low-field transport in β-$(Al_xGa_{1-x})_2O_3$ alloy semiconductor ",Ankit Sharma, Animesh Datta, Uttam Singisetti;. *J. Appl. Phys.* 21 May 2025; 137 (19): 195701. https://doi.org/10.1063/5.0252366. **
3. "Radiation resilience of β-Ga_2O_3 Schottky barrier diodes under high dose gamma radiation." Saleh Ahmed Khan, Sudipto Saha, Uttam Singisetti, A. F. M. Anhar Uddin Bhuiyan; *J. Appl. Phys.* 14 December 2024; 136 (22): 225701. https://doi.org/10.1063/5.0233995.
4. "Effective phonon dispersion and low field transport in $Al_xGa_{1-x}N$ alloys using supercells: An *ab initio* approach.", Animesh Datta, Ankit Sharma, Matinehsadat Hosseinigheidari, Uttam Singisetti; *J. Appl. Phys.* 21 November 2024; 136 (19): 195701. https://doi.org/10.1063/5.0230738. **
5. "Comprehensive characterization of nitrogen-related defects in β-Ga2O3 using quantitative optical and thermal defect spectroscopy methods," Hemant Ghadi, Evan Cornuellue, Joe F. Mcglone, Alexander Senckowski, Shivam Sharma, Man Hoi Wong, Uttam Singisetti, Steven A. Ringel, *APL Mater.* 1 September 2024; 12 (9): 091111. https://doi.org/10.1063/5.0225570. **
6. "Thin channel Ga2O3 MOSFET with 55 GHz f_{MAX} and >100 V breakdown", Chinmoy Nath Saha, Abhishek Vaidya, Noor Jahan Nipu, Lingyu Meng, Dong Su Yu, Hongping Zhao, Uttam Singisetti, *Appl. Phys. Lett.* 125, 062101 (2024). https://doi.org/10.1063/5.0208580. **
7. "High growth rate metal organic chemical vapor deposition grown Ga2O3 (010) Schottky diodes", Sudipto Saha, Lingyu Meng, Dong Su Yu, AFM Anhar Uddin Bhuiyan, Hongping Zhao, Uttam Singisetti, *J. Vac. Sci. Technol. A* 42, 042705 (2024). https://doi.org/10.1116/6.0003533
8. "Simulation Studies of Single-Event Effects in β -Ga 2 O 3 MOSFETs," , A. Datta and U. Singisetti, in IEEE Transactions on Electron Devices, IEEE Trasactions on Electron Devices; 71 (1), 476-483, 2024. DOI: 10.1109/TED.2023.3330132. **
9. "Identification and characterization of deep nitrogen acceptors in β-Ga2O3 using defect spectroscopies" Hemant Ghadi, Joe F. McGlone, Evan Cornuelle, Alexander Senckowski, Shivam Sharma, Man Hoi Wong, Uttam Singisetti, Ymir Kalmann Frodason, Hartwin Peelaers, John L. Lyons, Joel B. Varley, Chris G. Van de Walle, Aaron Arehart, Steven A. Ringel; APL Mater. 1 November 2023; 11 (11): 111110. https://doi.org/10.1063/5.0160541. **
10. "Electrical Characteristics of in situ Mg-doped β-Ga2O3 Current-Blocking Layer for Vertical Devices", Sudipto Saha, Lingyu Meng, A F M Anhar Uddin Bhuiyan, Ankit Sharma, Chinmoy Nath Saha,

Hongping Zhao, Uttam Singisetti, Appl. Phys. Lett., September 2023; 123 (13): 132105. https://doi.org/10.1063/5.0155882. **

11. "Scaled β-Ga2O3 thin channel MOSFET with 5.4 MV/cm average breakdown field and near 50 GHz fMAX", Chinmoy Nath Saha, Abhishek Vaidya, A. F. M. Anhar Uddin Bhuiyan, Lingyu Meng, Shivam Sharma, Hongping Zhao, Uttam Singisetti, Appl. Phys. Lett. May 2023; 122 (18): 182106. https://doi.org/10.1063/5.0149062. **
12. "Atomic-Level Insights into the Radiation Damage and Recovery of β-Ga2O3 for High-performance Semiconductors", Hsien-Lien Huang, Christopher Chae, Jared M Johnson, Alexander Senckowski, Shivam Sharma, Uttam Singisetti, Man Hoi Wong, Jinwoo Hwang, Microscopy and Microanalysis, Volume 29, Issue Supplement_1, August 2023, Pages 1472-1473, https://doi.org/10.1093/micmic/ozad067.756. **
13. "Atomic scale defect formation and phase transformation in Si implanted β-Ga2O3", Hsien-Lien Huang, Christopher Chae, Jared M. Johnson, Alexander Senckowski, Shivam Sharma, Uttam Singisetti, Man Hoi Wong, Jinwoo Hwang, APL Mater. June 2023; 11 (6): 061113. https://doi.org/10.1063/5.0134467. **
14. (**Featured)** "Effective electronic band structure of monoclinic β−$(Al_xGa_{1-x})_2O_3$ alloy semiconductor", Ankit Sharma and Uttam Singisetti, AIP Advances 13, 015101 (2023). https://doi.org/10.1063/5.0134155. **
15. "Full-band Monte Carlo simulation of two-dimensional electron gas in (AlxGa1-x)2O3/Ga2O3 heterostructures", Avinash Kumar, Uttam Singisetti, Journal of Applied Physics 132, 205701 (2022); https://doi.org/10.1063/5.0109577. **
16. "Vacuum annealed β-Ga_2O_3 recess channel MOSFETs with 8.56 kV Breakdown Voltage", Shivam Sharma, Lingyu Meng, AFM Anhar Uddin Bhuiyan, Zixuan Feng, David Eason, Hongping Zhao, Uttam Singisetti, IEEE Electron Device Letters, vol. 43, no. 12, pp. 2029-2032, Dec. 2022, doi: 10.1109/LED.2022.3218749.
17. "4.4 kV β-Ga_2O_3 MESFETs with power figure of merit exceeding 100 MW cm^{-2}", Arkka Bhattacharyya, Shivam Sharma, Fikadu Alema, Praneeth Ranga, Saurav Roy, Carl Peterson, Geroge Seryogin, Andrei Osinsky, Uttam Singisetti and Sriram Krishnamoorthy, Appl. Phys. Express 15 061001, 2022.
18. "Self-heating in ultra-wide bandgap n-type SrSnO3 thin films", Prafful Golani, Chinmoy Nath Saha, Prakash P Sundaram, Fengdeng Liu, Tristan K Truttmann, VR Saran Kumar Chaganti, Bharat Jalan, Uttam Singisetti, Steven J Koester, Appl. Phys. Lett. 121, 162102 (2022).**
19. "Plasmon-phonon coupling in electrostatically gated β-Ga_2O_3 films with mobility exceeding 200 $cm^2/V.s$", Anil Rajapitamahuni, Anusha Manjeshwar, Avinash Kumar, Animesh Datta, Praneeth, Ranga, Laxman Thoutam, Sriram Krishnamoorthy, Uttam Singisetti, Bharat Jalan, ACS Nano, 16, 6, pp.8812-8819, 2022.**
20. "Schottky diode characteristics on high-growth rate LPCVD β-Ga_2O_3 films on (010) and (001) Ga_2O_3 substrates", Sudipto Saha, Lingyu Meng, Zixuan Feng, A F M Anhar Uddin Bhuiyan, Hongping Zhao, and Uttam Singisetti, Applied Physics Letters, 120, 172102 (2022). **
21. "Temperature dependent pulsed IV and RF characterization of $(Al_xGa_{1-x})_2O_3/Ga_2O_3$ hetero-structure FET with ex-situ passivation", Chinmoy Saha, Abhishek Vaidya, and Uttam Singisetti, Applied Physics Letters, 120, 172102 (2022). **
22. (**Featured)**"High-Electric-Field Behavior of the Metal-Insulator Transition in TiS_3 Nanowire Transistors", Michael Randle, Alexey Lipatov, Animesh Datta, Avinash Kumar, Ishiaka Mansaray, Alexander Sinitskii, Uttam Singisetti, Jong Han, and Jonathan Bird, Applied Physics Letters, 117, 073102, 2022. DOI: 10.1063/5.0083166 **
23. "β-Gallium oxide power electronics," Andrew J Green, James Speck, Grace Xing, Peter Moens, Fredrik Allerstam, Krister Gumaelius, Thomas Neyer, Andrea Arias-Purdue, Vivek Mehrotra, Akito Kuramata, Kohei Sasaki, Shinya Watanabe, Kimiyoshi Koshi, John Blevins, Oliver Bierwagen, Sriram Krishnamoorthy, Kevin Leedy, Aaron R Arehart, Adam T Neal, Shin Mou, Steven A Ringel, Avinash Kumar, Ankit Sharma, Krishnendu Ghosh, Uttam Singisetti, Wenshen Li, Kelson Chabak, Kyle Liddy,

Ahmad Islam, Siddharth Rajan, Samuel Graham, Sukwon Choi, Zhe Cheng, Masataka Higashiwaki, APL Materials, vol. 10, p. 029201, 2022.

24. "Enhancement Mode β-$(Al_xGa_{1-x})_2O_3/Ga_2O_3$ heterostructure FET (HFET) With High Transconductance and Cutoff Frequency," Abhishek Vaidya, Chinmoy Nath Saha, and Uttam Singisetti, IEEE Electron Device Letters, vol. 42, no. 10, pp. 1444-1447, Oct 2021. DOI:10.1109/LED.2021.3104256. **
25. "Temperature Dependent Current Dispersion Study in β-Ga_2O_3 FETs Using Sub-Microsecond Pulsed IV Characteristics," Abhishek Vaidya, and Uttam Singisetti, vol. 68, no. 8, pp. 3755 - 3761, IEEE Transactions on Electron Devices, 2021. DOI:10.1109/TED.2021.3086434. **
26. Low field electron transport in α-Ga_2O_3: An ab initio approach," Ankit Sharma, and Uttam Singisetti, Applied Physics Letters, 118, 032101, 2021. DOI:10.1063/5.0027787. **
27. "First principles study of thermoelectric properties of β-gallium oxide," Avinash Kumar, and Uttam Singisetti, Applied Physics Letters, 117, 262104, 2020. DOI: 10.1063/5.0027791. **
28. "Low field transport calculations in 2-dimensional electron gas of $(Al_xGa_{1-x})_2O_3/Ga_2O_3$ heterostructures," Avinash Kumar, Krishnendu Ghosh, and Uttam Singisetti, Journal Of Applied Physics, 128, 105703, (2020). DOI: 10.1063/5.0008578. **
29. **(Editor's Pick)** " Field-Plated Lateral Ga_2O_3 MOSFETs with Polymer Passivation and 8.03 kV Breakdown Voltage", Shivam Sharma, Ke Zeng, Sudipto Saha and Uttam Singisetti, IEEE Electron Device Letters, vol. 41, no. 6, pp. 836-839, 2020. DOI: 10.1109/LED.2020.2991146. **
30. "Reply to "Comment on 'Gate-Controlled Metal–Insulator Transition in TiS_3 Nanowire Field-Effect Transistors'"," M. Randle, A. Lipatov, A. Kumar, P. A. Dowben, A. Sinitskii, U. Singisetti, and J. P. Bird, ACS Nano, vol. 13, no. 8, pp. 8498-8500, 2019/08/27 2019. **
31. "Device-Level Thermal Management of Gallium Oxide Field-Effect Transistors," B. Chatterjee, K. Zeng, C. D. Nordquist, U. Singisetti, and S. Choi, IEEE Transactions on Components, Packaging and Manufacturing Technology, vol. 9, no. 12, pp. 2352-2365, Dec. 2019. DOI: 10.1109/TCPMT.2019.2923356. **
32. "Structural, band and electrical characterization of β-$(Al_{0.19}Ga_{0.81})_2O_3$ films grown by molecular beam epitaxy on Sn doped β-Ga_2O_3 substrate.", Abhishek Vaidya, Jith Sarker, Yi Zhang, Lauren Lubecki, Joshua Wallace, Jonathan Poplawsky, Kohei Sasaki, Akito Kuramata, Amit Goyal, Joseph Gardella, Jr., Baishakhi Mazumder, and Uttam Singisetti, Journal of Applied Physics 126(9): 095702, 2019. **
33. "A field-plated Ga_2O_3 MOSFET with near 2-kV breakdown voltage and 520 mOhm-cm2 on-resistance", Ke Zeng, Abhishek Vaidya and Uttam Singisetti, Applied Physics Express, vol. 12(8): 081003, July 2019. **
34. "Space-charge limited conduction in epitaxial chromia films grown on elemental and oxide-based metallic substrates", C.-P. Kwan, M. Street, A. Mahmood, W. Echtenkamp, M. Randle, K. He, J. Nathawat, N. Arabchigavkani, B. Barut, S. Yin, R. Dixit, U. Singisetti, Ch. Binek, and J. P. Bird, AIP Advances 9(5): 055018, 2019.
35. "Characterization and Modeling of Co/$BaTiO_3$/$SrRuO_3$ Ferroelectric Tunnel Junction Memory by Capacitance-voltage (C-V), Current-voltage (I-V) and High-frequency Measurements", M. Abuwasib, H. Lee, J-W. Lee, C-B. Eom, A. Gruverman and U. Singisetti, IEEE Transactions on Electron Devices, vol. 66, no. 5, pp. 2186-2191, May 2019. **
36. "Flexible β-Ga_2O_3 Nanomembrane Schottky Barrier Diodes",E. Swinnich, M. N. Hasan, K. Zeng, Y. Dove, U. Singisetti, B. Mazumder, and, J.-H. Seo, Advancel Electronic Materials, vol.5, no. 3, p. 1800714, 2019. DOI: https://doi.org/10.1002/aelm.201800714. **
37. "Gate-Controlled Metal-Insulator Transition in TiS3 Nanowire Field-Effect Transistors", M. Randle, A. Lipatov, A. Kumar, C.-P. Kwan, J. Nathawat, B.Barut, S. Yin, K. He, N. Arabchigavkani, R. Dixit,

T. Komesu, J. Avila, M. C. Asensio, P. A. Dowben, A. Sinitskii, U. Singisetti, and J. P. Bird, ACS Nano, 13 (1), pp 803-811, 2019. DOI: 10.1021/acsnano.8b08260. **

38. "Assessment of phonon scattering-related mobility in β-Ga_2O_3", A. Parisini, K. Ghosh, U. Singisetti, and R Fornari, Semiconductor Science and Technology 33(10), 105008 (2018). **
39. "Impact Ionization in β-Ga_2O_3", K. Ghosh, and U. Singisetti, Journal of Applied Physics, 124 (8), (2018). **
40. "1.85 kV Breakdown Voltage in Lateral Field-Plated Ga_2O_3 MOSFETs", K. Zeng, A. Vaidya, and U. Singisetti, IEEE Electron Device Letters, vol. 39, no. 9,pp. 1385-1388, 2018. **
41. "Towards a Strong Spin Orbit Coupling Magnetoelectric Transistor", P. A. Dowben, C. Binek, K. Zhang, L. Wang, W. N. Mei, J. P. Bird, U. Singisetti, X. Hong, K. L. Wang, and D. Nikonov, IEEE Journal on Exploratory Solid-State Computational Devices and Circuits, vol 4, pp. 1-9, 2018. DOI: 10.1109/JXCDC.2018.2809640
42. "Interface characterization of atomic layer deposited high-k on non-polar GaN", Y. Jia, K. Zeng, and U. Singisetti, Journal of Applied Physics, 122, 154104 (2017). **
43. "Electron Mobility in Monoclinic β-Ga_2O_3 - Effect of Plasmon-phonon Coupling, Anisotropy, and Confinement", K. Ghosh, and U. Singisetti, Journal of Materials Research 32 (22), 4142 (2017). DOI: 10.1557/jmr.2017.398. **
44. "Recent advances in free-standing single crystalline wide band-gap semiconductors and their applications: GaN, SiC, ZnO, β-Ga2O3, and diamond", M.Kim, J.-H. Seo, U.Singisetti, and Z. Ma, Journal of Materials Chemistry C 5(33): 8338-8354, (2017).
45. "Temperature Dependent Quasi-static Capacitance-Voltage Characterization of SiO2/β-Ga2O3", K. Zeng, and U. Singisetti, Applied Physics Letters, 111, 122108, (2017).**
46. "Negative Differential Conductance & Hot-Carrier Avalanching in Monolayer WS2 FETs."G. He, J. Nathawat, C.-P. Kwan, H. Ramamoorthy, R. Somphonsane, M. Zhao, U. Singisetti, K. Ghosh, M. Terrones, R. Vajtai, P. M. Ajayan, D. K. Ferry and J. P. Bird,Scientific Reports 7(1): 11256, (2017). **
47. "Ab initio velocity-field curves in monoclinic β-Ga_2O_3", K. Ghosh, and U. Singisetti, Journal of Applied Physics, 122, 035702, 2017. **
48. "Sub-100 nm Integrated Ferroelectric Tunnel Junction Devices using Hydrogen Silsesquioxane Planarization", M. Abuwasib, J. Lee, H. Lee, C.-B. Eom, A. Gruverman, and U. Singisetti, Journal of Vacuum Science & Technology B, vol. 32, no.2, 021803, 2017 .**
49. "Ga_2O_3 MOSFETs using Spin-on-Glass Source/Drain Doping Technology", K. Zeng, J. Wallace, C. Heimburger, K. Sasaki, A. Kuramata, T. Masui, J. Gardella, and U. Singisetti, IEEE Electron Device Letters, vol. 38, no. 4,pp. 513-516, 2017. **
50. "Interface characterization of atomic layer deposited Al_2O_3 on m-plane GaN", Y. Jia, J. S. Wallace, E. Echeverria, J. A. Gardella Jr, and U. Singisetti, Phys. Status Solidi B, 1600681, 2017. DOI:10.1002/pssb.201600681. **
51. "Ab-initio calculation of electron-phonon coupling in monoclinic β-Ga_2O_3 crystals", K. Ghosh, and U. Singisetti, *Applied Physics Letters*, vol. 109, p. 072102, (2016). **
52. "Interface State Density in Atomic Layer Deposited SiO_2/β-Ga_2O_3 (201) MOSCAPs", K. Zeng, Y. Jia, and U. Singisetti, *IEEE Electron Device Letters*, vol. 37, no. 7, pp. 906-909, July 2016. **
53. "Scaling of Electroresistance Effect in Fully Integrated Ferroelectric Tunnel Junctions", M. Abuwasib, H. Lu, T. Li, P. Buragohain, H. Lee, C.-B. Eom, A. Gruverman and U. Singisetti, *Applied Physics Letters*, vol. 108, p. 152904, (2016). **
54. "Band Offset Characterization of the Atomic Layer Deposited Aluminum Oxide on m-plane Indium Nitride", Y. Jia, J. Wallace, J. A. Gardella Jr, A. M. Dabiran and U. Singisetti, *Journal of Electronic Materials*, 45 (4), pp 2013-2018, (2016). **

55. "Electrical characterization of atomic layer deposited Al_2O_3/InN Interfaces", Y. Jia, A. M. Dabiran and U. Singisetti, *Journal of Vacuum Science & Technology A*, vol. 34, 01A133 (2016). **
56. "Contact resistance to $SrRuO_3$ and $La_{0.67}Sr_{0.33}MnO_3$ epitaxial films", M. Abuwasib, H. Lee, C.-B. Eom, A. Gruverman and U. Singisetti, *Applied Physics Letters*, vol. 107 (24), 242905, (2015). **
57. "Thermoelectric Transport Coefficients in Mono-layer MoS_2 and WSe_2: Role of Substrate, Interface Phonons, Plasmon, and Dynamic Screening", K. Ghosh, and U. Singisetti, *Journal of Applied Physics*, vol. 118 (14), 135711, (2015). **
58. "Atomic Layer Deposition of Hafnium(IV) Oxide on Graphene Oxide: Probing Interfacial Chemistry and Nucleation by using X-ray Absorption and Photoelectron Spectroscopies", T. E. G. Alivio, L. R. De Jesus, R. V. Dennis, Y. Jia, C. Jaye, D. A. Fischer, U. Singisetti, S. Banerjee, *ChemPhysChem*, 16 (13), 2842-2848, 2015. **
59. "Conduction Mechanisms in CVD-Grown Monolayer MoS_2 Transistors: From Variable-Range Hopping to Velocity Saturation", G. He, K. Ghosh, U. Singisetti, H. Ramamoorthy, R. Somphonsane, G. Bohra, S. Najmaei, R. Vajtai, P. M. Ajayan, and J. P. Bird, *ACS Nano Letters*, vol. 15 (8), 5052-5058, 2015. **
60. "Spectroscopic and electrical calculation of band alignment between atomic layer deposited SiO_2 and β-Ga_2O_3 (-201)", Y. Jia, K. Zeng, J. S. Wallace, J. A. Gardella, and U. Singisetti, *Applied Physics Letters,* vol. 106, 102107 (2015). **
61. "Electric-field dependent conduction mechanisms in crystalline chromia", C.-P.Kwan, R. Chen, U. Singisetti, and J.P. Bird, *Applied Physics Letters*, 106, 112901 (2015). **
62. "Control of InGaAs and InAs facets using metal modulation epitaxy", M.A. Wistey, A. K. Baraskar, U. Singisetti, G. J. Burek, B. Shin, E. Kim, P. C. McIntyre, A. C. Gossard, M. J. W. Rodwell, *Journal of Vacuum Science & Technology B*, vol. 33, 011208 (2015). **
63. "Rode's iterative calculation of surface optical phonon scattering limited electron mobility in N-polar GaN devices", K. Ghosh, and U. Singisetti, *Journal of Applied Physics*, vol. 117, 065703 (2015). **
64. "RF performance and avalanche breakdown analysis of InN tunnel FETs", K. Ghosh, and U.Singisetti, *IEEE Transactional on Electron Devices,* vol.61, no.10, pp.3405-3410, Oct. 2014. **
65. "High performance N-polar GaN Enhancement-mode device technology", U. Singisetti, M. H. Wong, and U. K. Mishra, *Semiconductor Science and Technology,* vol. 28, no. 7, p. 074006, 2013.
66. "N-Polar GaN Epitaxy and High Electron Mobility Transistors", M. H. Wong, S. Keller, Nidhi, S. Dasgupta, D. J. Denninghoff, S. Kolluri, D. F. Brown, J. Lu, N. A. Fichtenbaum, E. Ahmadi, S. P. DenBaars, J. S. Speck, U. K. Mishra, U. Singisetti, S. Rajan, and A. Chini, *Semiconductor Science and Technology,* vol. 28, no. 7, p. 074009, 2013.
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Uttam Singisetti, presented at the *8th Gallium Oxide Workshop (GOX2025),* University of Utah, Salt Lake City, August 2025.

2. "Heavy ion single event effects (SEE) testing of kV-class lateral gallium oxide MOSFETs", Shivam Sharma, Andrew L. Sternberg, Animesh Datta, Noor Jahan Nipu, Sudipto Saha, Walid Amir, Jiawei Liu, Christina DiMarino, Partha S. Chakraborty, and Uttam Singisetti, presented at the *8th Gallium Oxide Workshop (GOX2025),* University of Utah, Salt Lake City, August 2025.
3. "Enhancement-Mode Vertical β-Ga2O3 U-Trench MOSFETs Featuring In-Situ Mg-Doped Current Blocking Layers", Walid Amir, Sudipto Saha, Jiawei Liu, Lingyu Meng, Dongsu Yu, Hongping Zhao, and Uttam Singisetti, presented at the *8th Gallium Oxide Workshop (GOX2025),* University of Utah, Salt Lake City, August 2025.
4. "Neutron Radiation-Induced Electrical Performance Modifications and Recovery in β-Ga_2O_3 Schottky Barrier Diodes", Saleh Ahmed Khan, Sudipto Saha, Walid Amir, Ahmed Ibreljic, Jiawei Liu, Uttam Singisetti, A F M Anhar Uddin Bhuiyan, presented at the *8th Gallium Oxide Workshop (GOX2025),* University of Utah, Salt Lake City, August 2025.
5. "High-Voltage-Design and Ultrafast-Switching Issues of an UWBG Vertical Ga2 O3 MOSFET", Sudip K Mazumder, Uttam Singisetti, Hongping Zhao, Xiu Yao, Mohammad Farsijani, Vikash Jangir, Sudipto Saha, Walid Amir, Jiawei Liu, Arindam Sircar, Lingyu Meng, Dong S Yu, *2025 IEEE Energy Conversion Congress & Exposition Asia (ECCE-Asia)*, Bengaluru, India, 2025, pp. 1-6, doi: 10.1109/ECCE-Asia63110.2025.11111809.
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8. "Ab-initio calculated low-field electron mobility in AlN", to be presented at the 12th International Workshop on Nitride Semiconductors, Nov 3-8, 2024, O'ahu, HI, USA.
9. "Radiation Resilience of β-Ga2O3 Schottky Barrier Diodes Under High Gamma Doses", Saleh Ahmed Khan, Sudipto Saha, Uttam Singisetti, and Anhar Bhuiyan, presented at the GOX 2024 conference, Columbus, OH, August 2024.
10. "Highly Scaled β-(AlxGa1-x)2O3/Ga2O3 Tri-gate HFETs with current gain cut-off frequency of 50 GHz and power gain cut-off frequency of 40 GHz", Chinmoy Nath Saha, Noor Jahan Nipu, and Uttam Singisetti, presented at the GOX 2024 conference, Columbus, OH, August 2024.
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67. "Regrowth of Self-Aligned, Ultra Low Resistance Ohmic Contacts on InGaAs", M.A. Wistey, G.J. Burek, U. Singisetti, A. Nelson, B.J. Thibeault, S.R. Bank, M.J.W. Rodwell, and A.C. Gossard, *5th International Conference on Molecular Beam Epitaxy* August 3 – 8, 2008, University of British Columbia, Vancouver, Canada.
68. "MBE Regrown Contacts for InGaAs Field Effect Transistors", M.Wistey, U.Singisetti, G.Burek, J.Cagnon, S.Stemmer, M.Rodwell, A.Gossard, presented at *2008 Electronic Materials Conference.* June 2008, Santa Barbara,CA.
69. "Technology Development & Design for 22 nm InGaAs/InP-channel MOSFETs", M. J. W. Rodwell, U. Singisetti, M. Wistey, G. Burek, A. Gossard, C. Palmstrøm, E. Arkun, P. Simmonds, S. Stemmer, R. Engel-Herbert, Y. Hwang, Y. Zheng, P. Asbeck, Y. Taur, M. V. Fischetti, B. Yu, D. Wang, Y. Yuan, C. Sachs, A. Kummel, P. McIntyre, C. Van de Walle, and J. Harris, *Indium Phosphide and Related Materials Conference 2008*.
70. "On the Feasibility of low-THz InP HBTs", M. Rodwell, Z. Griffith, E. Lind, U. Singisetti, M. Wistey, A. Gossard, *2008 Government Microcircuit Applications and Circuit Technology Conference*, Mar 17-20, 2008, Las Vegas, NV.

71. "Ultra-Low Resistance Ohmic contacts to InGaAs/InP", U. Singisetti, A. M. Crook, J.D. Zimmerman, M. A. Wistey, A.C. Gossard, and M. J. Rodwell; *2007 Device Research Conference*, University of Notre Dame, South Bend, IN, USA, Jun 2007.
72. "On the Feasibility of few-THz Bipolar Transistors", M Rodwell, E. Lind, Z. Griffith, A.M. Crook, S.R. Bank, U. Singisetti, M. Wistey, G. Burek, A.C. Gossard, *2007 IEEE Bipolar/BiCMOS Circuits and Technology Meeting, 2007*. Sept. 30 2007-Oct. 2 2007 Page(s):17 - 21, Boston, Mass.
73. "Frequency Limits of InP-based Integrated Circuits", Mark Rodwell, E. Lind, Z. Griffith, S. R. Bank, A. M. Crook, U. Singisetti, M. Wistey, G. Burek, A.C. Gossard, *IEEE Int. Conf. Indium Phosphide and Related Materials*, Matsue, Japan, May 14-18, 2007.
74. "MBE growth of ErAs/In(Ga)As epitaxial ultra-low resistance ohmic contacts", S.R. Bank, U. Singisetti, A. M. Crook, J.D. Zimmerman, J. M. O. Zide, A.C. Gossard, and M. J. Rodwell; presented at the *2006 North American MBE Conference*, Durham, NC, USA, Oct 2006.
75. "Two-dimensional electrical Characterization of ultrashallow Source/Drain Extensions for nanoscale MOSFETs", U Singisetti, M. R. McCartney, J. Li, P. S. Chakraborty, S. M.Goodnick, T. J. Thornton, M. N. Kozicki; *Sixth International Conference on New Phenomena in Mesoscopic Systems and Fourth International Conference on Surfaces and Interfaces of Mesoscopic Devices*, Maui, Hawaii, USA, December 2003.
76. "Developing Bipolar Transistors for Sub-mm-Wave Amplifiers and Next-Generation (300 GHz) Digital Circuits", Mark Rodwell, Z. Griffith, N. Parthasarathy, E. Lind, C. Sheldon, S. R. Bank, U. Singisetti, M. Urteaga, K. Shinohara, R. Pierson, P. Rowell, *Device Research Conference, June 2006*, State College PA.
77. "Frequency Limits of Bipolar Integrated Circuits", M.Rodwell, Z.Griffith, N.Parthasarathy, U.Singisetti, V.Paidi, M.Urteaga, R.Pierson, B.Brar; *IEEE MTT-S International Microwave Symposium Digest, 2006*. pp 329-332.
78. "Selectively implanted subcollector DHBTs and implanted pedestal-subcollector InP DHBTs", N. Parthasarathy, Z. Griffith, C. Kadow, U. Singisetti, M. Urteaga, K. Shinohara, B. Brar and M. J. Rodwell; presented at the *Indium Phosphide and Related Materials Conference*, Princeton University, USA, May 2006.
79. "InP HBT Digital ICs and MMICs in the 140-220 GHz band", Mark Rodwell, Z. Griffith, V. Paidi, N. Parthasarathy, C. Sheldon, U. Singisetti, M. Urteaga , R. Pierson, P. Rowell, B. Brar, 2005 Joint 30th *International Conference on Infrared and Millimeter Waves and 13th International Conference on Terahertz Electronics*, September 19-23, 2005 Williamsburg, Virginia USA.
80. "Electron Holographic Characterization of Nanoscale Charge Distribution for Ultra Shallow PN Junctions in Si", P. S. Chakraborty, M. R. McCartney, J. Li, C. Gopalan, U. Singisetti, S. M. Goodnick, T.J.Thornton, M.N.Kozicki; *The Fourth International Symposium on Nanostructures and Mesoscopic Systems*, Tempe, February 17-21, 2003.

Edited Books:

1. Selected Topics in Electronics and Systems, vol 63, "Widebandgap Semiconductor Electronics and Devices" Edited by Uttam Singisetti, Towhidur Razzak, Yuewei Zhang, Scientific Publishing Company, 2019.

Book Chapter:

1. "Electron transport in β-Ga_2O_3 from first-principles calculations", by A. Kumar, K. Ghosh, Uttam Singisetti, in β-Ga2O3: Wide Bandgap Semiconductor Theory and Applications, by AIP Publishing, 2023.
2. "Theory of High Field Transport in β-Ga_2O_3", by K. Ghosh, Uttam Singisetti, in IJHSES Speical Issue on Widebandgap Semiconductors, World Scientific Publishing Company, 2019.
3. "Electron transport studies in β-Ga_2O_3 ", by K. Ghosh, Avinash Kumar, Uttam Singisetti, in Gallium Oxide: Crystal Growth, Materials Properties, and Devices, Springer, 2019.
4. "Low and High Field Transport in Ga_2O_3", by K. Ghosh, Uttam Singisetti, in Gallium oxide (Ga2O3): Synthesis, Properties and Applications, Elsevier, 2018.

Patents:

1. "Non-volatile latch using magneto-electric and ferro-electric tunnel junctions", by Andrew Marshall, Jonathan P. Bird, Uttam Singisetti, Dmitri E. Nikonov, US Patent : US9368208 B1, Jun 14, 2016.
2. "Ga2O3 vertical trench MOSFET with in-situ Mg-doped current blocking layer", by Uttam Singisetti et al, US Patent application 63/717,887, Nov 11, 2024.
3. "Reducing Net Carrier Concentration in β-Ga2O3 to for High-Voltage Vertical Power Devices", by Uttam Singisetti et al, US Patent application 63/843,951, July 14, 2025.
4. "Gallium oxide lateral field-plated multi-kV power MOSFETs", by Uttam Singisetti et al, US Patent application 63/859,125, Aug 6, 2025.

Plenary Speaker

1. "High voltage and high-speed gallium oxide devices", Uttam Singisetti, The 7th United States Gallium Oxide Workshop, Ohio State University, Aug 5-7, 2024, Columbus, Ohio, USA.
2. "Electron transport and high voltage device studies in β-Ga_2O_3", Uttam Singisetti, Indo-US Workshop on Frontiers of Excellence in Wide and Ultrawide Bandgap Semiconductors and Electronic Systems Sponsored by Indo-US Science and Technology Forum, December 14-15, 2019 Victor Menezes Convention Centre, IIT Bombay.

Invited Presentations

1. "Recent progress and challenges in gallium oxide high performance devices", be presented at the 2025 International Conference on Solid State Devices and Materials (SSDM2025), held at Yokohama, Japan, Sept 15-18, 2025.
2. "Current status and challenges in gallium oxide high performance devices", to be presented at the 2025 Device Research Conference, held at Duke University in Durham, NC, USA, June 22-25, 2025.
3. "Advanced gallium oxide devices", presented at the 247th ECE Meeting, Montreal, Canada, May 18-22, 2025.
4. "Ultrawidebandgap semiconductors: a new frontier in semiconductor microelectronics", Booz Allen Hamilton Colloquium Series, ECE Department, University of Maryland, College Park, MD, April18, 2025.

5. "Gallium oxide high voltage devices for grid applications", presented at Oxide-based Materials and Devices XVI international conference (Conference OE108), which will be held in San Francisco January 25-30, 2025 at SPIE-Photonics West, The Moscone Center, San Francisco, California, USA.
6. "Kilovolt-class and highly scaled gallium oxide devices: applications in instrumentation", presented at the Keysight Technologies, Oct 30th, 2024, Santa Rosa, CA, USA
7. "Potential and challenges in gallium oxide, the next generation power semiconductor technology", presented at IEEE Power Electronics Society, San Francisco Bay Area Chapter, Oct 29th, 2024, Santa Clara, California, USA.
8. "High performance gallium oxide power and RF devices", presented at the Workshop on Emerging Trends in Semiconductor Technology, Aug 22-23, University at Buffalo, Buffalo, NY, USA.
9. "High performance gallium oxide devices", presented at the 2024 Compound Semiconductor Week (CSW), June 3-6, 2024, Lund, Sweden.
10. "Electron transport studies in gallium oxide and aluminum-gallium-oxide alloys", presented at 5th International Workshop on Gallium Oxide and Related Materials (IWGO), May 26 – 31, 2024, Berlin, Germany.
11. "High Voltage Gallium Oxide Devices for Next Generation Power Electronics", presented at the PSMA Power Technology Roadmap Webinar, Feb 8, 2024.
12. "Kilovolt-class and highly scaled gallium oxide devices", to be presented at the XXII International Workshop on Physics of Semiconductor Devices, 13 - 17 December 2023, IIT Madras, Chennai, India
13. "Highly scaled Ga2O3 FETs for extreme environment RF applications", presented at the 81st Device Research Conference, June 25-28, 2023, Santa Barbara, CA.
14. "Gallium oxide devices for grid-scale power electronics and high power switched mode RF amplifiers", invited talk to be presented at the 243rd ECS Meeting with the 18th International Symposium on Solid Oxide Fuel Cells (SOFC-XVIII) May 28-June 2, 2023, Boston, MA
15. "Gallium oxide devices for grid-scale power electronics and high power switched mode RF amplifiers", technical seminar presented at Texas Instruments, Dec 7th, 2022. (Virtual)
16. "Gallium oxide power and RF devices", graduate seminar presented at the ECE department, Pennsylvania State University, Oct 14th, 2022. State College, PA.
17. "Gallium oxides lateral devices: kV power transistor to high power switched mode RF amplifiers", invited presentation at the 14th Topical Workshop on Heterostructure Microelectronics, Aug 29th -Sep 1st , 2022, Hiroshima, 2022.
18. "Gallium oxide based power and RF devices", invited talk presented at the SPIE Radar Sensor Technology conference, 11 - 15 April 2021, Orlando, FL.
19. "Ga_2O_3 materials and devices" invited talk to be presented at the 237th ECS Spring Meeting, May 10-15, 2020 — Montreal, Canada. (Cancelled due to COVID-19)
20. "Low-field and high field transport in monoclinic β-Ga_2O_3" , Uttam Singisetti, Krishnendu Ghosh, Ankit Sharma, Invited Presentation, 3rd International Workshop on Gallium Oxide and Related Materials (IWGO-3), August 12-15, The Ohio State University (OSU) in Columbus, Ohio, 2019
21. "Transport and device studies in beta-gallium oxide and related alloys", Uttam Singisetti, Invited Presentation, 4th Functional Oxide Thin Films for Advanced Energy and Information Technology Conference, 17 – 20 July 2019, 2019, Lisbon, Portugal
22. "Ga_2O_3 power and RF devices: opportunities and challenges", Uttam Singisetti, Invited Presentation, Third Ultrawide-Bandgap Workshop, May 14-16, 2019, Army Research Laboratory, Adelphi, MD
23. "Transport, interface and device studies in β-Ga_2O_3", Uttam Singisetti, Krishnendu Ghosh, Ke Zeng, Abhishek Vaidya, Ankit Sharma, Avinash Kumar, Invited Presentation, European Materials Research

Society (EMRS), Fall 2018 meeting, Symposium P "Epitaxial oxide films for electronic applications", Sept 17-Sept 20, Warsaw, Poland, 2018.

24. "Low-field and high field transport in monoclinic β-Ga_2O_3" Uttam Singisetti, Krishnendu Ghosh, Ankit Sharma, Invited Presentation,2018 Lester Eastman Conference on High Performance Devices (LEC 2018), August 12-14, Ohio State University, Columbus, OH, 2018
25. "Lateral Ga_2O_3 MOSFETs with 1.85 kV breakdown", U. Singisetti, K. Zeng, A. Vaidya, Invited Talk, 3rd US Workshop on Gallium Oxide (GOX 2018), August 15-16, Ohio State University, Columbus, OH, 2018
26. "Ultra-widebandgap Ga_2O_3 semiconductor for next generation power electronics", U. Singisetti, GE Global Research, April 2017, Niskayuna, NY.
27. "High power to low power devices: Materials to Devices", U. Singisetti, Indian Institute of Technology, Hyderabad, Dec 2016.
28. "Ga_2O_3/dielectric interface characterization and transport in Ga_2O_3", 2016 2nd AFRL Workshop on β-Ga_2O_3: Synthesis, Characterization, and Applications, Arlington, VA, Dec 12-13, 2016.
29. "Ferroelectric tunnel junctions for beyond-CMOS computing", Intel-NRI annual meeting, Hillsboro, OR, Sept 8-9, 2016.
30. "Scalability and integration challenges of ferroelectric tunnel junctions (FTJs)", e-workshop to members of Nanoelectronics Research Initiative (NRI) sponsored by Semiconductor Research Corporation (SRC), Tuesday, May 24, 2015.
31. "High power to low power devices: Materials to devices", by Uttam Singisetti, Invited presentation to the Green ICT Device Advanced Development Center at the National Institute of Information and Communication and Technology (NICT), Tokyo, Japan, November 2nd, 2015.
32. "Advanced III-N device technologies for next generation THz devices", AFRL, Dayton, Ohio, April 19, 2013.
33. "GaN HEMTs for More than Moore", SEMATECH Inc, CNSE, University at Albany, Oct 02, 2012.
34. "Enhancment-mode N-polar GaN devices", U. Singisetti, 2013 Materials Research Symposium (MRS) Fall Meeting, Boston, USA, Dec 03, 2013.
35. "High performance III-V and GaN transistors with self-aligned technology: A way to reach intrinsic device performance", Electrical Engineering, University at Buffalo, April 27, 2011.

Professional Service

- Guest Editor, APL Materials Special Issue on Ultrawide Bandgap Semiconductors
- SUNY STRIVE Microelectronics Packaging Task Force member.
- Editorial board member, Scientific Reports
- Guest Editor on Special Section on Ultrawide/Wide Bandgap Device, Packaging, Control, EMI, and Applications for Power Electronics in IEEE Transactions on Power Electronics.
- Guest Editor, JVST A Special Collection: Gallium Oxide Materials and Devices
- Guest Editor on Ultrawide bandgap semiconductors, Scientific Reports
- Program chair, GOX2023 conference held at Buffalo in August 2023.
- Invited technical committee member on "Extreme Electronics: Projected Scientific Breakthroughs in 2027-2032", DEVCOM Army Research Laboratory Technology Forecasting Office, Feb 2024.
- Technical Program Committee member: IEEE Electron Devices Technology and Manufacturing Conference (EDTM), 2020, 2021, Compound semiconductor Week (CSW 2022), 4th International Workshop on Gallium Oxide and Related Materials (IWGO-4, 2022).

- Inaugural organizing committee member of GOX 2020, a national workshop on Ga_2O_3 research.
- Guest Editor, IJHSES Special Issue on Widebandgap Semiconductors, invited by IJHSES Editor-In-Chief : Prof. Micheal Shur, RPI
- Senior Member Institute of Electrical and Electronics Engineers (IEEE), IEEE Electron Devices Society, IEEE Microwave Theory and Techniques Society
- IEEE EDS Technical Committee on Compound Semiconductor Devices and Circuits
- Member of American Physical Society (APS)
- Technical Program Committee member: IEEE Device Research Conference (DRC), 2017,2018, 2019.
- Organized a DRC rump session on "Ultrawide-bandgap semiconductors (Ga2O3, Diamond, AlN)...Do we need them beyond GaN/SiC.", June 2018.
- Technical Program Committee member 3rd International Workshop on Gallium Oxide and Related Materials (IWGO-3), 2019.
- Invited to participate, present and provide feedback at the 2nd AFRL Workshop on β-Ga_2O_3: Synthesis, Characterization, and Applications, Arlington, VA, Dec 12-13, 2016.
- Invited to participate and provide feedback at the NSF US EU Workshop on 2D Layered Materials and Devices held in Arlington, VA, April 2015.
- Technical Program Committee member: 2014 IEEE Lester Eastman Conference on High Performance Devices (LEC 2014), sub-committee on high-speed devices and logic switches
- Session chair on high speed electronics session, 2014 IEEE Lester Eastman Conference, Cornell University, 2014.
- Organized panel discussion on THz devices and technology at the 2014 IEEE Lester Eastman conference, Cornell University, 2014
- Technical Program Committee member: 2013 IEEE International Semiconductor Devices Symposium (ISDRS 2013).
- Session chair for the Widebandgap IV, and Radiation and Photonics sessions in 2013 IEEE International Semiconductor Devices Symposium (ISDRS 2013), Baltimore, 2013.
- Session chair, Session T4: III-Nitrides I: Epitaxy and Electronic Devices, 2013 Materials Research Society (MRS) Fall meeting, 2013.
- Organizer: Workshop on Oxide Semiconductors: Properties and Applications, University at Buffalo held on June 4th, 2012.
- Proposal reviewer for National Science Foundation (NSF), Army Research Office (ARO), Defense Threat Reduction Agency (DTRA), Department of energy (DOE), and Airforce Office of Scientific Research (AFOSR)
- Reviewer for the following journals:
  IEEE Electron Device Letters
  IEEE Transactions on Electron Devices
  IEEE Journal of Electron Devices Society.
  Journal of Applied Physics
  Applied Physics Letters
  Physica Status Solidi (c)
  Electro chemical and solid state letters
  Solid State Electronics
  ETRI Journal
  IEEE Photonics Technology Letters
  IEEE Transactions on Microwave Theory and Techniques
  Scientific Reports

University Service

- Ad-hoc EE grievance committee, Spring 2025.
- Empire Innovation Professor (EIP) microelectronics faculty search committee, Fall 2023, Fall 2024.
- Electronics and Optics faculty search committee chair, Fall 2021, Fall 2022.
- Chair, electron beam lithography (EBL) faculty advisory committee
- School of Engineering Associate Professor Tenure and Promotions Committee, 2017-2020, chair 2019-2020.
- Electronics and Optics faculty search committee chair, Fall 2017
- Faculty mentor to 2 tenure track Assistant Professors in EE
- Proposal reviewer UB ReNEW program, 2017, 2018.
- Proposal reviewer UB IMPACT program, Summer 2016
- Solid state electronics faculty search committee, Spring 2016
- EE Graduate Poster Competition Judge, Spring 2016.
- Integrated Nanostructure Systems (INS) faculty advisory committee, Fall2013-Fall 2016
- Embedded systems and microcontroller faculty search committee member, Spring 2014
- EE technical associate staff search committee member , Fall 2013
- James J. Whalen Memorial Multistage Amplifier Design Competition Judge, Spring 2013.
- Microelectronics Faculty Search Committee Member, Spring 2012.
- EE Marketing and Outreach Committee Member, 2012-2016.
- EE Graduate Poster Competition Judge, Spring 2012.
- James J. Whalen Memorial Multistage Amplifier Design Competition Judge, Spring 2012.
- Freshman Mentorship Program EE Faculty (Spring 2012).

Courses Taught

EE Dept. University at Buffalo

- RF/Microwave Circuits I (EE409/EE569): Spring 2012, Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2016, Fall2018, Fall2019. Senior/ Graduate course. Added Advanced Design System (ADS) software tool for RF design, which is the leading tool for RF, microwave design. Added a laboratory component to the RF/Microwave course from Fall 2012 to give the students hands-on experience with RF design and measurement tools.

- Analog Integrated Circuit Layout (EE449/EE594): Fall 2011, Spring 2013, Spring 2014. Senior/ Graduate course. Added SILVACO TCAD software tool for analog device design in Spring 2014

- RF/Microwave Circuits II (EE 456/564) : Spring 2015, Spring 2016, Spring2017, Spring 2018, Spring 2019. Developed the part 2 of the Rf/Microwave circuits course focusing on active RF circuit design. Laboratory component with design, and implementation of active RF circuits.

- RF/Microwave course series will be used for Keysight RF & Microwave Industry-Ready Student Certification Program (starting 2020).

Advisement

10 PhD and 11 MS students graduated, currently advising 6 PhD students one MS student and 3 post-doctoral scholar. Advised 4 UG students.

Graduated PhD:

1. Ye Jia (PhD), Dec 2016, now at Micron Technology
2. Krishnendu Ghosh (PhD), Jul 2017, now at Intel Corporation
3. Mohammad Abuwasib (PhD), Jul 2017, now at Intel Corporation
4. Ke Zeng (PhD), Jun 2019, now Assistant Professor at UNC Charlotte
5. Abhishek Vaidya (PhD), Jan 2021, now at Intel Corporation
6. Avinash Kumar (PhD), June 2022, now at Intel Corporation
7. Shivam Sharma (PhD), Feb 2023, now at Intel Corporation.
8. Ankit Sharma (PhD), March 2023, now at Wolfspeed Inc.
9. Chinmoy Shah (PhD), Sep 2023, now at University of California Santa Barbara
10. Sudipto Saha (PhD), Sep 2024, now at Micron Technology

Graduated MS/UG:

1. Ye Jia (MS, 2013), enrolled for PhD at UB
2. Krishnendu Ghosh (MS 2014), enrolled for PhD at UB
3. Ke Zeng (MS 2015), enrolled for PhD at UB
4. Anna C. Smith (Fall 2015-Spring2016), UG student
5. Nicholas Grasso (MS, Fall 2016), currently at Northrup Grumman, Amherst, NY
6. Kendall Reneau (Summer 2017), UG student at UB
7. Nikhil Chitta (MS, Fall 2017), now at Qualcomm
8. Shivam Prakash (MS, Fall 2017) now at Remy international
9. Kendall Reneau (Summer 2018), UG student at UB
10. Ankit Sharma (MS, Summer 2018), enrolled for PhD at UB
11. Avinash Kumar (MS, Fall2018), enrolled for PhD at UB
12. Susmita Gangopadhyay (MS, Spring 2019), now at Intel Corporation
13. Jean De Dieu, Niyomugabo (Summer 2019) UG student at UB
14. Animesh Datta (MS, Dec 2022), currently enrolled for PhD at UB
15. Shylesh Srinivasan (MS, Aug 2023), now at FINWAVE Technologies, Boston

Current:

1. Animesh Datta (PhD, expected graduation Dec 2025)
2. Noor Jahan Nipu (PhD, expected graduation, Dec 2025)
3. Eshanee Choudhary (PhD, expected graduation Aug 2027)
4. Jiawei Liu (PhD, expected graduation Aug 2027)
5. Matineh Hosseinigheidari (PhD, expected graduation Aug 2027)
6. Indronil Deb Sajib (PhD, expected graduation Aug 2028)
7. Zaw Ko (MS, expected graduation Aug 2026)

Post-doctoral:

1. Dr. Walid Amir, June 2024-current
2. Dr. Surajit Chakraborty, Aug 2024-current.
3. Dr. Shivam Sharma, May 2023-March 2024. Now at Intel Corporation.