

DANIEL F. FEEZELL, PH.D.

Department of Electrical and Computer Engineering
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SUMMARY

Current Position: Professor, Regents' Lecturer, and Associate Chair of Electrical and Computer Engineering, Optical Science and Engineering, Center for High Technology Materials at the University of New Mexico.

Research Interests: III-V optoelectronics for conventional and quantum applications, UV and visible integrated photonics, optical materials growth (MOCVD), optical device fabrication, semiconductor lasers (VCSELs, PCSELs, DFB/DBR, etc.), micro-LEDs, high-speed LEDs, bottom-up selective-area epitaxy, carrier dynamics measurements.

Funding Summary: ~\$12M (Feezell's portion) from DOE, DOD, DARPA, ARPA-E, NSF, DTRA, AFRL, ARL, NNSA, Sandia National Labs, and the commercial sector over 12 years.

Publications: 93 journal articles, >150 conference presentations/proceedings, >30 patents.

Teaching Interests: Semiconductor materials and device physics, lasers, optoelectronics, quantum mechanics, solid-state physics, semiconductor epitaxy, fabrication, and characterization.

EDUCATION

Ph.D. Electrical Engineering, University of California Santa Barbara, 2005

Thesis Title: *Long-Wavelength Vertical-Cavity Surface-Emitting Lasers with Selectively Etched Thin Apertures*

Advisor: Professor Larry A. Coldren

M.S. Electrical Engineering, University of California Santa Barbara, 2001

B.S. Electrical Engineering, University of California Irvine, 2000

PROFESSIONAL EXPERIENCE

Professor - Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM, 2023 – present

Associate Chair (Graduate Programs), Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM, 2025 – present

Graduate Program Director, Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM, 2023 – 2025

General Chair, Optical Science and Engineering (OSE) Program, University of New Mexico, Albuquerque, NM, 2022 – 2024

Associate Professor (with tenure) - Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM, 2017 – 2023

Assistant Professor - Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM, 2012 – 2017

Project Scientist (advisor: Professor Shuji Nakamura) - Materials Department and Solid-State Lighting and Energy Center, University of California Santa Barbara, Santa Barbara, CA, 2010 – 2012

Director of Fabrication and Senior Device Scientist (first employee) - Soraa, Inc., Goleta, CA, 2007 – 2010

Postdoctoral Researcher (advisor: Professor Shuji Nakamura) - Materials Department, University of California Santa Barbara, Santa Barbara, CA, 2005 – 2007

Graduate Student Research Assistant (advisor: Professor Larry A. Coldren) - Electrical and Computer Engineering Department, University of California Santa Barbara, Santa Barbara, CA, 2000 – 2005

Undergraduate Research Assistant (advisor: Professor Henry Lee) - Electrical Engineering and Computer Science Department, University of California Irvine, Irvine, CA, 1999 – 2000

AWARDS AND HONORS

School of Engineering ***Senior Faculty Research Excellence Award***, University of New Mexico, 2023

UNM Regents' Lecturer, 2020-2022

Selected for *Physica Status Solidi Showcase 2020* for “A Decade of Nonpolar and Semipolar III-Nitrides: A Review of Successes and Challenges”, 2020

Top 20 Most Cited Papers in *Applied Physics Letters* in 2018 for “Impact of crystal orientation on the modulation bandwidth of InGaN/GaN light-emitting diodes”

Sole Selected UNM Nominee for Blavatnik Award in Physical Sciences & Engineering Category, 2017

Editor's Pick, Optics Express, 2017 (doi.org/10.1364/OE.25.019343)

School of Engineering ***Junior Faculty Research Excellence Award***, University of New Mexico, 2016

STC Innovation Award, University of New Mexico, 2016, 2019, 2020, 2021, 2022, 2023, 2024, 2025

NSF Faculty Early Career Development (CAREER) Program Award for “CAREER: Short-Wavelength Vertical-Cavity Surface-Emitting Laser Arrays Using Nonpolar and Semipolar GaN,” National Science Foundation, 2015

DARPA Director's Fellowship for “High-Speed Nonpolar InGaN/GaN Light-Emitting Diodes Using Plasmonic Core-Shell Nanowires,” Defense Advanced Research Projects Agency, 2015

Young Professional Speaker Award at the 2015 Electronic Materials and Applications Conference

DARPA Young Faculty Award for “High-Speed Nonpolar InGaN/GaN Light-Emitting Diodes Using Plasmonic Core-Shell Nanowires,” Defense Advanced Research Projects Agency, 2013

Editor's Pick, Applied Physics Letters, 2013

30th Annual JSAP Outstanding Paper Award, Japan Society of Applied Physics, 2008

Excellence in Technical Communication Award, Laser Focus World Magazine, 2007

Outstanding Research Achievement, Solid-State Lighting and Display Center, University of California Santa Barbara, 2007

National Research Council (NRC) Postdoctoral Associate Fellowship (declined), NIST, 2007

Three-Year Graduate Student Support Package, University of California Santa Barbara, 2000

ECE Departmental Fellowship, University of California Santa Barbara, 2000

FUNDING HISTORY

Total funding awarded at UNM since joining in August 2012 is \$11.92M (Feezell's portion). The listed total funding and individual award values represent only Prof. Feezell's portion at UNM in the case of multi-institution and/or multi-PI grants (except in the case of equipment grants):

(co-PI) AFOSR MURI (Sub-contract with NC State University), "MURI: Enabling extreme bandgap electronics-EXBE," \$1,487,000, 9/1/24 – 8/31/29, Grant No: FA9550-24-1-0269 (PAM-P24-001305-SA01)

(PI) Army Research Laboratory (ARL), "III-Nitride Semiconductor Optical Amplifiers for Integrated Quantum Photonics Technologies," \$140,000, 09/30/24 – 09/29/25, Grant No: W911NF-24-2-0234

(co-PI) Intel, "From Classroom to Cleanroom: Broadening Participation in Engineering and Science for a Stronger Semiconductor Workforce," \$200,000 (Feezell's portion is one month salary), 12/1/23 – 11/30/24. Grant No: UNM Foundation

(PI) Sandia National Laboratories, "Nano-Porous GaN and InGaN Carrier Lifetime at UNM," \$140,000, 3/26/24 – 9/30/25, Grant No: SNL 2588510

(PI) NS Nanotech, "Fabrication of N-polar Vertical-Structure Nanowire-Based Red LEDs," \$219,440, 5/01/23 – 6/30/25, Grant No: 2RWF8

(PI) Army Research Laboratory (ARL), "KCI-MR-2: Energy Efficient Electronics and Photonics: III-Nitride Lasers and Integrated Photonics Components for Defense Applications," \$264,000, 09/30/22 – 09/29/24, Grant No: W911NF-22-2-0255

(co-PI) Department of Energy (DOE) National Nuclear Security Agency (NNSA) Minority Serving Institution Partnership Program (MSIPP), Sub-Contract from UT El Paso (UTEP), "Consortium for Education and Research in Electronics for Extreme Environments (E3C)," \$1,125,000, 10/1/22 – 9/30/27, Grant No: 226160676C

(PI) Sandia National Laboratories, "Nano-Porous GaN and InGaN Carrier Lifetime at UNM," \$48,000, 5/11/23 – 9/21/23, Grant No: 229376

(PI) MSI STEM Research and Development Consortium (MSRDC) through DOE, "Scaling Effects in InGaN/GaN Micro-LEDs: Non-Radiative Surface Recombination and Efficiency," \$99,681.00, 12/6/21 – 4/5/23, Grant No: D01_W911SR-14-2-0001-(OR#57)

(PI) Army Research Laboratory (ARL), "Energy Efficient Electronics and Photonics: III-Nitride VECSELs, UV LEDs, and Integrated Photonics Components for Defense Applications," \$240,000, 09/15/20 – 12/14/22, Grant No: W911NF2020234

(PI) Applied Materials, "Epitaxial Growth and Characterization of Gallium Nitride Nanostructure-Based Micro-LEDs," \$245,984, 05/08/20 – 6/30/23, Grant No: 2RQD1

(PI) Applied Materials, "Fabrication of Gallium Nitride Nanostructure-based micro-LEDs," \$73,800, 05/08/20 – 6/30/23, Grant No: 2RQC9

(co-PI) Sandia National Laboratories, "Designing and fabrication of isolation layer with Porous GaN (for LDRD 218435)," \$54,000, 11/05/2020 – 9/30/2022, Grant No: SPO: 2208054

(co-PI) Sandia National Laboratories, "Student Training and Consumables Procurement for Growth of Low-Dislocation-Density GaN-Based Nanowire Electronics," \$84,905, 06/23/2021 – 9/30/2022, Grant No: SPO: 2277542

(co-PI) Department of Energy (DOE), "Efficient Green and Yellow LEDs for Solid State Lighting Applications," \$560,000, 4/1/20 – 3/31/24, Grant No: 20-0374

(PI) Facebook Reality Labs, “Dynamic characterization of μ LEDs,” \$159,264, 10/1/2019 - 3/31/22, Grant No: 2RPM5.

(PI) BluGlass, Ltd, “GaN-Based RPCVD-Grown Laser Diods,” \$203,000, 12/10/18 – 1/31/22.

(PI) Air Force Research Labs (AFRL), “Advanced Components for Electronics in Space,” \$140,000, 2/7/17–01/22/22, Grant No: 2RJN5

(co-PI) Sandia National Laboratories, “Fabrication of Isolation Layer with Porous GaN,” \$25,000, 01/08/2020 – 09/30/2020, Grant No: SPO: 2122883

(PI) Army Research Laboratory (ARL) “High-Efficiency III-Nitride Ultraviolet Light-Emitting Diodes for Defense Applications,” \$231,747, 09/15/18–09/14/20, Grant No: W911NF1820281

(co-PI) National Science Foundation, “MRI: Acquisition of a Magnetic Property Measurement System (MPMS) To Support Research and Education in the State of New Mexico,” \$276,436, 08/01/18–07/31/21, Grant No: 1828744

(co-PI) Defense Threats Reduction Agency (DTRA), “Radiation Effects in N-Face and Nonpolar m-Plane III-Nitrides and Heterostructures,” \$495,000, 08/16/17–08/15/20, Grant No: HDTRA1-17-1-0056 (sub-award: 5704-UNM-DTRA-0056)

(PI) National Science Foundation Electronic, Photonic, and Magnetic Devices Program (**CAREER Award**), “CAREER: Short-Wavelength Vertical-Cavity Surface-Emitting Laser Arrays Using Nonpolar and Semipolar GaN,” \$500,000, 03/01/2015 – 02/29/20, Grant No: 1454691

(co-PI, with Sandia National Labs) Advanced Research Projects Agency Energy (ARPA-E), “High Voltage Re-grown GaN P-N Diodes Enabled by Defect and Doping Control,” \$687,200, 11/15/17–5/14/20, Grant No: DE-AR0000869

(PI) Department of Defense (Army Research Office), “High-Resolution X-Ray Diffractometer for Advanced Epitaxial Thin-Film and Nanoscale Materials Characterization,” \$438,653, 09/5/17–09/4/18, Grant No: W911NF-17-1-0476

(PI) Advanced Research Projects Agency (ARPA-E) via iBeam Materials, Inc., “Epitaxial GaN on Flexible Metal Tapes for Low-Cost LED Devices,” \$130,000, 01/13/17–11/30/18, Grant No: DE-AR0000447 (sub-award: 170846)

(co-PI) National Science Foundation Engineering Research Center in Smart Lighting (sub-contract from Rensselaer Polytechnic Institute), “Patterned m-Plane Nanowall LEDs,” \$999,705 (Feezell portion), \$4,010,723 (total budget), 09/2012 – 08/2018, Grant No: EEC-0812056 (sub-award: A12020)

(PI) Office of Naval Research, “High-Speed Blue and Green Light-Emitting Diodes Using Polarization-Free GaN,” \$593,974, 08/01/2015 – 07/31/2018, Grant No: W911NF-15-1-0428

(PI) Department of Energy (Basic Energy Sciences, Energy Efficiency and Renewable Energy), “Investigation of Superluminescent Diodes for Smart Lighting Systems,” \$400,000, 08/01/2016 – 07/31/2018, Grant No: DE-SC0016618

(co-PI) National Science Foundation, “MRI: Acquisition of Multi-Material Dry Etcher for Nanophotonics,” \$553,348, 09/1/15-08/31/17, Grant No: 1532098.

(PI) Defense Advanced Research Projects Agency (**DARPA**) **Young Faculty Award + Director’s Fellowship Extension**, “High-Speed Nonpolar InGaN/GaN Light-Emitting Diodes Using Plasmonic Core-Shell Nanowires,” \$936,747, 08/2013 – 07/2017, Grant No: D13AP00055

(PI) Army Research Laboratory (ARL) “Nonpolar Vertical-Cavity Surface-Emitting Lasers for Ytterbium Atomic Clocks,” \$259,000 (UNM portion), \$500,000 (total budget including sub-contract to UCSB), 01/2015 – 07/2016, Grant No: W911NF-15-1-0027

(PI) Sandia National Laboratories, “III-Nitride Lasers for Solid-State Lighting,” \$121,901, 09/2013 – 10/2015, Grant No: 1391774

PUBLICATIONS

As of September 14, 2026: **h-index = 52**, **i10-index = 109**, and number of **citations = 10,314** (source: Google Scholar). 94 peer-reviewed journal articles, >150 peer-reviewed conference presentations/proceedings (including 24 invited presentations), 2 book chapters, 7 popular/technical press publications, 25 workshop/non-refereed presentations, and >30 US patents.

ACCEPTED, SUBMITTED, IN-PREPARATION JOURNAL / CONFERENCE PUBLICATIONS

- [1] C. Glaser, B. Rummel, J. Klesko, J. Ohlhausen, R. Kaplar, and **D. Feezell**, “Evidence for Al-Ga Cation Exchange at the ALD-Al₂O₃/GaN MOS Interface,” submitted to *Journal of Applied Physics*.
- [2] C. Glaser, B. Rummel, J. Klesko, J. Ohlhausen, R. Kaplar, D. Feezell, “Interfacial Al-N and Fixed Charge in ALD-Al₂O₃/GaN MOS Capacitors,” submitted to *Semiconductor Interface Specialists Conference 57*.
- [3] N. Collins, J. Klesko, D. Hodgson, S. Addamine, R. Craig, J. Deitz, R. Khan, T. Norden, L. McClintock, P. Padmanabhan, I. Brener, **D. Feezell**, and C. Winters, “Exciton Stability and Heat Transfer Dynamics in ZnO Thin Films Grown by Atomic Layer Deposition,” in preparation.
- [4] M. Behzadizad, R. Someshwar, M. Khoury, and **D. Feezell**, “High-Quality c-Plane GaN Film with Controlled Polarity on PVD AlN Buffer on Si (111),” in preparation.
- [5] A. Rashidi, M. Monavarian, and **D. Feezell**, “Methods for Characterization of Carrier Dynamics in III-Nitride Light-Emitting Diodes,” in preparation.

INVITED REFEREED JOURNAL PUBLICATIONS:

- [1] M. Monavarian, A. Rashidi, and **D. Feezell**, “A Decade of Nonpolar and Semipolar III-Nitrides: A Review of Successes and Challenges,” *Phys. Stat. Sol. (a)*, vol. 216, pp. 1800628, Jan. 2019. doi: 10.1002/pssa.201800628 **Selected for Physica Status Solidi Showcase 2020**
- [2] **D. Feezell** and S. Nakamura, “Invention of the Blue Light-Emitting Diode, the Enabler of Solid-State Lighting,” *Comptes Rendus De L’Academie Des Sciences – Serie IV Physique-Astrophysique, The Revolution of LED Lighting special issue*, vol. 19, pp. 113-133, May 2018. doi: 10.1016/j.crhy.2017.12.001
- [3] **D. Feezell**, J. Speck, S. DenBaars, and S. Nakamura, “Semipolar (20 $\bar{2}$ 1) InGa_N/Ga_N Light-Emitting Diodes for High Efficiency Solid-State Lighting,” *J. Display Technol.*, vol. 9, pp. 190-198, Feb. 2013.
- [4] S. DenBaars, **D. Feezell**, K. Kelchner, S. Pimputkar, C. Pan, C. Yen, S. Tanaka, Y. Zhao, N. Pfaff, R. Farrell, M. Iza, S. Keller, U. Mishra, J. Speck, and S. Nakamura, “Development of Gallium-Nitride-Based Light-Emitting Diodes (LEDs) and Laser Diodes for Energy-Efficient Lighting and Displays,” *Acta Materialia*, vol. 61, pp. 945-951, Feb. 2013.
- [5] M. Hardy, **D. Feezell**, S. DenBaars, and S. Nakamura, “Group III-Nitride Lasers: A Materials Perspective,” *Materials Today*, vol. 14, pp. 408-415, Sep. 2011.

- [6] **D. Feezell**, M. Schmidt, S. DenBaars, and S. Nakamura, “Development of Nonpolar and Semipolar InGaN/GaN Visible Light-Emitting Diodes,” *MRS Bulletin: Nonpolar and Semipolar Group III Nitride-Based Materials*, vol. 34, pp. 318-323, May 2009.

REFEREED JOURNAL PUBLICATIONS:

- [1] X. Li, R. Armitage, and **D. Feezell**, “Spectral and small-signal electroluminescence analysis of carrier dynamics in dual-color InGaN/GaN light-emitting diodes,” *Journal of Applied Physics*, vol. 140, pp. 105702, Sept. 2026. doi-org.libproxy.unm.edu/10.1063/5.0334803.
- [2] X. Li, N. Pant, S. Rahman, R. Armitage, S. Rajan, E. Kioupakis, and **D. Feezell**, “Impact of Quantum Well Thickness on Efficiency Loss in InGaN/GaN LEDs: Challenges for Thin-Well Designs,” *Applied Physics Letters*, vol. 126, pp. 132102, Mar. 2025. doi.org/10.1063/5.0258108
- [3] X. Li, E. DeJong, R. Armitage, and **D. Feezell**, “Multiple-carrier-lifetime model for carrier dynamics in InGaN/GaN LEDs with a non-uniform carrier distribution,” *Journal of Applied Physics*, vol. 135, pp. 035702, Jan. 2024. doi.org/10.1063/5.0184456
- [4] X. Li, E. DeJong, R. Armitage, A. Armstrong, and **D. Feezell**, “Influence of trap-assisted and intrinsic Auger–Meitner recombination on efficiency droop in green InGaN/GaN LEDs,” *Applied Physics Letters*, vol. 123, pp. 112109, Sept. 2023. doi.org/10.1063/5.0167430
- [5] X. Li, N. Pant, E. DeJong, A. Elshafiey, R. Armitage, E. Kioupakis, and **D. Feezell**, “Carrier dynamics in blue, cyan, and green InGaN/GaN LEDs measured by small-signal electroluminescence,” *Applied Physics Letters*, vol. 122, pp. 212108, May 2023. doi.org/10.1063/5.0151301
- [6] F. Mirkhosravi, A. Rashidi, A. Elshafiey, J. Gallagher, Z. Abedi, K. Ahn, A. Lintereur, E.K. Mace, M.A. Scarpulla, **D. Feezell**, “Effects of fast and thermal neutron irradiation on Ga-polar and N-polar GaN diodes,” *Journal of Applied Physics*, vol. 133, pp. 015704, Jan. 2023. doi.org/10.1063/5.0119294
- [7] N. Pant, X. Li, E. DeJong, **D. Feezell**, R. Armitage, and E. Kioupakis, “Origin of the injection-dependent emission blueshift and linewidth broadening in III-nitride light-emitting diodes,” *AIP Advances*, vol. 12, pp. 125020, Dec. 2022. doi.org/10.1063/5.0134995
- [8] N. A. Sanford, P. T. Blanchard, A. Roshko, A. K. Rishinaramangalam, **D. Feezell**, and A. V. Davydov, “Laser-assisted atom probe tomography study of *c*-plane and *m*-plane InGaN test structures: likely contributions from spontaneous polarization effects,” *NIST Technical Note 2201*, Apr. 2022. doi.org/10.6028/NIST.TN.2201
- [9] M. Monavarian, B. Abaie, S. Mishkat-UI-Masabih, F. Mirkhosravi, A. Mafi, and **D. Feezell**, “Disorder-induced broadband distributed Bragg reflectors in dielectric and nanoporous GaN systems,” *Physica Status Solidi (PSS) Rapid Research Letters (RRL)*, pp. 2100598(1-5), Feb. 2022. 10.1002/pssr.202100598
- [10] K. Ahn, Y. K. Ooi, F. Mirkhosravi, J. Gallagher, A. Lintereur, **D. Feezell**, E. K. Mace, and M. A. Scarpulla, “Differences in electrical responses and recovery of GaN p+n diodes on sapphire and freestanding GaN subjected to high dose ⁶⁰Co gamma-ray irradiation,” *Journal of Applied Physics*, vol. 129, pp. 245703(1-10), June 2021. doi.org/10.1063/5.0050365

- [11] M. Behzadirad, S. Mecholdt, J. Randall, J. Ballard, J. Owen, A. Rishinaramangalam, A. Reum, T. Gotszalk, **D. Feezell**, I. Rangelow, T. Busani, "Advanced Scanning Probe Nanolithography Using GaN Nanowires," *Nano Letters*, vol. 21(13), pp. 5493-5499, June 2021. doi.org/10.1021/acs.nanolett.1c00127
- [12] F. Mirkhosravi, A. Rashidi, J. Gallagher, M. Monavarian, A. Aragon, K. Ahn, Y. K. Ooi, A. Lintereur, E.K. Mace, M.A. Scarpulla, and **D. Feezell**, "Impact of gamma-ray irradiation on electrical characteristics of N-polar and Ga-polar GaN p-n diodes," *AIP Advances*, vol. 11, pp. 025009(1-8), Feb. 2021. doi: 10.1063/5.0021382
- [13] L. Miaja-Avila, B. Caplins, A. Chiaramonti, P. Blanchard, M. Brubaker, A. Davydov, D. Diercks, B. Gorman, A. Rishinaramangalam, **D. Feezell**, K. Bertness, and N. Sanford, "Extreme Ultraviolet Radiation Pulsed Atom Probe Tomography of III-Nitride Semiconductor Materials," *J. Phys. Chem. C*, vol. 125 (4), pp. 2626-2635, Jan. 2021. doi.org/10.1021/acs.jpcc.0c08753
- [14] A. Aragon, M. Monavarian, G. Pickrell, M. Crawford, A. Allerman, **D. Feezell**, and A. Armstrong, "Defect suppression in wet-treated etched-and-regrown nonpolar m-plane GaN vertical Schottky diodes: A deep-level optical spectroscopy analysis," *Journal of Applied Physics*, vol. 128, pp. 185703, Nov. 2020. doi: 10.1063/5.0018829
- [15] M. Behzadirad, A. Rishinaramangalam, **D. Feezell**, T. Busani, C. Reuter, A. Reum, M. Holz, T. Gotszalk, S. Mecholdt, M. Hofmann, A. Ahmad, T. Ivanov, and I. Rangelow, "Field Emission Scanning Probe Lithography with GaN nanowires on active cantilevers," *Journal of Vacuum Science and Technology B*, vol. 38, pp. 032806, May. 2020. doi: 10.1116/1.5137901
- [16] P. Ranga, A. Bhattacharyya, A. Rishinaramangalam, Y. K. Ooi, M. Scarpulla, **D. Feezell**, and S. Krishnamoorthy, "Delta-doped β -Ga₂O₃ thin films and β -(Al_{0.26}Ga_{0.74})₂O₃/ β -Ga₂O₃ heterostructures grown by metalorganic vapor-phase epitaxy," *Applied Physics Express*, vol. 13, pp. 045501, Mar. 2020. doi: 10.35848/1882-0786/ab7712
- [17] A. Rashidi, A. Rishinaramangalam, M. Monavarian, S. Mishkat Ul Masabih, A. Aragon, C. Lee, S. DenBaars, and **D. Feezell**, "Nonpolar GaN-Based Superluminescent Diode with 2.5 GHz Modulation Bandwidth," *Photon. Technol. Lett.*, vol. 32, pp. 383, Feb. 2020. doi: 10.1109/LPT.2020.2976060
- [18] A. Tarief Elshafiey, K.M. Davico, A. K. Rishinaramangalam, A. Rashidi, A. Aragon, **D. Feezell**, C. Sheehan, and V. Matias, "GaN/InGaN Blue Light-Emitting Diodes on Polycrystalline Molybdenum Metal Foils by Ion Beam-Assisted Deposition," *Physica Status Solidi (a)*, vol. 1900800, pp. 1-6, Feb. 2020. doi.org/10.1002/pssa.201900800
- [19] A. Rashidi, M. Monavarian, A. Aragon, and **D. Feezell**, "Thermal and efficiency droop in InGaN/GaN light-emitting diodes: decoupling multiphysics effects using temperature-dependent RF measurements," *Scientific Reports*, vol. 9, pp.19921, Dec. 2019. doi: 10.1038/s41598-019-56390-2
- [20] A. Aragon, M. Monavarian, I. Stricklin, G. Pickrell, M. Crawford, A. Allerman, A. Armstrong, and **D. Feezell**, "Interfacial impurities and their electronic signatures in high-voltage regrown nonpolar m-plane GaN vertical p-n diodes," *Physica Status Solidi (a)*, vol. 19000757, pp. 1-7, Dec. 2019. doi: 10.1002/pssa.201900757

- [21] P. Ranga, A. Rishinaramangalam, J. Varley, A. Bhattacharyya, **D. Feezell**, S. Krishnamoorthy, “MOVPE-grown Si-doped β -(Al_{0.26}Ga_{0.74})₂O₃ thin films and heterostructures,” *Applied Physics Express*, vol. 12, pp. 111004, Oct. 2019. doi: 10.7567/1882-0786/ab47b8
- [22] M. Nami, A. Rashidi, M. Monavarian, S. Mishkat-Ul-Masabih, A. K. Rishinaramangalam, S. R. J. Brueck, and **D. Feezell**, “Electrically Injected GHz-Class GaN/InGaN Core–Shell Nanowire-Based μ LEDs: Carrier Dynamics and Nanoscale Homogeneity,” *ACS Photonics*, vol. 6, pp. 1618-1625, July 2019. doi: 10.1021/acsp Photonics.9b00639
- [23] S. Mishkat-Ul-Masabih, A. Aragon, M. Monavarian, T. Luk, and **D. Feezell**, “Electrically Injected Nonpolar GaN-Based VCSELs with Lattice-Matched Nanoporous Distributed Bragg Reflector Mirrors,” *Applied Physics Express*, Vol. 12, pp. 036504, Mar. 2019. doi: 10.7567/1882-0786/ab0576
Featured in Semiconductor Today.
- [24] S. Mishkat-Ul-Masabih, T. Luk, M. Monavarian, and **D. Feezell**, “Polarization pinned emission of a continuous-wave optically pumped nonpolar GaN-based VCSEL using nanoporous distributed Bragg reflectors,” *Optics Express*, vol. 27, pp. 9495-9501, Mar. 2019. doi: 10.1364/OE.27.009495
- [25] M. Monavarian, G. Pickrell, A. Aragon, I. Stricklin, M. Crawford, A. Allerman, K. Celio, F. Léonard, A. Talin, A. Armstrong, and **D. Feezell**, “High-voltage regrown nonpolar m-plane vertical pn diodes: A step toward future selective-area-doped power switches,” *Electron Device Letters*, vol. 40, pp. 387-390, Jan. 2019. doi: 10.1109/LED.2019.2892345
- [26] C. Lenk, M. Hofmann, T. Ivanov, A. Ahmad, S. Lenk, I. Rangelow, A. Reum, C. Reuter, M. Holz, M. Behzadrad, A. Rishinaramangalam, **D. Feezell**, and T. Busani, “Sharp GaN Nanowires used as field emitter on active cantilevers for Scanning Probe Lithography,” *J. Vac. Sci. Technol. B*, vol. 36, pp. 06JL04, Nov. 2018.
- [27] C. Lenk, S. Lenk, M. Holz, E. Guliyev, M. Hofmann, T. Ivanov, I. Rangelow, M. Behzadrad, A. Rishinaramangalam, **D. Feezell**, T. Busani, “Experimental study of field emission from ultrasharp silicon, diamond, GaN, and tungsten tips in close proximity to the counter electrode,” *J. Vac. Sci. Technol. B*, vol. 36, pp. 06JL03, Nov. 2018.
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- [10] S. R. J. Brueck, S. D. Hersee, S. C. Lee, and **D. Feezell**, “Semiconductor product comprising a heteroepitaxial layer grown on a seed area of a nanostructured pedestal,” US Patent 11,342,442, 2022.
- [11] S. R. J. Brueck, S. D. Hersee, S. C. Lee, and **D. Feezell**, “Method of forming a seed area and growing a heteroepitaxial layer on the seed area,” US Patent 11,342,441, 2022.
- [12] S. R. J. Brueck, S. D. Hersee, S. C. Lee, and **D. Feezell**, “Device with heteroepitaxial structure made using a growth mask,” US Patent 11,342,438, 2022.
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- [15] S. Brueck, **D. Feezell**, J. Randall, T. Busani, J. Ballard, M. Behzadirad, A. Krishnan Rishinaramangalam, “Rugged, single crystal wide-band-gap-material scanning-tunneling-microscopy/lithography tips,” US Patent App. 17/237,697, 2021.
- [16] T. Busani, S.R.J. Brueck, **D. Feezell**, and M. Behzadirad, “Atomic force microscopy based on nanowire tips for high aspect ratio nanoscale metrology/confocal microscopy,” US Patent 10,840,092, 2020.
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- [18] S. R. J. Brueck, S. D. Hersee, S. C. Lee, and **D. Feezell**, “Device with Heteroepitaxial Structure Made Using a Growth Mask,” US Patent App 14/830,241, 2018.
- [19] S. R. J. Brueck, S. D. Hersee, S. C. Lee, and **D. Feezell**, “Method of Making Heteroepitaxial Layer on a Seed Area,” US Patent 9,142,400, 2015.
- [20] C.O. Holder, **D. Feezell**, S.P. DenBaars, J.S. Speck, and S. Nakamura, “Structure and method for the fabrication of a gallium nitride vertical cavity surface emitting laser,” US Patent 9,136,673, 2015.
- [21] S.C. Lee, S. R. J. Brueck, and **D. Feezell**, “Gate-All-Around-Metal-Oxide-Semiconductor Transistors with Gate Oxides,” US Patent 9,076,813, 2015.
- [22] J. Raring, **D. Feezell**, N. Pfister, R. Sharma, M. Schmidt, C. Poblenz Elsass, Y.C. Chang, “Optical Device Structure Using GaN Substrates for Laser Applications,” US Patent 9,071,039, 2015.
- [23] R. Aldaz, A. David, **D. Feezell**, T. Katona, and R. Sharma, “Methods and devices for light extraction from a group III-nitride volumetric LED using surface and sidewall roughening,” US Patent 9,000,466, 2015.
- [24] J. Raring, **D. Feezell**, and N. Pfister, “Self-aligned multi-dielectric-layer lift off process for laser diode stripes,” US Patent 8,728,842, 2014.
- [25] S. Nakamura, S. P. DenBaars, S. Tanaka, **D. Feezell**, Y. Zhao, C. C. Pan, “Low Droop Light Emitting Diode Structure On Gallium Nitride Semipolar Substrates,” US Patent 8,686,397, 2014.
- [26] J. Raring and **D. Feezell**, “Integrated Laser Diodes with Quality Facets on GaN Substrates,” US Patent 8,767,787, 2014.
- [27] M. D'elyyn, R. Sharma, E.M. Hall, and **D. Feezell**, “Polarized white light devices using non-polar or semipolar gallium containing materials and transparent phosphors,” US Patent 8,618,560, 2013.
- [28] S. Nakamura, S.P. DenBaars, **D. Feezell**, J.S. Speck, and C.C. Pan, “Light-emitting diodes with low temperature dependence ,” US Patent App. 13/890,664, 2013.
- [29] S. Nakamura, S.P. DenBaars, **D. Feezell**, J.S. Speck, C.C. Pan, and S. Tanaka, “High output power, high efficiency blue light-emitting diodes,” US Patent App. 13/890,599, 2013.

- [30] C. Holder, **D. Feezell**, S. DenBaars, and S. Nakamura, "Method for the Reuse of Gallium Nitride Epitaxial Substrates," US Patent 20,130,214,284, 2013.
- [31] J. Raring, **D. Feezell**, and N. Pfister, "Optical Device Structure Using Miscut GaN Substrates for Laser Applications," US Patent 8,422,525, 2013.
- [32] Y. Zhao, S. Tanaka, C. Y. Huang, **D. F. Feezell**, J. S. Speck, S. P. DenBaars, and S. Nakamura, "High indium uptake and high polarization ratio for group-iii nitride optoelectronic devices fabricated on a semipolar (2021) plane of a gallium nitride substrate" US Patent Application # 20120273796 A1, 2012.
- [33] S. Nakamura, S. P. DenBaars, **D. F. Feezell**, C. C. Pan, Y. Zhao, and S. Tanaka, "High emission power and low efficiency droop semipolar blue light emitting diodes," US Patent Application # 20120313077 A1, 2012.
- [34] J. Raring and **D. Feezell**, "Integrated total internal reflectors for high-gain laser diodes with high quality cleaved facets on nonpolar/semipolar GaN substrates" US Patent # 8259769 B1, 2012.
- [35] **D. Feezell**, M. Schmidt, K. Kim, D. Cohen, J. Speck, S. DenBaars, and S. Nakamura "Al(x)Ga(1-x)N-Cladding-Free Nonpolar III-Nitride Based Laser Diodes and Light-Emitting Diodes," US Patent # 8211723 B2, 2012.
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- [37] M. P. D'Evelyn, R. Sharma, E. Hall, and **D. Feezell**, "Polarized white light devices using non-polar or semipolar gallium containing materials and transparent phosphors," US Patent # 8299473 B1, 2012.
- [38] **D. Feezell**, R. Sharma, A. Chakraborty, T. Trottier, T. Katona, and M. D'Evelyn, "High Voltage Device and Method for Optical Devices," US Patent Application # 13/179,346, 2011.
- [39] M. D'Evelyn, R. Sharma, E. Hall, **D. Feezell**, and M. Schmidt, "Textured Surface Light-Emitting Diode and Method of Manufacture," US Patent Application # 20100295088, 2010.
- [40] R. Sharma, T. Katona, and **D. Feezell**, "Light Emitting Diode Device with a Plurality of Roughened Surfaces, and Method for Fabricating Thereof," US Patent Application # 12/861,765, 2010.
- [41] J. Raring and **D. Feezell**, "Highly Polarized White Light Source By Combining Blue LED on Semipolar or Nonpolar GaN With Yellow LED on Semipolar or Nonpolar GaN," US Patent Application # 20100006873, 2009.
- [42] J. Raring, **D. Feezell**, and M. D'Evelyn, "Copacking Configurations for Nonpolar and/or Semipolar GaN LEDs," US Patent Application # 20100001300, 2009.
- [43] J. Raring, **D. Feezell**, and S. Nakamura, "Selective Area Epitaxy Growth Method and Structure for Multi-Colored Devices," US Patent Application # 20090309110, 2009.
- [44] J. Raring, **D. Feezell**, and S. Nakamura, "Selective Area Epitaxy Growth Method and Structure," US Patent Application # 20090309127, 2009.

- [45] R. Farrell, M. Schmidt, K. Kim, **D. Feezell**, D. Cohen, J. Speck, S. DenBaars, and S. Nakamura, “Optimization of Laser Bar Orientation For Nonpolar (Ga,Al,In,B)N Diode Lasers”, US Patent # 7,839,903, 2008.
- [46] **D. Feezell**, D. Cohen, R. Farrell, M. Ishida, and S. Nakamura, “Electrically-Pumped (Ga,In,Al)N Vertical-Cavity Surface-Emitting Laser”, US Patent # 7,480,322, 2007.

TEACHING AND STUDENT SUPERVISION

Courses Taught:

ENG 195 ST: From Silicon to Systems (co-taught), first year Undergraduate Course, University of New Mexico, Fall Semester 2024

ECE 371, *Materials and Devices*, Required Undergraduate Course, University of New Mexico, Fall Semester 2013, 2014, 2017, 2019, 2024, 2025

ECE 471, *Materials and Devices II*, Elective Undergraduate Course, University of New Mexico, Spring Semester 2020

ECE 475, *Introduction to Electro-Optics and Opto-Electronics*, Elective Undergraduate Course, University of New Mexico, Spring Semester 2013, 2015, and 2018, Fall Semester 2022 and 2023

ECE 495/595, *ST: Light-Emitting Diodes and Solid-State Lighting*, University of New Mexico, Fall Semester 2018

ECE 570, *Optoelectronic Semiconductor Materials and Devices*, Required Graduate Course, University of New Mexico, Fall Semester 2015 and 2016, Spring Semester 2022 and 2023

ECE 577, *Fundamentals of Semiconductor LEDs and Lasers*, Elective Graduate Course, University of New Mexico, Spring Semester 2012, 2016, 2019, 2021, 2024, 2025, 2026

ECE 595, *ST: Characterization Techniques for Semiconductor Materials and Devices*, University of New Mexico, Fall Semester 2021

MAT 215C, *Semiconductor Device Processing*, Elective Graduate Course, University of California Santa Barbara, Spring Quarter 2011 (with Prof. Nakamura)

ECE 162B, *Fundamentals of Solid-State Physics*, Required Undergraduate Course, University of California Santa Barbara, Winter Quarter 2010 (with Prof. DenBaars)

Graduate Student Advising:

Current Ph.D.:

Mr. Caleb Glaser, University of New Mexico, Ph. D. Student (post-qualifier, post-proposal), August 2018-present

Ms. Noelle Collins, University of New Mexico, Ph. D. Student (post-qualifier, post-proposal), February 2023-present

Mr. Abdelrahman Tarief Mohamed Fawzy Elshafiey Alakrat, Ph. D. Student (post-qualifier, post-proposal), August 2017-present

Mr. Hatem Babaa, Ph. D. student (post-qualifier, pre-proposal), August 2019-present

Ms. Elizabeth DeJong, Ph.D student (post-qualifier, pre-proposal), August 2019-present

Ms. Madison Hanson, University of New Mexico, Ph. D. Student (pre-qualifier, pre-proposal), August 2023-present

Mr. Patrick Finnerty, University of New Mexico, Ph. D. Student (pre-qualifier, pre-proposal), August 2024-present

Ms. Tali Schley, University of New Mexico, Ph. D. Student (pre-qualifier, pre-proposal), August 2024-present

Mr. Zachary Meinelt (on leave), Ph. D. student (pre-qualifier, pre-proposal), August 2019-present

Graduated Ph.D (9 as primary research advisor, 1 as chairperson):

Dr. Xuefeng Li, University of New Mexico, Ph.D. Graduate, December 2023. “Carrier Dynamics in Green III-Nitride LEDs Using Small-Signal Electroluminescence.” ***Graduated with Distinction.*** Currently Postdoctoral Researcher at UCSB.

Dr. Farnood Mirkhosravi, University of New Mexico, Ph.D. Graduate, May 2022, “Gamma and Neutron Irradiation Impacts on Ga-polar and N-polar GaN based diodes.” Currently at Intel.

Dr. Andrew Aragon, University of New Mexico, Ph.D. Graduate, April 2021, “Etched-and-Regrown Diodes on M-Plane GaN for Next Generation Power Electronic Devices,” ***Graduated with Distinction.*** Currently at Intel.

Dr. Nick Boynton, University of New Mexico and Sandia National Laboratories, Ph.D. Student (post-qualifier, post-proposal), May 2020. Currently a Senior Member of Technical Staff at Sandia National Laboratories.

Dr. Saadat Mishkat-UI-Masabih, University of New Mexico, Ph.D. Graduate, August 2019, “Nonpolar GaN-Based VCSELs With Lattice-Matched Nanoporous Distributed Bragg Reflector Mirrors,” ***Graduated with Distinction.*** Currently a Technology Development Module Engineer at Intel.

Dr. Md Mottaleb Hossain, University of New Mexico, Ph.D. Graduate, May 2019, “Algorithmic Multi-Color CMOS Avalanche Photodiodes For Smart-Lighting Applications.” Daniel Feezell (Chairperson), Majeed Hayat (Research Advisor).

Dr. Arman Rashidi, University of New Mexico, Ph.D. Graduate, December 2018, “Carrier Dynamics in High-Speed III-Nitride Light-Emitting Diodes for Visible-Light Communication,” ***Won best dissertation award from Optical Sciences and Engineering program at UNM. Graduated with Distinction.*** Currently a postdoctoral researcher at UCSB.

Dr. Mohsen Nami, University of New Mexico, Ph.D. Graduate, October 2017, “Nanowire-Based Light-Emitting Diodes: A New Path Towards High-Speed Visible Light Communication.” ***Won best dissertation award from Optical Sciences and Engineering program at UNM. Graduated with Distinction.*** Currently at Apple..

Dr. Nick Martinez, University of New Mexico and Sandia National Laboratories, Ph.D. Graduate, July 2017, “Waveguide-coupled Avalanche Photodiodes for a CMOS Compatible Transceiver Package.” Currently a Senior Member of Technical Staff at Sandia National Laboratories.

Dr. Jeremy Wright, University of New Mexico and Sandia National Laboratories, Ph.D. Graduate, September 2014, “III-Nitride Nanowire Lasers.” Currently a Senior Member of Technical Staff at Sandia National Laboratories.

*Served on the Ph.D. committee for an additional >20 graduated students

Current M.S.:

Donald Hodgson M.S. student, August 2026 – present

Graduated M.S. (23 as primary advisor):

Ms. Johnathan White, University of New Mexico, OSE M.S. Graduate, May 2024.
Ms. Elizabeth DeJong, University of New Mexico, OSE M.S. Graduate, May 2022.
Mr. Hatem Babaa, University of New Mexico, OSE M.S. Graduate, May 2022.
Mr. Zachary Meinelt, University of New Mexico, OSE M.S. Graduate, May 2022.
Ms. Windy Slater, University of New Mexico, ECE M.S. Graduate, May 2022.
Mr. Gevoni Briseno, University of New Mexico, ECE M.S. Graduate, May 2022.
Mr. Andrew Miano, University of New Mexico, ECE M.S. Graduate, August 2021.
Mr. Jack Kramer, University of New Mexico, ECE M.S. Graduate, August 2021.
Mr. Xuefeng Li, University of New Mexico, OSE M.S. Graduate, May 2019.
Mr. Alexander Pumerantz, University of New Mexico, ECE M.S. Graduate, May 2019.
Mr. Huck Green, University of New Mexico, ECE M.S. Graduate, May 2019.
Mr. Gabriel Rodriguez, University of New Mexico, ECE M.S. Graduate, May 2018.
Mr. Nick Boynton, University of New Mexico, ECE M.S. Graduate, December 2017.
Mr. Vincent Woods, University of New Mexico, ECE M.S. Graduate, May 2017.
Mr. Kenneth DaVico, University of New Mexico, M.S. Graduate, December 2017.
Mr. Isaac Stricklin, University of New Mexico, ECE M.S. Graduate, December 2017.
Mr. Arman Rashidi, University of New Mexico, OSE M.S. Graduate, December 2017.
Mr. Jimmy Stricklin, University of New Mexico, ECE M.S. Graduate, May 2017.
Mr. Nick Martinez, University of New Mexico, ECE M.S. Graduate, April 2017.
Mr. Bryan Ruane, University of New Mexico, ECE M.S. Graduate, December 2016.
Mr. Saadat Mishkat-Ul-Masabih, University of New Mexico, ECE M.S. Graduate, December 2016.
Mr. Rhett Eller, University of New Mexico, OSE M.S. Graduate, July 2014.
Mr. Mohsen Nami, University of New Mexico, OSE M.S. Graduate, December 2012.

*Served on the M.S. committee for an additional >10 graduated students

Postdoctoral Researcher Advising:

Current:

Mr. Rubab Amin, University of New Mexico, Postdoctoral Fellow, January 2025 – present. Project: “MURI: Enabling Extreme Bandgap Electronics-EXBE.”

Former:

Dr. Reddeppa Madakka, University of New Mexico, Postdoctoral Fellow, August 2024-December. Project: “Fabrication of N-polar Vertical-Structure Nanowire-Based Red LEDs,” with NS Nanotech. Currently at Purdue.

Dr. Xuefeng Li, University of New Mexico, University of New Mexico, Postdoctoral Fellow, December 2023-present. Project: “Carrier Dynamics in Green LEDs Using Small-Signal Electroluminescence” with Lumileds (Department of Energy). Currently at UCSB.

Dr. Farnood Mirkhosravi, University of New Mexico, University of New Mexico, Postdoctoral Fellow, July 2022-present. Project: “Epitaxial Growth and Characterization of Gallium Nitride Nanostructure-Based Micro-LEDs” with AMAT. Currently at Intel.

Dr. Mahmoud Behzadirad, University of New Mexico, Postdoctoral Fellow, January 2019-May 2022. Project: “GaN based RPCVD Grown Laser Diodes” with Blu Glass. Currently at Apple.

Dr. Arman Rashidi, University of New Mexico, Postdoctoral Fellow, December 2018-June 2020. Project: “RF Characterization of III-nitride optoelectronic Devices.” Currently at UCSB.

Dr. Ashwin Rishinaramangalam, University of New Mexico, Postdoctoral Fellow, August 2012-December 2019. Project: “Coaxial Nanostructure LEDs” with Smart Lighting Engineering Research Center (ERC). Currently at Intel.

Dr. Morteza Monavarian, University of New Mexico, Postdoctoral Fellow, June 2016-June 2019. Project: “High-Speed Blue and Green Light-Emitting Diodes Using Polarization-Free GaN” with DoD. Currently at Kyocera SLD Laser.

Dr. Serdal Okur, University of New Mexico, Postdoctoral Fellow, February 2015-June 2016. Project: “Nonpolar Vertical-Cavity Surface-Emitting Lasers for Ytterbium Atomic Clocks” with DARPA. Currently at Inneos.

Dr. Benjamin Bryant, University of New Mexico and Sandia National Laboratories, September 2013-2015. Project: “High-Speed Nonpolar InGaN/GaN Light-Emitting Diodes Using Plasmonic Core-Shell Nanowires” with DARPA Young Faculty Award. Currently at Infinera.

Undergraduate Student Advising:

Current:

Mr. Miguel Berkopec, University of New Mexico, ECE and Physics Undergraduate, March 2024 - present. Funded by DOE/NNSA MSIPP

Mr. Jayden Prankevicus, College of New Mexico, Undergraduate, June 2024 – present. Funded by DOE/NNSA MSIPP.

Ms. Sydney Brown, University of New Mexico, Physics Undergraduate, March 2023 - present. Funded by DOE/NNSA MSIPP.

Former:

Mr. Aniketh Sarkar, University of New Mexico, Physics Undergraduate, January 2024 – January 2025. Funded by DOE/NNSA MSIPP.

Mr. Luis Flores-Sanchez, University of New Mexico, Physics Undergraduate, March 2023 – August 2023. Funded by DOE/NNSA MSIPP.

Mr. Christopher Dankocsik, University of New Mexico, ECE Undergraduate, March 2023 – May 2023. Funded by DOE/NNSA MSIPP.

Mr. Neema Naeemi, University of New Mexico, ECE Undergraduate, May 2017-May 2018. Funded by DOD HBCU/MI.

Mrs. Gabriela Rumella, California Polytechnic University San Luis Obispo, June 2018 – August 2018. Funded by Nanoscience and Microsystems Research Experience for Undergraduates (REU) Program.

Mr. William Hale, College of New Mexico Undergraduate, May 2017-August 2017. Funded by Nanoscience and Microsystems Research Experience for Undergraduates (REU) Program.

Ms. Olivia Johnson, University of New Mexico, ECE Undergraduate, August 2015-May 2017. Funded by DOD HBCU/MI. Currently at Palo Verde Nuclear Generating Station.

Mr. Jorge Romero, University of New Mexico, ECE Undergraduate, October 2014-May 2015. Funded by Smart Lighting Engineering Research Center. Currently a graduate student at University of Utah.

Ms. Jacquie Shortridge, University of Arizona Physics Undergraduate, June 2014-August 2014. Funded by Nanoscience and Microsystems Research Experience for Undergraduates (REU) Program.

Ms. Rekha Schnepf, Mellon University Undergraduate, June 2013-August 2013. Funded by Nanophotonics REU Program. Currently at Colorado School of Mines. Received NSF Graduate Fellowship.

Mr. Michael Wabaunsee, Southwestern Indian Polytechnic Institute (SIPI) Undergraduate, October 2012-May 2013. Funded by Nanophotonics REU Program.

High School Student Advising:

Former:

Ms. Sonia Macias, Atrisco Heritage Academy High School Student, June 2017-August 2017. Funded by Smart Lighting Engineering Research Center.

Ms. Aryn Gallegos, Albuquerque Academy High School Student, June 2015-August 2015. Funded by Smart Lighting Engineering Research Center.

Ms. Isabel Gallegos, Albuquerque Academy High School Student, June 2016-August 2016. Funded by Smart Lighting Engineering Research Center.

SERVICE ACTIVITIES

Leadership:

ECE Department: Associate Chair (Graduate Programs), 2025 - present

ECE Department: Director of Graduate Programs, 2023 - 2025

General Chair, Optical Science and Engineering (OSE), 2022 – 2024

Chair, CBE Department Chair Search Committee, 2024-2025

Chair, CHTM Cleanroom Committee, 2021 - present

Area Chair, Optoelectronics, ECE Department, 2015 – 2020

Chair, CHTM Faculty Search Committee, 2018 – 2019 – two faculty hired (ECE and Physics)

Proceedings Chair and Editor, International Workshop on Nitride Semiconductors (IWN), October 2016

Faculty Advisor, CHTM Nanofabrication Facility, 2015 – 2018

Sources Thrust Leader, NSF Engineering Research Center on Smart Lighting, 2012 – 2019

Service to UNM:

ECE Department: Director of Graduate Programs, 2023 - 2025
UNM: Provost's Promotion and Tenure Committee, 2024 – present
UNM: Reviewing of internal proposals for OVPR, 2015 – present
UNM: Interdisciplinary Programs Working Group for Office of Graduate Studies, 2025 - present
ECE Department: Promotion and Tenure Committee, 2024 - present
UNM: Large Equipment Advisory Group, 2017 – present
UNM: Senate Graduate Professional Committee, 2023 - present
ECE Department: Graduate Curriculum Committee, 2013 – present
CHTM: Nanofabrication Facility Committee, 2018 – present
CHTM: Director's Advisory Committee, 2018 – present
ECE Workload Policy Committee, 2017 and 2021
ECE Department: Optoelectronics Area Chair, 2015 – 2020
UNM: Research Misconduct Committee, 2019 – 2020
CHTM Faculty Search Committee (committee chair), 2018 – 2019 – two faculty hired (ECE and Physics)
ECE Promotion and Tenure Committee, 2018-2019
ECE Department Faculty Search Committee, 2017
CHTM: Director Search Committee, 2017
School of Engineering: Dean Search Committee, 2016
ECE Department: ABET Assessment Committee, 2015
ECE Department: Undergraduate Curriculum Committee, 2013 – 2015
CHTM: Nanofabrication Facility Steering Committee, 2014 – 2015
CHTM: Faculty Search Committee, 2013 – 2014
CHTM: Cleanroom Manager Search Committee, 2014

Professional Service:

DOE Diversity, Equity, Inclusion, and Respect (DEIR) Working Group, 2022 - present
Program Committee, 2022 and 2024 International Workshop on Nitride Semiconductors (IWN), Optical Devices
Program Committee, 2022 and 2025 Compound Semiconductor Week (CSW), Semiconductor Lasers and LEDs
Program Committee, 2021 and 2025 International Conference on Nitride Semiconductors (ICNS)
Session Chair, 2020, 2023 SPIE Photonics West
Program Committee, 2020 Lester Eastman Conference
Program Committee, 2020 International Workshop on Nitride Semiconductors (IWN), Optical Devices

Program Committee, 2019 19th International Conference on Crystal Growth and Epitaxy (ICCGE-19) and the 19th US Biennial Workshop on Organometallic Vapor Phase Epitaxy (OMVPE-19)

Program Sub-Committee (Displays and Lighting), 2019 IEEE Photonics Conference

Program Committee, 2019 International Conference on Nitride Semiconductors (ICNS)

Program Committee, 2019 ISPlasma 2019/IC-PLANTS

Technical Committee (Semiconductor Lasers), 2018 Compound Semiconductor Week

Program Committee, 2018 International Workshop on Nitride Semiconductors (IWN)

Program Committee, 2018 SPIE Optics and Photonics Conference (Wide Bandgap Devices)

Program Committee, 2017 International Symposium on Semiconductor Light-Emitting Devices (ISSLED)

Program Committee, 2017 International Conference on Nitride Semiconductors (ICNS)

Session Chair and Organizer for 18th US Workshop on Organometallic Vapor Phase Epitaxy (OMVPE-18)

Invited Organizer for *Group III-Nitrides and Compound Semiconductor Growth on Silicon* topics at 2015, 2016, 2017, 2018 Electronic Materials Conference

Technical Committee Member for Lester Eastman Conference, August 2016

Invited Organizer for *Compound Semiconductor Growth on Silicon* topic at 2014 Electronic Materials Conference

Session Chair for *III-Nitride Novel Device Concepts and Nanowires: Structures and Defects* sessions, 2014 Electronic Materials Conference

Subcommittee Member for *Science and Innovation 15: LEDs, Photovoltaics and Energy-Efficient ("Green") Photonics*, 2014 Conference on Lasers and Electro-Optics

Reviewing and Panels:

DOE Diversity, Equity, Inclusion, and Respect Roundtable, 12/7/21

KAUST PhD Dissertation External Reviewer, 2021

KAUST CRG 2019 proposal reviewer, 7/17/19

DOE Solid State Lighting BTO National Lab Call proposal reviewer, 5/31/19

UNM ADVANCE panel member for “How to talk to your program officer,” 10/19/18

Army Research Office proposal reviewer, 9/26/18

National Science Foundation proposal review panel for Photonics and Lasers in Electronic, Photonic, and Magnetic Devices Program, 1/7/16 – 1/8/16

Department of Energy Solid-State Lighting Roundtable Discussion, 9/9/15

Army Research Labs program reviewer for Sensors and Electron Devices Directorate, 7/22/15

National Science Foundation proposal review panel for LEDs, OLEDs, Lighting, Displays in SBIR/STTR Program, 8/26/14

National Science Foundation proposal review panel for LEDs, OLEDs, and Light Sources in SBIR/STTR Program, 2/26/14

National Science Foundation proposal review panel for Emitters and Detectors in Electronic, Photonic, and Magnetic Devices Program, 1/27/14 – 1/28/14

Technical Journal Reviewer: Applied Physics Letters, Nature, Nano Letters, Optics Express, Journal of Applied Physics, Journal of Crystal Growth, Physica Status Solidi, Photonics Technology Letters, Laser and Photonics Reviews, Electron Device Letters, Photonics Review, Electrochemical and Solid-State Letters, Rapid Research Letters, Applied Physics Express, Japanese Journal of Applied Physics.

Outreach:

Presenter of “Electricity and Light,” Double Eagle Elementary (4th-grade class), 01/2026

Collaborator, Southwestern Indian Polytechnic Institute (SIPI) through NSF CAREER Award, 03/2015-present

Mentor, Research Experience for Undergraduates (REU), University of New Mexico, 09/2012 – 08/2018

Mentor, Research Experience for Teachers (RET), University of New Mexico, 06/2013 – 08/2017

Presenter of “Fun with Forces: Newton’s Laws, Friction, and Gravity,” Double Eagle Elementary (3rd-grade class), 11/2024

Presenter, “Electricity and Light!,” Pajarito Elementary School (1st – 5th grade gifted class), 05/15/17

Presenter, “Electricity and Light!,” Manzano Day School Elementary (1st grade class), 03/09/17

Presenter, “High Efficiency Solid-State Lighting, Light-Emitting Diodes, and Smart Lighting,” Southwestern Indian Polytechnic Institute (SIPI), 12/05/13 and 04/03/14.

Presenter, “Light-Emitting Diodes and Smart Lighting,” Dolores Gonzales Elementary School (5th grade class), 10/26/12

Instructor for high-school and community college students, National Nanotechnology Infrastructure Network (NNIN), University of California Santa Barbara, 09/2004-06/2005

Professional Standing:

Faculty Associate: Center for High Technology Materials, University of New Mexico

Member: IEEE (Senior Member), IEEE Photonics Society, SPIE, OSA, MRS, Tau Beta Pi

Prior Member: American Physical Society, American Ceramic Society, Eta Kappa Nu

CONSULTING EXPERIENCE

Independent Technical Consultant (Expert), Jonak Law Group, 4/2026 – present

SEOUL SEMICONDUCTOR CO., LTD. and Seoul Viosys Co., Ltd ex parte reexamination of claims v. EVERLIGHT ELECTRONICS CO. LTD

Independent Technical Consultant, FAIRLIGHT INNOVATIONS LLC, 7/2025 – present

Independent Technical Consultant, Mesa Quantum, 5/2025 – 8/2025

Independent Technical Consultant (Expert), Jonak Law Group, 4/2025 – 9/2025

SEOUL SEMICONDUCTOR CO., LTD., a Korean corporation, AND SEOUL VIOSYS CO., LTD., a Korean corporation, Plaintiffs, v. TECHNICAL CONSUMER PRODUCTS, INC. d/b/a TCP LIGHTING, Defendant. Civil Action No. C.A. No. 24-579-JNR

Independent Technical Consultant (Expert), Radulescu LLP, 12/2022 – 12/2023

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