

NELSON TANSU, Ph.D.

*Daniel E. '39 and Patricia M. Smith Endowed Chair Professor in Photonics and Nanoelectronics
Director, Lehigh Integrated Photonics and Nanofabrication Core Laboratory [INCL, university-wide]
Director, Center for Photonics and Nanoelectronics (CPN)
Lehigh University, Bethlehem, PA 18015, USA, Email - Tansu@Lehigh.Edu*

Information updated up to: **June 2020**

Office Contact Information

Nelson Tansu, Ph.D.

[Fellow of National Academy of Inventors, NAI Fellow – elected in 2016]

[ISI Highly Cited Researcher, Clarivate Analytics, 2018]

Daniel E. '39 and Patricia M. Smith Endowed Chair Professor in Photonics and Nanoelectronics
Director, Integrated Photonics and Nanofabrication Core Laboratory (INCL, university-wide)

Director, Center for Photonics and Nanoelectronics (CPN)

Department of Electrical and Computer Engineering (ECE)

P. C. Rossin College of Engineering and Applied Science (RCEAS)

Lehigh University, Bethlehem, PA 18015, USA

Email: Tansu@Lehigh.Edu, Cell Phone: (484) 547-4818, Fax: (610) 758-2605

Research Group: www.ece.lehigh.edu/~tansu, CPN Web: www.lehigh.edu/cpn

ECE Page: <http://www.ece.lehigh.edu/index.php?page=tansu>

Academic Lineage Tree: <https://academictree.org/etree/tree.php?pid=431754>



Birth Place and Date

Medan, North Sumatra, Indonesia, & October 20th, 1977 (Age: 42); U.S. Permanent Resident

Marital Status: Married with Adela Gozali Yose (since 2007) [with 1 son]

Educational Background

Fall 1998 – May 2003 **University of Wisconsin-Madison**

Doctor of Philosophy (Ph.D.) in Electrical Engineering (specialization area: Applied Physics)
with distributed minors in Physics and Material Science Engineering

- WARF Graduate University Fellowship & VILAS Graduate University Fellowship
- Ph.D. Advisor: Prof. Luke J. Mawst
- Dissertation Title: 'Novel Quantum-Wells GaAs-Based Lasers for All Transmission Windows in Optical Communication'.
- Ph.D. Committee Members: Prof. Luke J. Mawst (Chair), Prof. Dan Botez, Prof. Franz J. Himpfel, Prof. William N. G. Hitchon, and Prof. Zhenqiang (Jack) Ma.
- The 2003 Harold A. Peterson Best ECE Dissertation Award–1st Prize, and Graduate Dissertator Award

Fall 1995 – Spring 1998 **University of Wisconsin-Madison**

Bachelor of Science (B.S.) in Applied Mathematics, Electrical Engineering, and Physics

- Bohn Scholarship & Graduated with Highest Distinction

Fall 1992 – Spring 1995 **SMA Sutomo 1** (Medan, Indonesia)

High School Diploma (with major in Physics) from Indonesia Ministry of Education

- Valedictorian of the Graduating Class-1995 (1/415 overall)

Academic Professional Experiences

July 2018 – Present **Lehigh University, Bethlehem, Pennsylvania, USA**

**Daniel E. '39 and Patricia M. Smith Endowed Chair Professor (with Tenure) in Photonics and Nanoelectronics
Director, Lehigh Integrated Photonics and Nanofabrication Core Laboratory [INCL, university-wide]**

Director, Center for Photonics and Nanoelectronics

Department of Electrical and Computer Engineering (ECE), P. C. Rossin College of Engineering and Applied Science

June 2014 – June 2018 **Lehigh University, Bethlehem, Pennsylvania, USA**

**Daniel E. '39 and Patricia M. Smith Endowed Chair Professor (with Tenure) in Photonics and Nanoelectronics
Smith Family Endowed (Founding) Director, Center for Photonics and Nanoelectronics (CPN)**

Department of Electrical and Computer Engineering (ECE) & Center for Photonics and Nanoelectronics (CPN)

P. C. Rossin College of Engineering and Applied Science



February 2014 – May 2014 **Lehigh University, Bethlehem, Pennsylvania, USA**
New Century Endowed Chair Professor (with Tenure) in Engineering and Applied Science
Department of Electrical and Computer Engineering (ECE) & Center for Photonics and Nanoelectronics (CPN)
P. C. Rossin College of Engineering and Applied Science

June 2013 – January 2014 **Lehigh University, Bethlehem, Pennsylvania, USA**
New Century Endowed Chair Associate Professor (with Tenure) in Engineering and Applied Science
Department of Electrical and Computer Engineering (ECE) & Center for Photonics and Nanoelectronics (CPN)
P. C. Rossin College of Engineering and Applied Science

May 2010 – May 2013 **Lehigh University, Bethlehem, Pennsylvania, USA**
Class of 1961 Associate Professor (with Tenure) of Electrical and Computer Engineering
Department of Electrical and Computer Engineering (ECE) & Center for Optical Technologies (COT)
P. C. Rossin College of Engineering and Applied Science

May 2009 – April 2010 **Lehigh University, Bethlehem, Pennsylvania, USA**
Associate Professor (with Tenure) of Electrical and Computer Engineering
Department of Electrical and Computer Engineering (ECE) & Center for Optical Technologies (COT)
P. C. Rossin College of Engineering and Applied Science

April 2007 – April 2009 **Lehigh University, Bethlehem, Pennsylvania, USA**
Peter C. Rossin (Term Chair) Assistant Professor of Electrical and Computer Engineering
Department of Electrical and Computer Engineering (ECE) & Center for Optical Technologies (COT)
P. C. Rossin College of Engineering and Applied Science

July 2003 – April 2007 **Lehigh University, Bethlehem, Pennsylvania, USA**
Assistant Professor of Electrical and Computer Engineering
Department of Electrical and Computer Engineering (ECE) & Center for Optical Technologies (COT)
P. C. Rossin College of Engineering and Applied Science

June 1998- May 2003 **University of Wisconsin-Madison, Madison, WI, USA**
Ph.D Candidate, Graduate University Fellow, and Graduate Research Assistant
Department of Electrical and Computer Engineering
Reed Center for Photonics, Ph.D. Advisor : Prof. Luke J. Mawst
Fellowships: WARF Graduate University Fellowships & VILAS Graduate University Fellowships

Sept 1998 – May 2003 **University of Wisconsin-Madison, Madison, WI, USA**
Graduate Grader for various ECE classes

- ECE 745 (Advanced Semiconductor Devices Theory), ECE 743 (High Power Semiconductor Lasers)
- ECE 536 (Integrated Optics and Integrated Optoelectronics), ECE 335 (Semiconductor Devices)

Sept 1995- May 1998 **University of Wisconsin-Madison, Madison, WI, USA**
Undergraduate Research Assistant

- Prof. Dan McCammon (Physics Department), Detector for X-Ray Calorimeters (Fall 1995, Spring 1996)
- Prof. Duncan Carlsmith (Physics Department), Development of Neutrino Detectors (Summer 1996, Fall 1996)
- Prof. Robert Joynt (Physics Department), Theory for High-T_c Superconductivity (Spring 1997, Summer 1997)
- Prof. John G. Webster (Department of Electrical and Computer Engineering, and Department of Biomedical Engineering), Computational Electromagnetism Design for Electrode Used for Cardiac Arrhythmia Therapy (Fall 1997, Spring 1998)

Academic Administrative and Industry Appointments

June 2014 – present *Lehigh University, Bethlehem, Pennsylvania, USA*
Daniel E. '39 and Patricia M. Smith Endowed Chair Professor (with Tenure) in Photonics and Nanoelectronics
Director, Center for Photonics and Nanoelectronics (CPN) [2014-present]
Director, Integrated Photonics and Nanofabrication Core Laboratory [INCL, university-wide] [2018-present]
Department of Electrical and Computer Engineering (ECE) & Center for Photonics and Nanoelectronics (CPN)
P. C. Rossin College of Engineering and Applied Science
➤ Reports Directly to the Dean of Engineering and Applied Sciences [successful renewal in 2017]
➤ Reports Directly to the Provost's Appointed Committee

June 2014 – Present *Lehigh University, Bethlehem, Pennsylvania, USA*
Chair for the Lehigh University Intellectual Property Advisory Council (LIPAC)
➤ Reports Directly to the Vice President for Research

- Set the priorities and opportunities for intellectual property and technology transfer at Lehigh University
- Identify the strategy for enhancing the technology transfer and intellectual property generations at Lehigh University
- Develop a strategy for improving the technology creation, technology transfer, intellectual property protections, and technology commercialization at Lehigh University

January 2008 – Present *MIS Group, North Sumatra, Indonesia*
Chairman of Board of Directors
The Group is a manufacturing industry with markets covering South East Asia and American continents. MIS Group is located in a 20-acre facility, and it is one of the largest packaging industries in Sumatra / Indonesia.

- Strategic Visions and Long Term Goals
- Managing the Board of Directors
- New Initiatives and Directions of the Group
- Major Facility and Financial Planning for the Group

January 2008 – August 2008 *Alcatel Lucent Bell Labs, Murray Hills, NJ, USA*
Technical Consultants

- Analysis of the Intellectual Properties Owned by Alcatel Lucent.
- Provided Recommendations on the Relevance and Marketability Analysis of the Intellectual Portfolios

Awards & Honors Received

- **Finalist of the 1995 Indonesian Physics Olympiad Team**
- **Valedictorian of the Graduating Class-1995** (Rank 1/415 overall) (SMA Sutomo 1, Indonesia)
- **Dean's Lists** (Every semesters), University of Wisconsin-Madison
- **Tau Beta Pi Engineering Honors** (Inducted in 1998), University of Wisconsin-Madison
- **Bohn's Scholarship** (Department of Electrical Computer Engineering, UW-Madison)
Received this scholarship as the top rank (1st out of several thousand undergraduate students) undergraduate junior/senior students in the College of Engineering at the University of Wisconsin-Madison.
- **Wisconsin Alumni Research Foundation (WARF) Graduate University Fellowship** (Graduate School, University of Wisconsin-Madison)
The WARF Graduate University Fellowship is considered as the top and most-competitive graduate fellowship for PhD/Doctoral education at the University of Wisconsin-Madison.
- **VILAS Graduate University Fellowship** (Graduate School, University of Wisconsin-Madison)
- **Graduate Dissertator Travel Funding Award** (Graduate School, University of Wisconsin-Madison)
- **The 2003 Harold A. Peterson Best ECE Dissertation Award–1st Prize** (University of Wisconsin-Madison)
This award is the highest award given for PhD-level research excellence by the ECE department at the University of Wisconsin-Madison, and given for the Best ECE Dissertation Award.
- **Sigma Xi Scientific Research Society Honors** (Inducted in 2004), Lehigh University
- **Who's Who in Science and Engineering** (since 2005), Inducted in 2004.
- **Who's Who in American Education** (since 2006), Inducted in 2005.
- **Who's Who in Engineering Education** (since 2006), Inducted in 2005.
- **Who's Who in America** (since 2006), Inducted in 2005.

- **Appointed as Associate Editor for Nanoscale Research Letters**, Nanoscale Research Letters, Springer, 2006-present.
- **The 2006 Ten Indonesian People of the Year** (Tempo Magazine, Indonesia), Dec 2006.
The selections of the 'Indonesian People of the Year' were given to: "10 young Indonesians (under the age of 45) who have produced and contributed to works that have impacted Indonesia significantly in the fields of engineering / technology, natural science, economy, law / human rights, and social sciences / sociology". Information about **TEMPO** magazine: **TEMPO** magazine is the largest Indonesian weekly magazine (*1st largest in circulation and readership of ~350,000 and ~1,000,000, respectively, in Indonesia*) in Indonesia (circulations include South East Asia, Middle East region, Europe, and the U.S.).
- **The Peter C. Rossin Assistant Professorship**, Lehigh University, 2007-2009.
The Rossin Assistant Professorships are awarded "to the most outstanding individuals in the P. C. Rossin College of Engineering and Applied Science who have demonstrated high potential for establishing a successful academic career at Lehigh through the integration of teaching and research".
- **The 2008 Eleanor and Joseph F. Libsch Early Career Research Award**, Lehigh University, 2008
The Award is given "to honor faculty members who are early in their research career and who have demonstrated the potential for high-quality research and scholarship at Lehigh University".
- **Outstanding Poster Award (for Graduate Student)**, in SPE Polymer Nanocomposites Workshop: Processing, Structures & Properties, March 2008.
- **The 2008 Lehigh Innovation Seed Grant Award**, Lehigh University, 2008.
- **Primary Guest Editor, IEEE Journal of Selected Topics on Quantum Electronics (JSTQE), Special Issue on Solid State Lighting (2009)**, IEEE Photonics Society (formerly IEEE LEOS), 2008-2009.
- **General Participant (Invited), The NAE's 2008 US Frontiers of Engineering (US FOE) Symposium**, US National Academy of Engineering (NAE), September 2008.
The NAE selected 80 of the nation's brightest young engineers to take part in the National Academy of Engineering's (NAE) 14th annual US Frontiers of Engineering symposium. The participants are selected from the nation's brightest engineers ages 30 to 45, who are performing cutting-edge engineering research and technical work in a variety of disciplines.
- **Best Paper Award on Nano Photonics – IEEE Photonics Global Conference 2008**, IEEE – Lasers and Electro-Optics Society (LEOS) [currently IEEE Photonics Society], December 2008.
- **Appointed as Associate Editor for IEEE Photonics Journal**, IEEE Photonics Journal, IEEE, 2008-2014.
- **Indonesia's 100 Best Educators of the Year** (Campus Asia Magazine), Ranked No. 8 as Visionary Educators from Private Universities, Dec 2008.
- **Appointed as Associate Editor for Optical Materials Express**, Optical Materials Express (OMEx), Optical Society of America (OSA), 2009-present.
- **Best Crystal Growth Image Award (1st Prize) – AACG / 14th Biennial Workshop on Organometallic Vapor Phase Epitaxy (OMVPE) 2009**, August 2009. The winning image is "Six-fold Symmetry Gallium Nitride Flower". The award is sponsored by the Journal of Crystal Growth and Design (American Chemical Society), and the image appears in the AACG (American Association for Crystal Growth) Newsletter.
- **Symposium Organizing Committee (Invited), The NAE's 2009 US Frontiers of Engineering (US FOE) Symposium**, US National Academy of Engineering (NAE), September 2009.
The NAE's 2009 US FOE Organizing Committee consists of 1 Chair and 6 invited members. The Organizing Committee is responsible for providing the recommendation to the NAE on 1) the selection of the ~ 80 invited participants and 2) the selection of speakers for the NAE's 15th annual US Frontiers of Engineering symposium in Irvine, CA. The participants are selected from the nation's brightest engineers ages 30 to 45, who are performing cutting-edge engineering research and technical work in a variety of disciplines.
- **International Advisory Board, Association of International Indonesian Scholars and Scientists**, Ikatan Ilmuwan Indonesia Internasional, 2009-present.
- **The Wisconsin Forward Under 40 for Outstanding Young Alumni Award**, University of Wisconsin-Madison, 2010. <http://www.forwardunder40.com/40/?p=52>
The award is given as Outstanding Young Alumni Award (under age 40; 12 persons are selected annually) by the University of Wisconsin-Madison. The award is given "to honor outstanding young University of Wisconsin-Madison alumni who are making impacts and living out the Wisconsin Idea, the principle that states that the benefits of the university should extend to the borders of the state and around the world".
- **Elected as IEEE Senior Member**, Institute of Electrical and Electronics Engineers (IEEE), February 2010.
- **Elected as The 2010 "Top 40 Under 40"**, Fortune Magazine (Indonesia), November 2010.
- **General Participant (Invited), The NAE's 2012 German-American Frontiers of Engineering Symposium (GAFOE)**, US National Academy of Engineering (NAE) & Alexander von Humboldt Foundation, March 2012.

The NAE and Alexander von Humboldt Foundation selected 60 of US's and Germany's brightest young engineers to take part in the GAFOE 2012. The participants are selected from the US's and Germany's brightest engineers ages 30 to 45, who are performing cutting-edge engineering research and technical work in a variety of disciplines.

- **Guest Editor, IEEE/OSA Journal of Display Technology, Special Issue on Solid State Lighting (2012-2013)**, IEEE Photonics Society (formerly IEEE LEOS) & Optical Society of America (OSA), 2012-2013.
- **"Most Active Referees of Physica Status Solidi in 2010 and 2011"**, Physica Status Solidi Editorial Advisory Board, Wiley-VCH Verlag GmbH, April 2012.
- **"TED Golden Reviewers for 2012"**, IEEE Transactions on Electron Devices, IEEE, December 2012.
- **"J-PV Golden Reviewers for 2012"**, IEEE Journal of Photovoltaics, IEEE, December 2012.
- **Feature Editor, Applied Optics + Optical Materials Express, Issue on Hybrid organic-inorganic materials for photonic applications (2012-2013)**, Optical Society of America (OSA), 2012-2013.
- **"Wisconsin Prominent Alumni List"**, University of Wisconsin-Madison, 2012-present.
<http://wiscinfo.wisc.edu/about/facts/prominent-alumni.php>
- **Elected as the Editor-in-Chief for Photonics**, Photonics, MDPI – Basel, 2013-present. [Note: this journal starts to be indexed in Web of Sciences since March 2016]
- **Appointed as New Century Endowed Chair Professor in Engineering and Applied Science**, Lehigh University, 2013-present.
- **Elected as "The 24 Pride of Indonesia" (24 Kebanggaan Indonesia)**, Rajawali Citra Televisi Indonesia (RCTI), Jakarta, Indonesia, August 2013.
Link: <http://rctinews.okezone.tv/play/47415/prestasi-putra-bangsa-prof-nelson-tansu?r=441>
Link: <http://www.youtube.com/watch?v=YUXxAzwOugg>
- **"J-PV Golden Reviewers for 2013"**, IEEE Journal of Photovoltaics, IEEE, 2013.
- **"J-EDS Golden Reviewers for 2014"**, IEEE Journal of Electron Devices Society, IEEE, February 2014.
- **Appointed as Associate Editor for IEEE / OSA Journal of Display Technology**, IEEE / OSA Journal of Display Technology, IEEE and OSA, 2013-present.
- **Appointed as Associate Editor for Journal of Photonics for Energy (JPE)**, Journal of Photonics for Energy, SPIE, 2013-present.
- **"ISI Web of Sciences Top Ten Most Cited Papers in Physics (for 2011-2013) – Rank 5th in Physics Top 10" Award**, ISI Thomson Reuters Sciencewatch, January 2014.
This honor is given for one of the top 10 most cited papers in physics published during 2011-2013 [Optics Express, vol. 19 (S4), pp. A991-A1007, July 2011] – Rank 5th.
<http://sciencewatch.com/articles/physics-top-ten-higgs-bosons-neutrinos-polymer-solar-cells-and-stellar-surveys-vie>
- **General Participant (Invited), The NAE's 2014 Japan-American Frontiers of Engineering Symposium (JAFOE)**, US National Academy of Engineering (NAE) and Engineering Academy of Japan (EAJ), June 2014. The NAE and EAJ selected 60 of US's and Japan's brightest young engineers to take part in the JAFOE 2014. The participants are selected from the US's and Japan's brightest engineers ages 30 to 45, who are performing cutting-edge engineering research and technical work in a variety of disciplines.
- **Appointed as Daniel E. '39 and Patricia M. Smith Endowed Chair Professor (with Tenure) in Photonics and Nanoelectronics**, Lehigh University, 2014-present. [National and International Search]
- **Appointed as Smith Family Endowed (Founding) Directorship, Center for Photonics and Nanoelectronics (CPN)**, Lehigh University, 2014-present. [National and International Search]
- **The 2014 Most Influential Indonesian in Global Arena ["Putra Bangsa yang Berpengaruh di Negara Lain"]** (Trans 7 TV, Indonesia), August 2014.
The selections of the 'Most Influential Indonesian in Global Arena' were given to: "7 Indonesians who have made impactful contributions with global recognition in the fields of engineering/technology, natural science, education, humanity, and social sciences". **Trans 7 TV** is considered as among the top 3 major television channels with national coverage in Indonesia.
- **Appointed as SPIE Visiting Lecturer Program 2014**, International Society for Optical Engineering (SPIE), 2014-present.
- **Appointed as OSA Traveling Lecturer Program 2014**, Optical Society of America (OSA), 2014-present.
- **Appointed as Editorial Board Member for Scientific Reports (Electronics, Photonics, and Device Physics)**, Scientific Reports, Nature Publishing Group, London, 2014-present.
- **Top 10 Most Influential Indonesian Academics - 2015**, SWA Magazine (in Indonesian), May 2015.

- **Elected as Judging Committee for Indonesian Best Movie Award 2015 – Piala Maya 2015**, Komite Juri Festival Film Piala Maya 2015, Jakarta, June-December 2015.
- **National 3rd Place Award for the 2015 Siemens Competition in Math, Science & Technology (Milind Jagota, a research student in the group)**, Washington DC, USA, December 2015.
- **General Participant (Invited), The NAE and NMMB 2016 National Symposium on the Future of Center-Based, Multidisciplinary Engineering Research**, US National Academy of Engineering (NAE) and National Materials and Manufacturing Board, Washington, DC, USA, January 2016.
The NAE and NMMB selected 60 of the US's brightest young engineers from the NAE's US Frontiers of Engineering to develop a twenty-year vision with high-level, strategic recommendations for the future of center-scale, multidisciplinary engineering research that is responsive to globalization and the accelerating pace of innovation, new approaches to engineering education, and new modes of interaction between universities and industry.
- **Selected as the Winner for the Department of Energy (DOE) Solid-State Lighting (SSL) R&D Workshop Poster Competition 2016 (National)**, US Department of Energy, February 2016.
- **National 2nd Place Award for the 2016 Intel STS Science Talent Search Competition – Innovation (Milind Jagota, a research student in the group)**, Washington DC, USA, March 2016.
- **National Award for 2016 E. Elmer Klaus Fellowship Award (Guosong Zeng, Ph.D. student in Tansu's group)**, Society of Tribologists and Lubrication Engineers (STLE), Park Ridge, IL, USA, May 2016.
- **Gerondelis Foundation Award (on behalf of Ioannis Fragkos, Ph.D. student in Tansu's group)**, Gerondelis foundation, Lynn, MA, USA, December 2016.
- **Fellow (Elected in 2016), National Academy of Inventors (NAI)**, December 2016.
The election to Nation Academy of Inventor (NAI) Fellow status is the highest professional distinction accorded solely to academic inventors who have demonstrated a prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on the quality of life, economic development, and the welfare of society. <http://www.academyofinventors.org/press-releases.asp>
https://www.eurekalert.org/pub_releases/2016-12/lu-lud121216.php
<http://www.academyofinventors.org/conference/docs/fellows-program-2017.pdf>
- **"Wisconsin Notable Alumni List"**, University of Wisconsin-Madison, 2016-present.
<http://www.wisc.edu/about/notable-alumni/>
- **2nd Place Award for the David and Lorraine Freed Research Symposium 2017 – Lehigh University (Eric T. Reid, a research student in the group)**, Bethlehem, PA, USA, April 2017.
- **US Congressional Record — Extensions of Remarks on Newly Elected 2016 Fellows of the National Academy of Inventors**, US Congressional Record, pp. E448-E449, April 4th, 2017.
<https://www.congress.gov/crec/2017/04/04/CREC-2017-04-04-pt1-PgE448-2.pdf>
- **The Most Cited Articles in Optics Express (1997-2016)**, The Optical Society (OSA), August 2017.
<https://www.osapublishing.org/oe20/most-cited-oe-papers.cfm>
- **Selected as New Voices in Sciences, Engineering, and Medicine (New Voices) by the National Academies**, The National Academies of Sciences, Engineering, and Medicine (NAS, NAE, and NAM), Washington DC (USA), April 2018.
The National Academies (NAS, NAE, and NAM) elected 15 members as the "New Voices" to articulate and communicate science-based perspectives on important societal issues for addressing national and global challenges, share and provide the new perspectives on issues of importance to the community represented the National Academies, and shape and expand the approaches to enhance the diversity in sciences and engineering.
- **The 2018 Michael and Judith Gaulke Distinguished Lectureship**, Oregon State University, Corvallis, OR, September 2018.
<http://blogs.oregonstate.edu/eecsnews/2018/09/21/oregon-state-welcomes-nelson-tansu-as-the-first-gaulke-distinguished-lecturer/>
- **Nominated for the Lemelson-MIT Prize (2018, 2019)**, The Lemelson Foundation / MIT, Nov 2017 and Nov 2018. [Advanced to semifinal rounds in 2018 and 2019, and being considered in the 2019 finalist selection]
- **Nominated for 2019 Blavatnik National Awards for Young Scientists (in Physical Sciences & Engineering) [only one nomination is allowed per institution]**, The Blavatnik Family Foundation / New York Academy of Sciences, November 2018.
- **Clarivate Analytics / ISI Highly Cited Researcher (in Cross-Field / Multidisciplinary) [since 2018]** in "The World's Most Influential Scientific Minds 2018", Clarivate Analytics (ISI Web of Sciences), Nov 2018.
https://www.eurekalert.org/pub_releases/2018-11/lu-ntn112618.php
<https://www1.lehigh.edu/news/nelson-tansu-named-to-2018-highly-cited-researchers-list>

- **The 2019 Eleanor and Joseph F. Libsch Research Award**, Lehigh University, April 2019
The university-wide award is given “to recognize excellence in research and scholarship, including the overall impact, as well as the quality and quantity of scholarly contributions; reward those who perform distinguished research; place research and scholarship on an equal footing with teaching and university service”. This award is given to only one faculty member each year.
- **Selected as the Winner for the Department of Energy (DOE) Solid-State Lighting (SSL) R&D Workshop Poster Competition 2020 (National)**, US Department of Energy, February 2020.

Professional Affiliations

2016 – present, Life Fellow (Elected), National Academy of Inventors (NAI)
1999 – present, Senior Member, Institute of Electrical and Electronics Engineers (IEEE) / IEEE Photonics Society
2001 – present, Member, International Society for Optical Engineering (SPIE)
2004 – present, Member, Material Research Society (MRS)
2004 – present, Member, Sigma Xi Research Society
2005 – present, Member, American Society for Engineering Education (ASEE)
2005 – present, Member, The Optical Society (OSA)
2005 – present, Member, American Association for the Advancement of Science (AAAS)
2007 – present, Member, American Physical Society (APS)

Synopsis of Research Focus

My research group connects the fundamental physics and engineering concepts in providing improved understanding and solutions in compound semiconductor technologies. My research focuses on the physics, materials, devices, and integrated technologies based on wide bandgap (III-nitride and oxide-based) semiconductors and 2D materials for sustainability, health sciences, and computing/communications. My past works had resulted in seminal contributions in III-nitride (AlInGaN and InGaAsN) semiconductor materials and devices with impacts on communications, solid-state lighting, power electronics, energy efficiency, and renewable energy technologies. In addition, my future directions include the integration of the III-nitride semiconductors, oxide semiconductors, and 2D materials for new technologies enabled by such hybrid integration, and the pursuit of integrated technologies for biomedical and quantum computing applications. Unique directions on the use of machine learning for driving discoveries and innovations in basic material sciences are currently being pursued.

Leadership Roles in Academic, Research, and Industry

- **Academic and Research Record as Faculty Member at Lehigh University for 17+ years**
 - Faculty member at Lehigh University for 17+ years (July 2003-present), and currently as Daniel E. '39 and Patricia M. Smith Endowed Chair Professor (with Tenure) in Photonics and Nanoelectronics, Lehigh University (2014-present) and Smith Family Endowed Directorship of Center for Photonics and Nanoelectronics (2014-present).
 - Secured more than ~\$13.92 million in 17+ years as a faculty member at Lehigh from the following funding agencies: US National Science Foundation (NSF) [ECCS, DMR, CBET, and SNM Divisions], US Department of Energy (DOE), DARPA, US Department of Defense (DOD), US Department of Education, Pennsylvania Infrastructure and Technology, and State of Pennsylvania.
 - Published more than 148+ refereed journal papers (139+ at Lehigh) and 300+ refereed conference papers (290+ at Lehigh) – as of April 2020, and 18+ US patents awarded (additional 10 pending).
 - Presented 120+ invited talks in conferences, seminars in universities, and research institutes.
 - Journal papers have been cited for ~6700+ times with h-index ~ 49 (April 2020) based on ISI Web of Sciences, ~ 8450+ times with h-index ~ 50 (April 2020) based on Google Scholar.
 - Frequently serving as panel members for US National Science Foundation (6 different programs: ECCS, DMR, STC, ERC, SBIR, STTR), US Department of Energy, US Department of Defense, W. M. Keck Foundation, and other international agencies (Portugal, Czech, France, Ireland, Finland, Poland, New Zealand, Japan, and Swiss).
 - Currently serves as Editorial Board Members in more than 7 journals in the fields of nanotechnology, photonics, semiconductors, energy, and applied physics. Journals are published by Nature Publishing Group, IEEE, OSA (Optical Society of America), Springer, MDPI, SPIE, and other leading publishers. Elected as the Editor-in-Chief for Photonics (2013-present) [indexed in Web of Sciences since 2016].
 - Technical committee members in major conferences in the field of photonics (IEEE / OSA CLEO, SPIE Photonics West, APS March Meeting, IEEE / OSA / SPIE ACP Conference, and others).

- Extensive services in various committees in University, professional societies, and industries.
- Co-Chair of Organizing Committee for NAE's US Frontiers of Engineering (US FOE) Symposium
- Led the Search Committee for Faculty Hiring in ECE / MSE departments at Lehigh [6 distinct slots]
- Serves as Energy-Cluster Leader in Center for Photonics and Nanoelectronics at Lehigh
- Serves as External Tenure & Promotion Evaluators for leading ECE departments in US universities
- Key Faculty Members on the Establishment and Operational of Center for Optical Technologies (COT) at Lehigh University (2003-2012)
- Founding Faculty and Energy Research Thrust Leader for Center for Photonics and Nanoelectronics (CPN) at Lehigh University (2012-present)
- Chair of the Integrated Cleanroom and Nanofabrication Facility Committee at Lehigh University (2013-present)
- Appointed as Director of Center for Photonics and Nanoelectronics (CPN) at Lehigh University (2014-2018)
- Led faculty hiring for CPN Slots – 4 hires in the broad areas of computational, materials, devices, and integrated systems on photonics and nanosystems.
- Numerous successful transfer of basic sciences ideas to technological implementations in Industry
- Chair for the Lehigh University Intellectual Property Advisory Council (LIPAC) [2014-present].
- Chair for 125th Celebration of Electrical Engineering (ECE) at Lehigh University [2016-present]
- Extensive experience in working with global education and diversity issues in education
- In-depth understanding of university's challenges and strategies in engineering and sciences education, university research, research and innovation, and graduate education in the U.S., Canada and global
- Elected as Fellow of the National Academy of Inventors [elected in 2016]
- Appointed as Director of Lehigh's Integrated Nanofabrication Core Laboratory (INCL university-wide) at Lehigh University (2018-present)
- Recognized as the Clarivate Analytics / ISI Web of Science Highly Cited Researcher (2018) in "The World's Most Influential Scientific Minds 2018".

Technical Refereed Journal (148+) and Conference (302) Publications

Refereed Journal Articles

- ✓ **Publication Link:** <http://www.ece.lehigh.edu/~tansu/publications.html>
 - **Total Published Refereed Journals** (as of April 2020): 148+
 - **Refereed Journals Published at Lehigh** (July 2003 – April 2020): 139
 - **Additional Refereed Journals Currently Under Review / Submission** (Mar. 2020): 10
 - ✓ **ISI Web of Knowledge - Author:** (Tansu N), and **Address:** (Lehigh or Wisconsin)
 - ➔ **Total Citations of Journals** (as of April 2020): ~ 6700+ (h-index = 49)
 - ➔ **Research ID Search:** <http://www.researcherid.com/rid/A-2309-2008>
 - ✓ **Google Scholar ID:** <http://scholar.google.com/citations?user=-siWAFChGykC&hl=en>
 - ➔ **Total Citations of Journals** (as of April 2020): ~ 8450+ (h-index = 50)
1. [N. Tansu](#), D. Zhou, and L. J. Mawst, "Low Temperature Sensitive, Compressively-Strained InGaAsP Active ($\lambda=0.78\text{-}0.85\text{-}\mu\text{m}$) Region Diode Lasers," *IEEE Photon. Technol. Lett.*, vol. 12(6), pp.603-605, June 2000. ([pdf](#))
 2. [N. Tansu](#), and L. J. Mawst, "High-Performance, Strain Compensated InGaAs-GaAsP-GaAs ($\lambda=1.17\mu\text{m}$) Quantum Well Diode Lasers," *IEEE Photon. Technol. Lett.*, vol. 13(3), pp.179-181, March 2001. ([pdf](#))
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- published by Elsevier), *GaN-Net*, and *Microelectronics Review*. The work from this paper also won the 2003 Harold A. Peterson Best Research Award (1st Prize) at the University of Wisconsin-Madison.] ([pdf](#))
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 8. [N. Tansu](#), J. Y. Yeh, and L. J. Mawst, "Improved Photoluminescence of InGaAsN-(In)GaAsP Quantum Well by Organometallic Vapor Phase Epitaxy Using Growth Pause Annealing," *Appl. Phys. Lett.*, vol. 82(18), pp.3008-3110, May 2003. ([pdf](#))
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✓ **More than 10 additional refereed journal papers submitted for publication (including 2 Review articles)**

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158. **(Invited Conference Talk)** [N. Tansu](#), J. Zhang, G. Y. Liu, C. K. Tan, P. F. Zhu, and H. P. Zhao, "Advances in III-Nitride Semiconductors for Energy Efficiency Applications," *Proc. of the KAUST-UCSB-NSF Solid State Lighting Workshop 2012*, Thuwal, Saudi Arabia, February 2012.
159. G. Sun, R. Chen, Y. J. Ding, H. P. Zhao, G. Y. Liu, J. Zhang, and [N. Tansu](#), "Strikingly Different Behaviors of Photoluminescence Intensity and Terahertz Output Power versus Period of InGaIn/GaN Quantum Wells," *Proc. of the IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2012*, San Jose, CA, May 2012.

160. **(Invited Keynote Plenary Conference Talk)** [N. Tansu](#), J. Zhang, G. Y. Liu, C. K. Tan, P. F. Zhu, and H. P. Zhao, "Physics and Technology of III-Nitride Semiconductors for Energy Efficiency Applications," Proc. of the IUMRS-ICYRAM Conference 2012, Material Research Society (MRS), Singapore, July 2012.
161. **(Invited Conference Paper)** J. Zhang, G. Y. Liu, C. K. Tan, P. F. Zhu, H. P. Zhao, and [N. Tansu](#), "Engineering Nanostructures in Active Regions and Devices for High-Efficiency III-Nitride Light-Emitting Diodes – Epitaxy and Physics," Proc. of the *SPIE Optics + Photonics 2012*, NanoEpitaxy : Materials and Devices IV, San Diego, CA, August 2012.
162. W. H. Koo, W. Youn, P. F. Zhu, X. H. Li, [N. Tansu](#), and F. So, "Light extraction from OLEDs by defective hexagonal-close-packed silica array," Proc. of the *SPIE Optics + Photonics 2012*, Organic Electronics + Photonics, San Diego, CA, August 2012.
163. G. Y. Liu, J. Zhang, C. K. Tan, and [N. Tansu](#), "Characteristics of InGaN Quantum Wells Light-Emitting Diodes with Thin AlGaInN Barrier Layers," Proc. of the *IEEE Photonics Conference 2012*, Burlingame, CA, September 2012.
164. J. Zhang, and [N. Tansu](#), "Gain and Laser Characteristics of InGaN Quantum Wells on Ternary InGaN Substrates," Proc. of the *IEEE Photonics Conference 2012*, Burlingame, CA, September 2012.
165. C. K. Tan, J. Zhang, X. H. Li, G. Y. Liu, and [N. Tansu](#), "Dilute-As GaNAs Semiconductor for Visible Emitters," Proc. of the *IEEE Photonics Conference 2012*, Burlingame, CA, September 2012.
166. P. F. Zhu, J. Zhang, G. Y. Liu, and [N. Tansu](#), "FDTD Modeling of InGaN-Based Light-Emitting Diodes with Microsphere Arrays," Proc. of the *IEEE Photonics Conference 2012*, Burlingame, CA, September 2012.
167. **(Invited Conference Paper)** [N. Tansu](#), J. Zhang, G. Y. Liu, H. P. Zhao, C. K. Tan, and P. F. Zhu, "Physics of High-Efficiency III-Nitride Quantum Wells Light-Emitting Diodes," Proc. of the *Asian Communications and Photonics (ACP) Conference 2012*, Guangzhou, China, November 2012.
168. **(Invited Conference Paper)** J. Zhang, H. Tong, G. Y. Liu, and [N. Tansu](#), "III-Nitride Based Thermoelectric – Current Status and Future Potential," Proc. of the *Asian Communications and Photonics (ACP) Conference 2012*, Guangzhou, China, November 2012.
169. H. P. Zhao, X. C. Jiao, and [N. Tansu](#), "Analysis of Position and Thickness Dependences of Delta Layer in InGaN-Delta-InN Quantum Wells Light-Emitting Diodes," Proc. of the *Asian Communications and Photonics (ACP) Conference 2012*, Guangzhou, China, November 2012.
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171. J. Zhang, and [N. Tansu](#), "Optical and Polarization Properties with Staggered AlGaIn Quantum Wells for Mid- and Deep-Ultraviolet Lasers and Light Emitting Diodes," Proc. of the *SPIE Photonics West 2013*, San Francisco, CA, January 2013.
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175. **(Tutorial Conference Paper)** [N. Tansu](#), J. Zhang, G. Y. Liu, H. P. Zhao, C. K. Tan, and P. F. Zhu, "Internal and External Efficiency in InGaN-Based Light-Emitting Diodes," Proc. of the *Asian Communications and Photonics (ACP) Conference 2013*, Beijing, China, November 2013.
176. **(Invited Conference Paper)** J. Zhang, [N. Tansu](#), "Superlattice Physics for Minimal Thermal Conductivity," Proc. of the *Asian Communications and Photonics (ACP) Conference 2013*, Beijing, China, November 2013.
177. P. F. Zhu, C. K. Tan, and [N. Tansu](#), "Extraction Efficiency Enhancement of Thin-Film Flip-Chip GaN Light-Emitting Diodes with Self-Assembled Microsphere Arrays," Proc. of the *International Conference on White LEDs and Solid State Lighting (WLED 5) Conference 2014*, Jeju, Korea, June 2014.
178. C. K. Tan, P. F. Zhu, and [N. Tansu](#), "Investigation of Dilute-As GaNAs Active Regions for High Efficiency GaN-based Light-Emitting Diodes," Proc. of the *International Conference on White LEDs and Solid State Lighting (WLED 5) Conference 2014*, Jeju, Korea, June 2014.
179. **(Invited Paper)** [N. Tansu](#), "Physics and Technology of III-Nitride Semiconductors for Energy Efficiency and Environmental Applications," Proc. of the *NAE-EAJ Japan-American Frontiers of Engineering Symposium (JAFEO) 2014*, Tokyo, Japan, June 2014.
180. C. K. Tan, P. F. Zhu, and [N. Tansu](#), "Controlling the Interband Auger Recombination Mechanism in III-Nitride Based Ternary Active Regions," Proc. of the *SPIE Optics + Photonics 2014*, Thirteenth International Conference on Solid State Lighting and LED-based Illumination Systems, San Diego, CA, August 2014.

181. P. F. Zhu, W. Sun, C. K. Tan, and [N. Tansu](#), "Comparison of Extraction Efficiency for Thin-Film Flip-Chip InGaN Light-Emitting Diodes with Microsphere and Microconcave Array Structures," Proc. of the *SPIE Optics + Photonics 2014*, Thirteenth International Conference on Solid State Lighting and LED-based Illumination Systems, San Diego, CA, August 2014.
182. P. F. Zhu, H. Y. Zhu, W. P. Qin, C. K. Tan, and [N. Tansu](#), "Eu³⁺-doped TiO₂ Nanospheres for GaN-based White Light-Emitting Diodes," Proc. of the *SPIE Optics + Photonics 2014*, Thirteenth International Conference on Solid State Lighting and LED-based Illumination Systems, San Diego, CA, August 2014.
183. P. F. Zhu, T. Toma, W. Sun, C. K. Tan, and [N. Tansu](#), "Investigation of Solar Hydrogen Generation from the GaN and InGaN Thin Films," Proc. of the *SPIE Optics + Photonics 2014*, Solar Energy + Technology, San Diego, CA, August 2014.
184. **(Invited Conference Paper)** P. F. Zhu, W. Sun, C. K. Tan, and [N. Tansu](#), "Light Extraction Efficiency Enhancement in GaN-Based LEDs with Self-Assembly Approach," Proc. of the *Progress In Electromagnetics Research Symposium (PIERS) 2014*, Guangzhou, China, August 2014.
185. **(Invited Keynote Conference Paper)** [N. Tansu](#), C. K. Tan, P. F. Zhu, and W. Sun, "Physics of High Efficiency and Efficiency-Droop in III-Nitride Light-Emitting Diodes," Proc. of the *Progress In Electromagnetics Research Symposium (PIERS) 2014*, Guangzhou, China, August 2014.
186. C. K. Tan, and [N. Tansu](#), "Dilute-P GaNP Semiconductor Alloy for Visible Light Emitter," Proc. of the *American Physical Society (APS) Annual March Meeting 2015*, San Antonio, Texas, USA, March 2015.
187. G. S. Zeng, B. A. Krick, and [N. Tansu](#), "Shear-Induced Phase Transformation: From Single-Crystal Silicon to Si-IV," Proc. of the *American Physical Society (APS) Annual March Meeting 2015*, San Antonio, Texas, USA, March 2015.
188. N. A. Lacroce, G. Y. Liu, C. K. Tan, R. A. Arif, S. M. Lee, and [N. Tansu](#), "Effect of Dopant Activation on Device Characteristics of InGaN-based Light Emitting Diodes," Proc. of the *American Physical Society (APS) Annual March Meeting 2015*, San Antonio, Texas, USA, March 2015.
189. W. Sun, C. K. Tan, and [N. Tansu](#), "Artificially-Engineered III-Nitride Digital Alloy for Solar Energy Harvesting," Proc. of the *American Physical Society (APS) Annual March Meeting 2015*, San Antonio, Texas, USA, March 2015.
190. G. S. Zeng, [N. Tansu](#), J. F. Curry, and B. A. Krick, "Nanoscale Mechanisms in Ductile Wear of Brittle Materials," Proc. of the *Society of Tribologists and Lubrication Engineers Annual Meeting (STLE) 2015*, Dallas, TX, USA, May 2015.
191. **(Invited Conference Paper)** [N. Tansu](#), "Materials, Devices, and Integrated Technologies for Solid State Lighting Frontiers," Proc. of the *MRS International Conference on Materials for Advanced Technologies (ICMAT) 2015*, Singapore, Republic of Singapore, June 2015.
192. C. K. Tan, and [N. Tansu](#), "InGaN-GaNAs Active Region for Visible Light Emitters in Red Spectral Regime," Proc. of the *MRS International Conference on Materials for Advanced Technologies (ICMAT) 2015*, Singapore, Republic of Singapore, June 2015.
193. C. K. Tan, and [N. Tansu](#), "Barrier Effect on AlGaIn-Based Quantum Wells for Deep UV Emitters," Proc. of the *MRS International Conference on Materials for Advanced Technologies (ICMAT) 2015*, Singapore, Republic of Singapore, June 2015.
194. M. Jagota, and [N. Tansu](#), "Conductivity of Random and Ordered Nanowire Arrays," Proc. of the *MRS International Conference on Materials for Advanced Technologies (ICMAT) 2015*, Singapore, Republic of Singapore, June 2015.
195. C. K. Tan, and [N. Tansu](#), "Design Analysis of InGaN-GaNAs Active Region for Long Wavelength Visible Emission," Proc. of the *SPIE Optics + Photonics 2015*, Fourteenth International Conference on Solid State Lighting and LED-based Illumination Systems, San Diego, CA, August 2015.
196. W. Sun, C. K. Tan, and [N. Tansu](#), "Physics of Artificially-Engineered AlGaIn and InGaN Based Digital Alloys," Proc. of the *SPIE Optics + Photonics 2015*, Low Dimensional Materials and Devices, San Diego, CA, August 2015.
197. N. A. Lacroce, G. Y. Liu, C. K. Tan, R. A. Arif, S. M. Lee, and [N. Tansu](#), "Understanding the Dopant Activation for Improved Manufacturing Yield in InGaN-Based Light Emitting Diodes," Proc. of the *SPIE Optics + Photonics 2015*, Fourteenth International Conference on Solid State Lighting and LED-based Illumination Systems, San Diego, CA, August 2015.
198. C. K. Tan, Z. J. Zhao, and [N. Tansu](#), "Using Dilute-P GaNP Alloy as Improved Visible Active Region," Proc. of the *SPIE Optics + Photonics 2015*, Active Photonic Materials, San Diego, CA, August 2015.
199. C. K. Tan, and [N. Tansu](#), "Auger Recombination in Nanoscale III-Nitride Material System," Proc. of the *SPIE Optics + Photonics 2015*, Nanoengineering: Fabrication, Properties, Optics, and Devices XII, San Diego, CA, August 2015.
200. J. J. Wierer, and [N. Tansu](#), "Breakthrough Research Leading to Ultra-Efficient Solid State Lighting", U.S. DOE LED R&D Roundtable Meeting, Washington, DC, USA, September 2015.
201. C. K. Tan, and [N. Tansu](#), "Gain and Spontaneous Emission Characteristics of AlInN Quantum Well for Deep Ultraviolet Emitters," Proc. of the *IEEE Photonics Conference 2015*, Arlington, VA, October 2015.
202. C. K. Tan, and [N. Tansu](#), "Dilute-As AlNAs Semiconductor for Ultraviolet Emitters," Proc. of the *IEEE Photonics Conference 2015*, Arlington, VA, October 2015.

203. W. Sun, C. K. Tan, and [N. Tansu](#), "Artificially Engineered InGaN-Based Digital Alloy for Optoelectronics" Proc. of the *IEEE Photonics Conference 2015*, Arlington, VA, October 2015.
204. **(Invited Conference Paper)** [N. Tansu](#), C. K. Tan, and J. J. Wierer, "Tutorial on III-Nitride Solid State Lighting and Smart Lighting," Proc. of the *IEEE Photonics Conference 2015*, Arlington, VA, October 2015.
205. **(Invited Conference Paper)** [N. Tansu](#), and J. J. Wierer, "Next Generation III-Nitride Materials and Devices," Proc. of the *SPIE Photonics West 2016*, Gallium Nitride Materials and Devices XI, San Francisco, CA, Feb 2016.
206. **(Invited Conference Paper)** C. K. Tan, and [N. Tansu](#), "Dilute-As GaNAs Quantum Wells for Visible Lasers with Reduced Auger Recombination", Proc. of the SPIE Photonics West 2016, Novel In-Plane Semiconductor Lasers XV, San Francisco, February 2016.
207. C. K. Tan, D. Borovac, and [N. Tansu](#), "Band Gap Narrowing with Dilute-Anion GaN Materials for Visible Emission", Proc. of the SPIE Photonics West 2016, Gallium Nitride Materials and Devices XI, San Francisco, CA, February 2016.
208. G. S. Zeng, C. K. Tan, B. A. Krick, and [N. Tansu](#), "Investigation of Mechanical Wear Rates in III-Nitride Materials", Proc. of the SPIE Photonics West 2016, Gallium Nitride Materials and Devices XI, San Francisco, CA, February 2016.
209. W. Sun, C. K. Tan, and [N. Tansu](#), "AlGaIn Digital Alloys for Deep-Ultraviolet Application", Proc. of the SPIE Photonics West 2016, Physics and Simulation of Optoelectronic Devices XXIV, San Francisco, CA, February 2016.
210. I. Fragkos, C. K. Tan, V. Dierolf, Y. Fujiwara, and [N. Tansu](#), "Rare-Earth Doped GaN Based Light Emitting Diode: A Model of Current Injection Efficiency", Proc. of the SPIE Photonics West 2016, Physics and Simulation of Optoelectronic Devices XXIV, San Francisco, CA, February 2016.
211. **(Invited - Student Award Winner)** C. K. Tan, W. Sun, D. Borovac, J. J. Wierer, Jr., and [N. Tansu](#), "InGaIn-GaNAs 'Interface Quantum Well' for Long-Wavelength Emission," DOE R&D Workshop on Solid State Lighting 2016, Raleigh, NC, USA, February 2016.
212. G. S. Zeng, C. K. Tan, [N. Tansu](#), and B. A. Krick, "Wear Mechanism of III-Nitride Semiconductor Materials", Proc. of the Society of Tribologists and Lubrication Engineers Annual Meeting (STLE) 2016, Las Vegas, NV, USA, May 2016.
213. G. S. Zeng, C. K. Tan, [N. Tansu](#), and B. A. Krick, "Humidity Effect on Wear Performance of Gallium Nitride", Poster Session Presented at: Proc. of the Society of Tribologists and Lubrication Engineers Annual Meeting (STLE) 2016, Las Vegas, NV, USA, May 2016.
214. Y. Y. Huang, W. Sun, L. Y. Yan, A. Nitkowski, A. Weinroth, [N. Tansu](#), and C. Zhou, "Integrated Photonic Devices for Ultrahigh-Speed, Space-Division Multiplexing Optical Coherence Tomography," TechConnect Conference 2016 – Photonics Materials and Devices, Washington, DC, USA, May 2016.
215. **(Late News Paper)** G. Zeng, C. K. Tan, P. Zhao, B. E. Koel, B. A. Krick, and [N. Tansu](#), "Ultralow Wear of Gallium Nitride", *Proc. of the TMS Electronics Material Conference (EMC) 2016*, Newark, DE, June 2016.
216. **(Invited Conference Paper)** J. J. Wierer, Jr., [N. Tansu](#), and J. Y. Tsao, "Achieving Ultra-efficiency in III-nitride LEDs and Laser Diodes for Solid-state Lighting", *Proc. of the OSA Advanced Photonics 2016 (Integrated Photonics Research, Silicon and Nanophotonics 2016)*, Paper IW1B.6, Vancouver, Canada, July 2016.
217. I. Fragkos, C. K. Tan, Y. Zhong, V. Dierolf, Y. Fujiwara, and [N. Tansu](#), "Understanding the Current Injection Efficiency in Rare-Earth Doped GaN:Eu Red-Emitting Light Emitting Diodes", Proc. of the IEEE Lester Eastman Conference on High Performance Devices 2016, Bethlehem, PA, August 2016.
218. W. Sun, C. K. Tan, J. J. Wierer, and [N. Tansu](#), "Miniband Engineering in III-Nitride Digital Alloy for Broadband Device Applications", Proc. of the IEEE Lester Eastman Conference on High Performance Devices 2016, Bethlehem, PA, August 2016.
219. C. K. Tan, W. Sun, D. Borovac, J. J. Wierer, and [N. Tansu](#), "Band Gap Engineering in GaN-Based Semiconductor with Dilute-Anion Incorporation for Visible Light Emitters", Proc. of the IEEE Lester Eastman Conference on High Performance Devices 2016, Bethlehem, PA, August 2016.
220. J. J. Wierer, and [N. Tansu](#), "Research topics for ultra-efficient solid state-lighting", U.S. DOE LED R&D Roundtable Meeting, Washington, DC, USA, September 2016.
221. J. J. Wierer, [N. Tansu](#), and J. Y. Tsao, "Ultra-Efficient Solid-State Lighting using III-Nitride Quantum Dots", *Proc. of the International Workshop on Nitride Semiconductors 2016 (IWN 2016)*, Orlando, FL, October 2016.
222. C. K. Tan, W. Sun, D. Borovac, J. J. Wierer, and [N. Tansu](#), "How Can Dilute-Anion III-Nitride Be Used for Light Emitters?", *Proc. of the International Workshop on Nitride Semiconductors 2016 (IWN 2016)*, Orlando, FL, October 2016.
223. G. Zeng, C. K. Tan, X. F. Yang, B. E. Koel, B. A. Krick, and [N. Tansu](#), "Investigation of Ultralow Wear of III-Nitride Materials", *Proc. of the International Workshop on Nitride Semiconductors 2016 (IWN 2016)*, Orlando, FL, October 2016.
224. **(Invited Conference Paper)** C. K. Tan, W. Sun, D. Borovac, J. J. Wierer, Jr., and [N. Tansu](#), "Dilute-Anion Nitride Semiconductors", *Proc. of the IEEE Photonics Conference 2016*, Waikoloa, Hawaii, October 2016.

225. **(Invited Conference Paper)** J. J. Wierer, Jr., [N. Tansu](#), and J. Y. Tsao, "Quantum Dots Laser Based Solid State Lighting", *Proc. of the IEEE Photonics Conference 2016*, Waikoloa, Hawaii, October 2016.
226. **(Keynote Conference Paper)** [N. Tansu](#), "III-Nitride Semiconductor Research: Present and Future Directors", Proc. of the 2016 International Conference on Energy and Advanced Technology (ICEAT), Jakarta, Indonesia, November 2016.
227. C. K. Tan, W. Sun, J. J. Wierer, Jr., and [N. Tansu](#), "How the Interface Affects Auger Process in Quantum Wells?", *Proc. of the SPIE Photonics West 2017*, Novel In-Plane Semiconductor Lasers XVI, San Francisco, CA, February 2017.
228. W. Sun, C. K. Tan, J. J. Wierer, Jr., and [N. Tansu](#), "Ultra-broadband III-Nitride Digital Alloys Active Region for Optoelectronic Applications", *Proc. of the SPIE Photonics West 2017*, Physics and Simulation of Optoelectronic Devices XXV, San Francisco, CA, February 2017.
229. I. Fragkos, C. K. Tan, Y. Zhong, V. Dierolf, Y. Fujiwara, and [N. Tansu](#), "On the identification and understanding of limiting factors in IQE of GaN:Eu based PIN diodes for red light emission", *Proc. of the SPIE Photonics West 2017*, Physics and Simulation of Optoelectronic Devices XXV, San Francisco, CA, February 2017.
230. I. Fragkos, Y. Zhong, C. K. Tan, V. Dierolf, Y. Fujiwara, and [N. Tansu](#), "Enhancement of Internal Quantum Efficiency of GaN:Eu based Red Light Emitters through Surface Plasmon Engineering", *Proc. of the SPIE Photonics West 2017*, Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XXI, San Francisco, CA, February 2017.
231. D. Borovac, C. K. Tan, and [N. Tansu](#), "Investigation of the Optical Properties of Dilute-As GaNAs Semiconductors", *Proc. of the SPIE Photonics West 2017*, Gallium Nitride Materials and Devices XII, San Francisco, CA, February 2017.
232. Y. Zhong, I. Fragkos, and [N. Tansu](#), "Surface Plasmon Dispersion Engineering by Using TiN / Au Double Metallic Layers for Yellow up to Red Spectral Emitters", *Proc. of the SPIE Photonics West 2017*, Photonic and Phononic Properties of Engineered Nanostructures VII, San Francisco, CA, February 2017.
233. **(Invited Conference Paper)** J. J. Wierer, Jr., X. Wei, and [N. Tansu](#), "Quantum Dots Laser Based Solid State Lighting", *Proc. of the SPIE Photonics West 2017*, Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XXI, San Francisco, CA, February 2017.
234. G. Zeng, X. Fang, B. E. Koel, D. Borovac, C. K. Tan, [N. Tansu](#), and B. A. Krick, "Tribochemistry of GaN," Proc. of the Society of Tribologists and Lubrication Engineers Annual Meeting (STLE) 2017, Atlanta, GA, USA, May 2017.
235. S. A. A. Mueeed, W. Sun, X. Wei, R. Song, [N. Tansu](#), J. J. Wierer, Jr., and D. Koleske, "Strain balancing in InGaN-based multiple quantum wells using AlGaN interlayers," *Proc. of the TMS Electronics Material Conference (EMC) 2017*, South Bend, IN, June 2017.
236. W. Sun, R. Song, J. J. Wierer, Jr., and [N. Tansu](#), "Strain Relaxation Properties of OMVPE-Grown AlInN Semiconductors", *Proc. of the 21st American Conference on Crystal Growth and Epitaxy 2017*, Santa Fe, NM, July 2017
237. I. E. Fragkos, W. Sun, D. Borovac, R. Song, J. J. Wierer, Jr., and [N. Tansu](#), "Pulsed OMVPE Growth Studies of InN for Integration in InGaN Active Region", *Proc. of the 21st American Conference on Crystal Growth and Epitaxy 2017*, Santa Fe, NM, July 2017.
238. **(Invited Conference Paper)** [N. Tansu](#), J. J. Wierer, Jr., C. K. Tan, W. Sun, I. Fragkos, and D. Borovac, "Next Generation III-Nitride Materials and Research – from Photonics to New Applications", *IEEE / OSA Conference on Lasers and Electro-Optics (CLEO Pacific 2017)*, Singapore, Republic of Singapore, July / August 2017.
239. **(Invited Conference Paper)** [N. Tansu](#), J. J. Wierer, Jr., C. K. Tan, W. Sun, I. Fragkos, and D. Borovac, "Next Generation III-Nitride Materials and Devices – from Photonics to New Applications", *Proc. of the SPIE Optics + Photonics 2017, The 16th International Conference on Solid State Lighting*, San Diego, CA, August 2017.
240. [N. Tansu](#), J. J. Wierer, and S. Pimputkar, "Beyond Conventional III-Nitride Semiconductors", U.S. Department of Energy (DOE) LED R&D Roundtable Meeting, Washington, DC, USA, August-September 2017.
241. **(Invited Conference Paper)** J. J. Wierer, Jr., X. Wei, S. A. A. Mueeed, and [N. Tansu](#), "Pathways to ultra-efficient solid-state lighting", *IEEE Photonics Conference 2017*, Orlando FL, October 2017.
242. **(Invited Conference Paper)** J. J. Wierer, Jr., X. Wei, S. A. Al Mueeed, W. Sun, R. Song, and [N. Tansu](#), "Routes to ultra-efficient III-nitride emitters for solid-state lighting" *11th International Symposium on Semiconductor Light Emitting Devices 2017*, Banff, Canada, October 2017.
243. **(Invited Conference Paper)** J. F. Gilchrist, [N. Tansu](#), and M. A. Snyder, "Optical-scale microlens arrays for enhanced light emitting diode and dye sensitized solar cell performance," *Hybrid Organic-Inorganic Materials for Alternative Energy, Materials Science & Technology 2017*, Pittsburgh, PA, October 2017.
244. W. Sun, C. K. Tan, and [N. Tansu](#), "Lattice-matched AlInN/GaN Digital Alloy for Mid- and Deep-Ultraviolet Applications", *Proc. of the IEEE Photonics Conference 2017*, Orlando, FL, October 2017.
245. D. Borovac, C. K. Tan, and [N. Tansu](#), "Investigation of Refractive Index in Dilute-P GaNP Alloys by First-Principle," *Proc. of the IEEE Photonics Conference 2017*, Orlando, FL, October 2017.

246. I. E. Fragkos, C. K. Tan, V. Dierolf, Y. Fujiwara, and [N. Tansu](#), "Engineering the Internal Quantum Efficiency of GaN:Eu based Red Light Emitting Diodes", *Proc. of the IEEE Photonics Conference 2017*, Orlando, FL, October 2017.
247. A. M. Slosberg, and [N. Tansu](#), "Design Analysis of Subwavelength Grating Mirror for GaN Based VCSELs Structure", *Proc. of the IEEE Photonics Conference 2017*, Orlando, FL, October 2017.
248. C. K. Tan, D. Borovac, W. Sun, and [N. Tansu](#), "Dilute-Anion Boron Nitride Semiconductor for Light Emitters", *Proc. of the IEEE Photonics Conference 2017*, Orlando, FL, October 2017.
249. E. T. Reid, and [N. Tansu](#), "Analysis of Integrated Tunable III-Nitride Lasers with Dual Distributed Bragg Reflectors", *Proc. of the IEEE Photonics Conference 2017*, Orlando, FL, October 2017.
250. **(Invited Conference Paper)** [N. Tansu](#), J. J. Wierer, Jr., C. K. Tan, W. Sun, D. Borovac, and I. E. Fragkos, "Next Generation III-Nitride Materials and Devices – from Photonics to New Applications", *Proc. of the OSA Solid State Lighting (SSL) Topical Meeting 2017*, Boulder, CO, USA, November 2017.
251. W. Sun, C. K. Tan, and [N. Tansu](#), "Valence Subband Engineering of AlInN/GaN Digital Alloy for Polarization-Insensitive Applications in Mid- and Deep-UV Regime", *Proc. of the SPIE Photonics West 2018, Physics and Simulation of Optoelectronic Devices XXVI*, San Francisco, CA, Jan 2018.
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282. **[Invited Tutorial and Short Course]** [N. Tansu](#), "Tutorial on Advances in Sciences and Emerging Technologies in Semiconductors", *Proc. of the North American Summer School on Photonic Materials, Centre d'Optique, Photonique et Laser (COPL), Laval University, Quebec City, Canada, June 2019*.
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301. O. N. Ogidi-Ekoko, W. Liang, H. Xue, and [N. Tansu](#), "GaN Subwavelength Gratings by Machine Learning Design", *Proc. of the IEEE Photonics Conference 2020*, Vancouver, Canada, October 2020.
302. **(Plenary Talk)** [N. Tansu](#), "III-Nitride Laser Technologies – How AI and Physics Come Together", the 27th IEEE International Semiconductor Laser Conference (ISLC) 2021, Potsdam, Germany, October 2021.

Invited Lectures & Seminars

1. [Nelson Tansu](#), "Design Considerations, Lasing Characteristics, and Temperature Analysis of Highly-Strained InGaAs(N)-GaAsP-GaAs ($\lambda > 1.17\text{-}1.3\ \mu\text{m}$) Quantum Well Lasers," Department of Electrical and Computer Engineering, **National University of Singapore**, Singapore, Republic of Singapore, July 2001.
2. [Nelson Tansu](#), "High Performance InGaAsN Quantum Well Lasers for Optical Communications," Department of Physics, **The University of Leipzig (Universität Leipzig)**, Leipzig, Germany, June 2002.
3. [Nelson Tansu](#), "High Performance MOCVD-InGaAsN Quantum Well Lasers for Long Wavelength Emission on GaAs," Institute of Quantum Electronics, Department of Physics, **Swiss Federal Institute of Technology-Zurich (Eidgenössisch Technisch Hochschule-Zurich)**, Zurich, Switzerland, June 2002.
4. [Nelson Tansu](#), "Long Wavelength Semiconductor Lasers based on Dilute-Nitride Quantum Well," Solid State Physics Seminar, **Imperial College of Science, Technology, and Medicine**, London, United Kingdom, June 2002.
5. [Nelson Tansu](#), "High Performance MOCVD-InGaAsN Quantum Well Lasers," Center for Communications Research, Department of Electrical and Electronic Engineering, **The University of Bristol**, Bristol, United Kingdom, June 2002.
6. [Nelson Tansu](#), "High Performance Dilute-Nitride Quantum Well Lasers for Optical Communications," Department of Engineering-Electrical Engineering, **The University of Cambridge**, Cambridge, United Kingdom, June 2002.
7. [Nelson Tansu](#), "High Performance Dilute-Nitride Quantum Well Lasers," Lasers and Quantum Electronics Seminar, Department of Electronics Systems Engineering, **The University of Essex**, Colchester, United Kingdom, June 2002.
8. [Nelson Tansu](#), "MOCVD-InGaAsN Quantum Well Lasers," Ipswich Components Operation, **Agilent Technologies UK Limited**, Ipswich, United Kingdom, June 2002.
9. [Nelson Tansu](#), "High-Performance 1300-nm InGaAsN Quantum Well Lasers by Metal-Organic Vapor Phase Epitaxy," **AlfaLight Inc.**, Madison, Wisconsin, USA, July 2002.

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15. [Nelson Tansu](#), "High-Performance 1200-1370 nm Long Wavelength Lasers on GaAs by MOCVD," School of Engineering Science, ***Simon Fraser University***, Vancouver, British Columbia, Canada, February 2003.
16. Luke J. Mawst, [Nelson Tansu](#), and Jeng-Ya Yeh, "High-Performance MOCVD-Grown InGaAsN Quantum-Well Lasers," Department of Electrical and Computer Engineering, ***University of Illinois-Urbana Champaign***, Urbana Champaign, Illinois, USA, March 2003.
17. [Nelson Tansu](#), "Dilute-Nitride Semiconductor Nanostructure for Near-Infrared and Mid-Infrared Optoelectronics," Electronics Research and Development Department, ***Air Products and Chemicals Inc.***, Allentown, PA, Oct 2005.
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19. [Nelson Tansu](#), "Type-I and Type-II InGaAsN-Based Quantum Wells for Visible up to Mid-Infrared Lasers," Department of Electrical Engineering, ***The University of Pittsburgh***, Pittsburgh, Pennsylvania, USA, February 2006.
20. [Nelson Tansu](#), "High Efficiency Nitride-Based Light Emitting Diodes for Solid State Lightings," IMRE Seminar, ***A-STAR Institute of Material Research and Engineering (IMRE)***, Republic of Singapore, September 2007.
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22. [Nelson Tansu](#), "Solid State Lighting and Semiconductor Photovoltaic: A Tutorial," Center for Optical Technologies (COT) Open House 2007 – Tutorial Series, ***Lehigh University***, Bethlehem, Pennsylvania, USA, October 2007.
23. [Nelson Tansu](#), "High Efficiency Nitride-Based Light Emitting Diodes for Solid State Lightings," ECE Seminar Series, Department of Electrical and Computer Engineering, ***University of Illinois-Urbana Champaign***, Urbana Champaign, Illinois, USA, November 2007.
24. [Nelson Tansu](#), "Physics of III-Nitride and Dilute-Nitride Nanostructures for Optoelectronics Devices," Institute of Optical and Electronics Material, ***Technische Universität Hamburg-Harburg (Technical University of Hamburg-Harburg)***, Hamburg, Germany, June 2008.
25. [Nelson Tansu](#), "III-Nitride Photonics: From UV, Visible Up to Terahertz," ECE Seminar Series, Department of Electrical and Computer Engineering, ***University of Wisconsin-Madison***, Madison, Wisconsin, USA, November 2009.
26. [Nelson Tansu](#), "Tutorial on Semiconductor Energy-Based Technologies: Solid State Lighting + Solar Energy + Thermoelectric + Power Electronics," Center for Optical Technologies (COT) Open House 2010 – Tutorial Series, ***Lehigh University***, Bethlehem, Pennsylvania, USA, October 2010.
27. [Nelson Tansu](#), "III-Nitride Semiconductor Device Technologies for Energy Applications," Center for Optical Technologies (COT) Open House 2011, ***Lehigh University***, Bethlehem, Pennsylvania, USA, November 2011.
28. [Nelson Tansu](#), "Tutorial on Physics and Engineering of III-Nitride Quantum Heterostructures for Photonics and Energy Efficiency Technologies," Tutorial Invited Talk, Department of Physics, ***University of Indonesia***, Depok, Indonesia, June 2013.
29. [Nelson Tansu](#), "Physics and Engineering of III-Nitride Quantum Heterostructures for Photonics and Energy Efficiency Technologies," ECE Seminar, Department of Electrical and Computer Engineering, ***National University of Singapore***, Singapore, Republic of Singapore, July 2013.
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31. [Nelson Tansu](#), "Physics and Engineering of III-Nitride Quantum Heterostructures for Photonics and Energy Efficiency Technologies," MSE Seminar Series, Department of Material Sciences and Engineering, ***University of Wisconsin-Madison***, Madison, Wisconsin, USA, October 2013.
32. [Nelson Tansu](#), "Physics and Engineering of III-Nitride Quantum Heterostructures for Photonics and Energy Efficiency Technologies," RCEAS and CPN Seminar, Center for Photonics and Nanoelectronics, Rossin College of Engineering and Applied Sciences, ***Lehigh University***, Bethlehem, Pennsylvania, USA, May 2014.
33. [Nelson Tansu](#), "Physics of III-Nitride Semiconductors Heterostructures – Materials and Device Technologies," Compound Semiconductor Seminar, MOCVD Group, ***VEECO, Inc.***, Somerset, New Jersey, USA, June 2014.

34. [Nelson Tansu](#), "Physics and Engineering of III-Nitride Quantum Heterostructures for Photonics and Energy Efficiency Technologies," ECE Seminar Series, Department of Electrical and Computer Engineering, [University of Delaware](#), Newark, DE, USA, November 2014.
35. [Nelson Tansu](#), "III-Nitride Semiconductors: Physics, Technologies, and Next Frontiers," ECEE Seminar Series, School of Electrical, Computer and Energy Engineering, [Arizona State University](#), Tempe, Arizona, USA, March 2016.
36. [Nelson Tansu](#), "Enhancing the Values of Impacts Beyond Research in NSF Program," NSF ECCS Workshop on Defining Broader Impact Activities for ECCS / NSF Grants, [US National Science Foundation](#), Arlington, VA, USA, May 2016.
37. [Nelson Tansu](#), "Next Generation III-Nitride Semiconductors – Physics and Technologies," Department of Electrical and Computer Engineering, [University of Texas - Austin](#), Austin, TX, PA, USA, September 2017.
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40. [Nelson Tansu](#), "Next Generation III-Nitride Semiconductors – Physics and Technologies," Department of Materials Science and Engineering, [Drexel University](#), Philadelphia, PA, USA, Jan 2018.
41. [Nelson Tansu](#), "Next Generation III-Nitride Semiconductors – Physics and Technologies," Department of Materials Science and Engineering, [University of Maryland – College Park](#), College Park, MD, USA, May 2018.
42. [Nelson Tansu](#), "Next Generation III-Nitride Semiconductors – Physics and Technologies," School of Engineering, [Clarkson University](#), Potsdam, New York, USA, September 2018.
43. [Nelson Tansu](#), "Next Generation III-Nitride Semiconductors – Physics and Technologies," School of Electrical Engineering and Computer Sciences, **The 2018 Michael and Judith Gaulke Distinguished Lectureship**, [Oregon State University](#), Corvallis, OR, September 2018.
44. [Nelson Tansu](#), "Next Generation III-Nitride Semiconductors – From Sciences to Systems," Preston M. Green Department of Electrical and Systems Engineering, McKelvey School of Engineering, [Washington University in St. Louis](#), St. Louis, MO, April 2019.
45. [Nelson Tansu](#), "Ultrawide Bandgap Semiconductors – from Materials to Technologies," Department of Materials Science and Engineering, College of Engineering, [Carnegie Mellon University](#), Pittsburgh, PA, USA, Feb. 2020.
46. [Nelson Tansu](#), "Ultrawide Bandgap Semiconductors – from Materials to Technologies," Division of Physics, Engineering, Mathematics & Computer Science (PEMaCS), [Delaware State University](#), Dover, DE, USA, Spring 2020 (to be rescheduled).
47. [Nelson Tansu](#), "Ultrawide Bandgap Semiconductors – from Materials to Technologies," Department of Electrical and Computer Engineering, Faculty of Engineering, [McGill University](#), Montreal, Quebec, Canada, Spring 2020 (to be rescheduled).

Books & Book Chapters

1. **(Invited Book Chapter)** [Nelson Tansu](#), Ronald A. Arif, and Zhian Jin, "Semiconductor Nano-electronics and Nano-optoelectronics," Book Chapter in "***The Electrical Engineering Handbook***" (Editor-in-Chief: Dr. Richard C. Dorf), 3rd Edition, CRC Press and IEEE Press, 2006.
2. **(Invited Book Chapter)** [Nelson Tansu](#), and L. Apker, "Physics and Devices of Photemission," Book Chapter in "***The Mc-Graw-Hill Encyclopedia of Science and Technology***" (Editor-in-Chief: Dr. Edwin C. Kan), 10th Edition, McGraw-Hill Press, 2007.
3. **(Invited Book Chapter)** [Nelson Tansu](#), and Luke J. Mawst, "Dilute-Nitride Quantum Well Lasers by Metalorganic Chemical Vapor Deposition," Book Chapter in "***Dilute-Nitrides: Physics and Applications***" (Edited by: Dr. Ayse Erol), Springer Verlag, January 2008.
4. **(Invited Book Chapter)** Ronald A. Arif, and [Nelson Tansu](#), "Interdiffused InGaAsSbN Quantum Well for 1300-1550 Diode Lasers on GaAs," Book Chapter in "***Dilute-Nitrides: Physics and Applications***" (Edited by: Dr. Ayse Erol), Springer Verlag, January 2008.
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6. **(Invited Book Chapter)** Luke J. Mawst, and [Nelson Tansu](#), "Quantum Well Lasers and Their Applications," Book Chapter in "***Comprehensive Semiconductor Science and Technology***" (Edited by: Prof. P. K. Bhattacharya, Prof. R. Fornani, and Prof. H. Kamimura), Elsevier, January 2011. ISBN 10: 0-444-53143-2; ISBN 13: 978-0-444-53143-8.
7. [Nelson Tansu](#), "Applied Quantum Mechanics for Engineers", Draft Version, 2004-2013 (in progress)
8. Adela Gozali Yose, and Kasogi Yose, "Nelson – Si Kecil yang Suka Baca" [[Nelson Tansu](#)], ISBN: 978-602-03-1962-9, Publisher: Gramedia Pustaka Utama (Indonesia), September 2015. [[Indonesian Edition](#)]

9. Adela Gozali Yose, and Kasogi Yose, "Nelson: The Boy who Loved to Read" [[Nelson Tansu](#)], ISBN: 978-602-03-2223-0, Publisher: Gramedia Pustaka Utama (Indonesia), October 2015. [[English Edition](#)]
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194. “**Flurry of Zoom, emails, texts results in new mask-cleaning machine at St. Luke’s**”, Newsroom, ABC Channel 6 (6ABC) TV Channel, April 24th, 2020.

<https://6abc.com/sanitize-st-luke-s-lehigh-university-n-95-masks/6127869/>

195. “**‘Bug Zapper’ uses UV-C light to enable the sterilization and reuse of N95 masks**”, News Section, *EurekaAlert! newsletter (a publication of AAAS)*, May 11th, 2020.

https://www.eurekaalert.org/pub_releases/2020-05/lu-zu050720.php

196. “**‘Zapper’ invention by Lehigh University and St. Luke’s enables hospital to decontaminate 600 masks per hour**”, News Section, *The Morning Call*, May 11th, 2020.

<https://www.mcall.com/coronavirus/mc-nws-coronavirus-st-lukes-lehigh-zapper-20200507-dsy3wp7lhnat3mpskayg5326pe-story.html>

197. “**‘Bug zapper’ helps St. Luke’s sterilize masks**”, Newsroom, Service Electric TV2 Channel, May 15th, 2020.

<https://serviceelectric.s3.amazonaws.com/tv2sports/media/amazons3/local/2020/zap-covid-19.mp4>

198. “**This UV-light ‘bug zapper’ can decontaminate 600 N95 masks an hour**”, News Section, *Fast Company*, May 27th, 2020.

<https://www.fastcompany.com/90504730/this-uv-light-bug-zapper-can-decontaminate-600-n95-masks-an-hour>



Other magazine/newspaper coverage: More than 100+ additional newspapers, magazines, or electronic media coverage in English, Indonesian, Chinese, and Spanish languages.

Internal Scientific Lectures & Seminars and Other Non-Refereed Technical Presentations

1. [Nelson Tansu](#), “Novel Quantum Wells GaAs-Based Lasers for All Transmission Windows in Optical Communications,” Ph.D. Final Defense, Department of Electrical and Computer Engineering, College of Engineering, *University of Wisconsin-Madison*, Madison, Wisconsin, USA, May 2003.
2. [Nelson Tansu](#), “Semiconductor Nanostructures and Photonic Crystals,” Junior Faculty Seminar Series 2003, P. C. Rossin College of Engineering and Applied Science, *Lehigh University*, Bethlehem, Pennsylvania, USA, October 2003.
3. [N. Tansu](#), L. J. Mawst, J. R. Meyer, and I. Vurgaftman, “1550-nm GaAsSb-(In)GaAsN Type-II Quantum-Well Lasers,” Poster in *Lehigh Center for Optical Technologies (COT) Open House 2004*, *Lehigh University*, Bethlehem, Pennsylvania, USA, May 2004.
4. [N. Tansu](#), J. Y. Yeh, and L. J. Mawst, “High Performance 1360-1382 nm InGaAsN Quantum Well Lasers by Metalorganic Chemical Vapor Deposition,” Poster in *Lehigh Center for Optical Technologies (COT) Open House 2004*, *Lehigh University*, Bethlehem, PA, USA, May 2004.

5. R. A. Arif, and [N. Tansu](#), "Interdiffused (In)GaAsSbN Quantum Wells on GaAs for 1300-1550 nm Lasers: Theory and Experiments," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2005*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, May 2005.
6. R. A. Arif, N. H. Kim, L. J. Mawst, and [N. Tansu](#), "Interdiffused MOCVD-Grown InGaAsN and InGaAsP Quantum Dots: Getting P and N into the MOCVD-InGaAs QDs," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2005*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, May 2005.
7. Z. Jin, and [N. Tansu](#), "Design Comparison of Photonic Lattice and ARROW-Type Single-Mode Vertical Cavity Surface-Emitting Lasers," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2005*, [Lehigh University](#), Bethlehem, PA, USA, May 2005.
8. [Nelson Tansu](#), "Semiconductor Nanostructure Optoelectronics Materials and Devices: Optical Communications, Biological and Chemical Sensors, and Military Applications," Junior Faculty Seminar Series 2005, P. C. Rossin College of Engineering and Applied Science, [Lehigh University](#), Bethlehem, Pennsylvania, USA, November 2005.
9. R. A. Arif, N. H. Kim, L. J. Mawst, and [N. Tansu](#), "Interdiffused InGaAsP Quantum Dots Lasers on GaAs by Metalorganic Chemical Vapor Deposition," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2006*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, May 2006.
10. R. A. Arif, Y. K. Ee, and [N. Tansu](#), "Polarization Field Engineering with Type-II InGaN-GaNAs Quantum Well for Improved Nitride Gain Media at 420-550 nm," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2006*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, May 2006.
11. R. S. Tummid, Z. Jin, Y. P. Gupta, D. M. Schindler, and [N. Tansu](#), "Quasi-Guided-Optical-Waveguide VCSELs for Single-Mode High-Power Applications," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2006*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, May 2006.
12. R. A. Arif, Y. K. Ee, and [N. Tansu](#), "Polarization Engineering via Staggered InGaN Quantum Wells for Radiative Efficiency Enhancement of Light Emitting Diodes Emitting," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2007*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2007.
13. Y. K. Ee, P. Kumnorkaew, R. A. Arif, J. F. Gilchrist, and [N. Tansu](#), "Enhancement of Light Extraction Efficiency of InGaN Quantum Wells Light Emitting Diodes Using SiO₂ / Polystyrene Microlens Arrays," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2007*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2007.
14. Y. K. Ee, H. P. Zhao, R. A. Arif, M. Jamil, and [N. Tansu](#), "Self-Assembled InGaN Quantum Dots on GaN Emitting at 520-nm Grown by Metalorganic Vapor Phase Epitaxy," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2007*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2007.
15. H. P. Zhao, R. A. Arif, Y. K. Ee, and [N. Tansu](#), "Optical Gain Analysis of Strain Compensated InGaN-AlGaIn Quantum Well Active Regions for Lasers Emitting at 420-520 nm," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2007*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2007.
16. M. Jamil, R. A. Arif, Y. K. Ee, H. Tong, J. B. Higgins, and [N. Tansu](#), "MOCVD Epitaxy of InN Films on GaN Templates Grown on Sapphire and Silicon (111) Substrates," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2007*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2007.
17. J. J. Kim, S. Nakahara, J. C. M. Hwang, R. A. Arif, Y. K. Ee, M. Jamil, and [N. Tansu](#), "Transmission Electron Microscopy of MOCVD-Grown GaN on Silicon (111) Substrate," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2007*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2007.
18. H. Li, Y. K. Ee, [N. Tansu](#), R. P. Vinci, and H. M. Chan, "Nanopatterning of AGOG Sapphire for GaN Nanoheteroepitaxy," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2007*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2007.
19. [N. Tansu](#), R. A. Arif, Y. K. Ee, and H. P. Zhao, "Nano-Engineered III-Nitride Materials and Devices for Solid State Lighting," Oral Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2007*, COT Workshop on Nano-Photonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2007.
20. Y. K. Ee, J. Biser, W. Cao, R. P. Vinci, H. M. Chan, and [N. Tansu](#), "Enhanced Electroluminescence of III-Nitride LEDs Grown on Nano-Patterned AGOG Sapphire Substrate by Metalorganic Vapor Phase Epitaxy," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2008*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2008.
21. H. P. Zhao, R. A. Arif, Y. K. Ee, G. S. Huang, and [N. Tansu](#), "Self-Consistent Optical Gain Analysis and Epitaxy of Strain Compensated InGaN-AlGaIn Quantum Well Active Regions for Laser Applications," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2008*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2008.
22. H. P. Zhao, R. A. Arif, Y. K. Ee, G. S. Huang, and [N. Tansu](#), "Design Analysis of Staggered InGaN Quantum Well Diode Lasers Emitting at 500-nm," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2008*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2008.

23. Y. K. Ee, P. Kumnorkaew, R. A. Arif, H. Tong, J. F. Gilchrist, and [N. Tansu](#), "Size Effects and Light Extraction Efficiency of III-Nitride Light Emitting Diodes with SiO₂ / Polystyrene Microlens Arrays," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2008*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2008.
24. Y. K. Ee, P. Kumnorkaew, R. A. Arif, J. F. Gilchrist, and [N. Tansu](#), "Light Extraction Efficiency Enhancement of III-Nitride LEDs with Polydimethylsiloxane Concave Microstructures," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2008*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2008.
25. H. Li, Y. K. Ee, [N. Tansu](#), R. P. Vinci, and H. M. Chan, "Sapphire Patterning and GaN Nanoheteroepitaxy," Poster in *Lehigh Center for Optical Technologies (COT) Open House 2008*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2008.
26. [N. Tansu](#), R. A. Arif, H. P. Zhao, Y. K. Ee, G. S. Huang, G. Y. Liu, and X. H. Li, "High Efficiency III-Nitride Light-Emitting Diodes for Solid State Lighting," Oral Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2008*, COT Workshop on Solid State Materials for Energy Applications, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2008.
27. [N. Tansu](#), M. Jamil, H. P. Zhao, G. Y. Liu, and G. S. Huang, "Toward InGaN-Based Solar Cells," Oral Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2008*, COT Workshop on Solid State Materials for Energy Applications, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2008.
28. [N. Tansu](#), "Progress and Future Research in Photovoltaic Technologies," Invited Presentation in *Lehigh RCEAS Engineering Advisory Board Meeting 2008*, Rossin College of Engineering and Applied Sciences, [Lehigh University](#), Bethlehem, Pennsylvania, USA, November 2008.
29. H. P. Zhao, G. Y. Liu, X. H. Li, R. A. Arif, G. S. Huang, S. Tafon Penn, V. Dierolf, and [N. Tansu](#), "Enhancement of Radiative Efficiency via Staggered InGaN Quantum Well Light Emitting Diodes," Invited Poster Presentation in *Transformation in Lighting 2009*, DOE R&D Workshop on Solid State Lighting 2009, San Francisco, CA, USA, February 2009.
30. H. P. Zhao, G. Y. Liu, X. H. Li, G. S. Huang, J. Poplawsky, V. Dierolf, and [N. Tansu](#), "Staggered InGaN Quantum-Well Light-Emitting Diodes," Oral Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
31. Y. K. Ee, P. Kumnorkaew, X. H. Li, R. A. Arif, H. Tong, H. P. Zhao, J. F. Gilchrist, and [N. Tansu](#), "Light Extraction Efficiency Enhancement of III-Nitride LEDs with Colloidal-Microstructures," Oral Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
32. G. Y. Liu, H. P. Zhao, G. S. Huang, and [N. Tansu](#), "Electron-Photon and Electron-Phonon Intersubband Scatterings in AlN / GaN and AlInN / GaN Quantum Wells," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
33. X. H. Li, and [N. Tansu](#), "Density-Functional-Theory First-Principle Studies on Polarization Fields of III-Nitride Semiconductors," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
34. H. P. Zhao, G. Y. Liu, X. H. Li, G. S. Huang, J. Poplawsky, S. Tafon Penn, V. Dierolf, and [N. Tansu](#), "Growths of Staggered InGaN Quantum Wells Light-Emitting Diodes Emitting at 520-525 nm Employing Graded Growth-Temperature Profile," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
35. H. P. Zhao, G. Y. Liu, R. A. Arif, and [N. Tansu](#), "Current Injection Efficiency and Efficiency-Droop of InGaN Quantum Well Light-Emitting Diodes," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
36. Y. K. Ee, P. Kumnorkaew, R. A. Arif, H. Tong, J. F. Gilchrist, and [N. Tansu](#), "Light Extraction Efficiency Enhancement of III-Nitride LEDs with Polydimethylsiloxane Concave Microstructures," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
37. Y. K. Ee, X. H. Li, J. Biser, W. Cao, R. P. Vinci, H. M. Chan, and [N. Tansu](#), "Enhancement of III-Nitride LEDs Grown on Nano-Patterned AGOG Sapphire Substrate by Metalorganic Vapor Phase Epitaxy," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
38. H. Tong, H. P. Zhao, V. A. Handara, J. Herbsommer, and [N. Tansu](#), "Analysis of Thermoelectric Characteristics of AlGaIn and InGaIn Semiconductors," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.

39. W. Cao, J. Biser, Y. K. Ee, R. P. Vinci, H. M. Chan, Y. K. Ee, and [N. Tansu](#), "Electroluminescence of III-Nitride LEDs Grown on Nano-Patterned AGOG Sapphire: Defect Characterization," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
40. J. Biser, R. P. Vinci, H. M. Chan, Y. K. Ee, and [N. Tansu](#), "Dewetting of Aluminum En-Route to Backside Sapphire Microlenses," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2009*, COT Workshop on NanoPhotonics, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2009.
41. H. P. Zhao, G. Y. Liu, J. Zhang, T. Toma, G. S. Huang, J. Poplawsky, V. Dierolf, and [N. Tansu](#), "Enhancement of Internal Quantum Efficiency with Staggered InGaN Quantum Wells Light Emitting Diodes," Poster Presentation in *Lehigh Nano-Energy Workshop 2010*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, September 2010.
42. Y. K. Ee, X. H. Li, J. Biser, W. Cao, R. P. Vinci, H. M. Chan, and [N. Tansu](#), "Abbreviated MOVPE Growth Mode of III-Nitride Light-Emitting Diodes on Nano-Patterned AGOG Substrate," Poster Presentation in *Lehigh Nano-Energy Workshop 2010*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, September 2010.
43. H. Tong, J. Zhang, J. A. Herbsommer, G. Y. Liu, G.S. Huang, and [N. Tansu](#), "Thermoelectric Characteristics and Measurements of AlInN," Poster Presentation in *Lehigh Nano-Energy Workshop 2010*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, September 2010.
44. H. P. Zhao, G. Y. Liu, J. Zhang, T. Toma, G. S. Huang, J. Poplawsky, V. Dierolf, and [N. Tansu](#), "Enhancement of Internal Quantum Efficiency with Staggered InGaN Quantum Wells Light Emitting Diodes," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2010*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2010.
45. Y. K. Ee, X. H. Li, J. Biser, W. Cao, R. P. Vinci, H. M. Chan, and [N. Tansu](#), "Abbreviated MOVPE Growth Mode of III-Nitride Light-Emitting Diodes on Nano-Patterned AGOG Substrate," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2010*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2010.
46. H. Tong, J. Zhang, J. A. Herbsommer, G. Y. Liu, G.S. Huang, and [N. Tansu](#), "Thermoelectric Characteristics and Measurements of AlInN," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2010*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, October 2010.
47. J. Zhang, H. P. Zhao, and [N. Tansu](#), "Physics of AlGaIn Quantum Well Gain Media," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2010*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, November 2011.
48. H. P. Zhao, G. Y. Liu, J. Zhang, J. Poplawsky, V. Dierolf, and [N. Tansu](#), "Enhancement of Internal Quantum Efficiency with InGaN Quantum Wells Light-Emitting Diodes with Large Overlap Design," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2011*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, November 2011.
49. Y. K. Ee, X. H. Li, J. Biser, W. Cao, R. P. Vinci, H. M. Chan, and [N. Tansu](#), "III-Nitride Light-Emitting Diodes on Nano-Patterned Sapphire," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2011*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, November 2011.
50. J. Zhang, H. Tong, J. A. Herbsommer, G. Y. Liu, G.S. Huang, and [N. Tansu](#), "Thermoelectric Characteristics and Measurements of III-Nitride Alloys," Poster Presentation in *Lehigh Center for Optical Technologies (COT) Open House 2011*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, November 2011.
51. [N. Tansu](#), "Photonics + Optoelectronics Research Program at Lehigh ECE," ECE Department Advisory Board Meeting, [Lehigh University](#), Bethlehem, Pennsylvania, USA, March 2012.
52. [N. Tansu](#), "Integrated Nanofabrication and Cleanroom Facility at Lehigh CPN," ECE Department Advisory Board Meeting, [Lehigh University](#), Bethlehem, Pennsylvania, USA, March 2014.
53. [N. Tansu](#), "Integrated Nanofabrication Facility at Lehigh CPN," Lehigh Valley Nano Network Workshop, [Lehigh University](#), Bethlehem, Pennsylvania, USA, May 2015.
54. [N. Tansu](#), "Current and Future Directions in Center for Photonics and Nanoelectronics at Lehigh," Lehigh Nano Network Workshop, [Lehigh University](#), Bethlehem, Pennsylvania, USA, May 2015.
55. [N. Tansu](#), "Current and Future Directions in Center for Photonics and Nanoelectronics at Lehigh," Research Center Directors Meeting, [Lehigh University](#), Bethlehem, Pennsylvania, USA, December 2015.
56. [N. Tansu](#), "Facilities and Infrastructures – Nanofabrication at Lehigh," Facilities and Infrastructures Meeting, [Lehigh University](#), Bethlehem, Pennsylvania, USA, February 2016.
57. [N. Tansu](#), "Opening Remark for the IEEE Lester Eastman Conference 2016 on High Performance Devices," 2016 IEEE Lester Eastman Conference, [Lehigh University](#), Bethlehem, Pennsylvania, USA, August 2016.

58. [N. Tansu](#), "Opening Remark for the 125th ECE Anniversary @ Lehigh," 125th Anniversary ECE Workshop, [Lehigh University](#), Bethlehem, Pennsylvania, USA, April 2018.
59. W. Sun, C. K. Tan, J. J. Wierer, and [N. Tansu](#), "Ultra-broadband III-Nitride Digital Alloy," ECE Graduate Research Symposium, [Lehigh University](#), Bethlehem, Pennsylvania, USA, April 2018.
60. X. Wei, S. A. A. Muyeed, W. Sun, [N. Tansu](#), and J. J. Wierer, "Controlled InGaN Quantum Dots by Photoelectrochemical Etching," ECE Graduate Research Symposium, [Lehigh University](#), Bethlehem, Pennsylvania, USA, April 2018.
61. M. R. Peart, S. A. A. Muyeed, R. B. Song, [N. Tansu](#), and J. J. Wierer, "Wide Bandgap III-Nitride Power Electronics," ECE Graduate Research Symposium, [Lehigh University](#), Bethlehem, Pennsylvania, USA, April 2018.
62. [N. Tansu](#), "Ethics and Good Cultures in Life and Careers," Lehigh Residential Colloquium [university-wide], [Lehigh University](#), Bethlehem, Pennsylvania, USA, November 2018.

Outreach Lectures and Seminars

Geared toward Students in the Middle School and High School

Note: For the outreach lectures / workshops done at Lehigh University, the session also includes laboratory session after the lecture.

1. [Nelson Tansu](#), Yik Khoon Ee, Ronald A. Arif, Ravi S. Tummid, "Semiconductor Technology, and How This Impacts Our Life," Outreach Program, OptoCamp 2006 – Center for Optical Technologies, [Lehigh University](#), Bethlehem, Pennsylvania, USA, July 14th 2006.
2. [Nelson Tansu](#), Yik Khoon Ee, Ronald A. Arif, Ravi S. Tummid, "Semiconductor Technology, and How This Impacts Our Life," Outreach Program, OptoCamp 2006 – Center for Optical Technologies, [Lehigh University](#), Bethlehem, Pennsylvania, USA, August 11th 2006.
3. [Nelson Tansu](#), Ronald A. Arif, Hongping Zhao, Hua Tong, Muhammad Jamil, and Yik Khoon Ee, "Semiconductor Nanotechnology for High Energy Efficient Applications," Outreach Program, OptoCamp 2007 – Center for Optical Technologies, [Lehigh University](#), Bethlehem, Pennsylvania, USA, August 13th 2007.
4. [Nelson Tansu](#), "The Power of Education and How to Maximize Your Potential," Outreach Program, Inner City Middle / High Schools in South Philadelphia, Philadelphia, Pennsylvania, USA, May 2007.
5. [Nelson Tansu](#), Ronald A. Arif, Hongping Zhao, Hua Tong, Yik Khoon Ee, Xiaohang Li, and Guangyu Liu, "Semiconductor Nanotechnology for High Energy Efficient Applications," Outreach Program, OptoCamp 2008 – Center for Optical Technologies, [Lehigh University](#), Bethlehem, Pennsylvania, USA, August 2008.
6. [Nelson Tansu](#), "Grand Challenges for Our Students and Educational Systems," Outreach Program, [SMA Sutomo 1](#), Medan, North Sumatra, Indonesia, August 2008.
7. [Nelson Tansu](#), Hongping Zhao, Hua Tong, Yik Khoon Ee, Xiaohang Li, and Guangyu Liu, "Semiconductor Nanotechnology for High Energy Efficient Applications," Outreach Program, OptoCamp 2009 – Center for Optical Technologies, [Lehigh University](#), Bethlehem, Pennsylvania, USA, August 2009.

Other (Invited Non-Technical) Lectures, Seminars, or Speaking Engagements

Related to Science, Technology, and Higher Educational Policy in Asia

1. (Invited) [N. Tansu](#), "Roles of Higher Education on the Science and Technology in Indonesia," *SALAM Voice of America* (VOA) (TV Live Interactive), [Voice of America](#), Washington, DC, July 26th 2004. The one-hour live interactive TV interview was carried by [JTV](#) in Indonesia (25-30 millions viewers). This show was part of the Voice of America.
2. (Invited) [N. Tansu](#), "Science and Technology in Indonesia," *Journal Voice of America* (VOA) (TV Live Interactive), [Voice of America](#), Washington, DC, July 25th 2004. The live interactive TV interview was done for 8-10 minutes and was carried by [METRO TV](#) (national coverage) in Indonesia. This show was part of the Voice of America.
3. (Invited) [N. Tansu](#), "Perspective on Indonesia - Tsunami," Panel Speaker in *Tsunami Symposium 2005*, [Lehigh University](#), Bethlehem, Pennsylvania, USA, March 2005.
4. (Invited Key Note Speaker) [N. Tansu](#), "Roles of Sciences and Technologies for Indonesia in Globalization Era," Key Note Speaker in *Workshop on Science and Technology in Indonesia 2005*, [Indonesian Embassy for the United States of America](#), Washington, DC, USA, August 2005.
5. (Invited) [N. Tansu](#), "Perspective on Research Universities for Science and Technology Advancement in Indonesia," *Indonesian Independence Day Celebration – Science and Technology in Indonesia* (TV Interview), [SCTV \(Indonesia\) and Voice of America \(VOA\)](#), Washington, DC, August 16th 2005. The TV interview was carried by [SCTV TV](#) (national coverage) in Indonesia. This show was part of the Voice of America.

6. (Invited) **N. Tansu**, “Research Universities, Science and Technology Advancement in Indonesia,” (TV Interview), **SCTV (Indonesia) and Voice of America (VOA)**, Washington, DC, March 2006. The TV interview was carried by **SCTV TV** (national coverage) in Indonesia. This show was part of the Voice of America.
7. (Invited Key Note Speaker) **N. Tansu**, “Strategies for Developing Great Indonesian Universities – A Perspective on Science and Engineering Universities in 21st Century,” Key Note Speaker in *Workshop on Science and Technology in Indonesia 2008*, **Indonesian Consulate for the United States of America – New York**, New York City, NY, USA, May 2008.
http://www.indonesianewyork.org/index.php?option=com_content&task=view&id=207&Itemid=1
8. (Invited Panel Discussion Speaker) **N. Tansu**, “Latest Trend in Science Development,” Speaker in *Panel Discussion Session, Asian Science Camp Conference 2008*, Bali, Indonesia, August 2008. Note: Other speakers in *Panel Discussion Session* are Prof. Yuan-Tseh Lee (Nobel Laureate in Chemistry, 1986), Prof. Myriam P. Sarachick (2005 L’Oreal/UNESCO Woman in Science Laureate, Member of National Academy of Sciences, and Former President of American Physical Society), and Prof. Chintamani N. R. Rao (2000 Hughes Medal Award by Royal Society).
9. (Invited Talk) **N. Tansu**, “Solid State Lighting and Semiconductor Nanotechnology for Energy Applications,” Speaker in *Parallel Session, Asian Science Camp Conference 2008*, Bali, Indonesia, August 2008.
10. (Invited Talk) **N. Tansu**, “Scientific Research Approaches in Applied Physics and NanoPhotonics,” Speaker in *Parallel Session, Asian Science Camp Conference 2008*, Bali, Indonesia, August 2008.
11. (Invited) **N. Tansu**, “Higher Education and Solid State Lighting Technology,” **SCTV TV (Indonesia)**, Bethlehem, PA, March 2009. The TV interview was carried by **SCTV TV** (national coverage) in Indonesia, and this show was also sponsored by US Department of State.
12. (Invited Talk) **N. Tansu**, “Thoughts on Higher Education in Indonesia,” Panel Speaker in Association for International Indonesia Scholars / Scientists on Higher Education in Indonesia, Indonesian Ministry of Education, Jakarta, Indonesia, October 2009.
13. (Invited Talk) **N. Tansu**, “Thoughts on Higher Education in Indonesia: First-Class Scientific Community - Research, Universities, and Education,” Panel Speaker in Association for International Indonesia Scholars / Scientists on Higher Education in Indonesia, Indonesian Ministry of Education, Jakarta, Indonesia, December 2010.
14. (Invited Keynote Talk) **N. Tansu**, “Research and Education in the 21st Century: Global Challenges and Implications to Indonesia,” Panel Speaker in Association for International Indonesia Scholars / Scientists on Higher Education in Indonesia, University of Maryland – College Park, College Park, MD, USA, March 2012.
15. (Invited Talk) **N. Tansu**, “Energy Efficiency Technologies & Career Planning for Young Scientists,” Panel Speaker in Association for International Indonesia Scholars / Scientists on Higher Education in Indonesia, University of Maryland – College Park, College Park, MD, USA, March 2012.
16. (Invited Talk) **N. Tansu**, “Cultivating Indonesian Scientists and Faculty in Global Arena,” Panel Speaker in Indonesian Diaspora Congress Network, New Orleans, LA, USA, August 2014.
17. (Invited Talk) **N. Tansu**, “**Nelson Tansu – Masyhur di Negeri Orang**” (**Famous in Foreign Countries**) – **Kick Andy Talk Show**, Metro TV, Jakarta, Indonesia, July 24th and July 26th 2015.



Note: The Kick Andy Show is considered as the no.1 talk show in Indonesia (population of 300 million). This show has a viewership of more than 40 million, and the impact of the show is instrumental for impacting the outreach program for promoting education, sciences, and engineering in Indonesia.

Video: <https://youtu.be/x8z3VNUChn4>

Social Media: <https://goo.gl/ZYQw3w>

<http://www.kickandy.com/>

<http://www.kickandy.com/theshow/1/1/2804/read/-masyhur-di-negeri-orang->

18. (Invited Talk) **N. Tansu**, “Thoughts on Elementary and Pre-University Education in Indonesia: Knowledge, Values, and Goals,” Panel Speaker, SMA Ehipassiko, Serpong, Tangerang, Indonesia, July 20th, 2018.

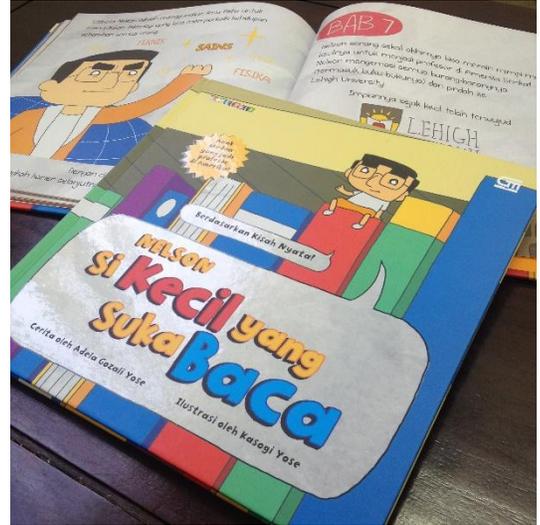
19. (Invited Talk) **N. Tansu**, “Who Dat Badgers Talk: Nelson Tansu,” Wisconsin (UW-Madison) Alumni Association (WAA), Indonesia Chapter, Zoom session, July 24th, 2020.
20. (Invited Talk) **N. Tansu** and Axel Y. Tansu, “Indonesian Diaspora Youth on the World Stage for STEM (Science, Technology, Engineering, and Mathematics)”, Indonesia’s Children Day Event, Indonesian Diaspora Network and Consulate General Office of Republic of Indonesia (Houston, TX, USA), Zoom session, July 25th, 2020.

Outreach Books

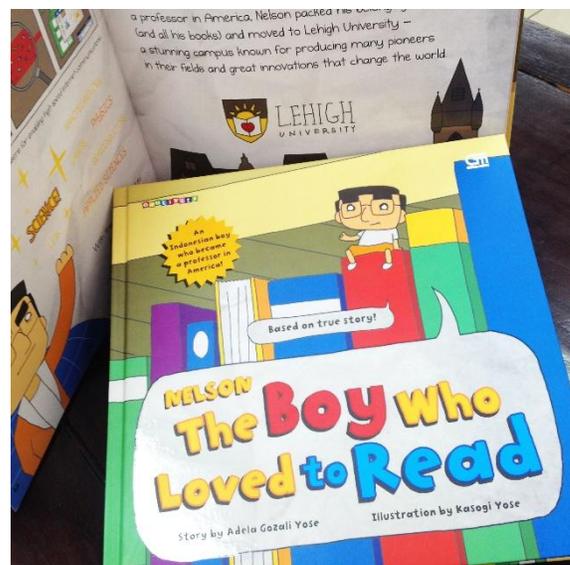
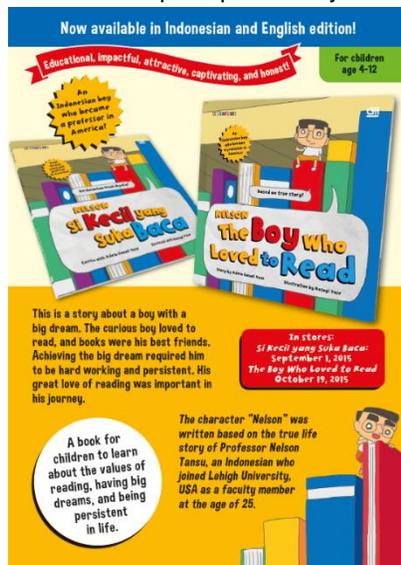
1. Adela Gozali Yose, and Kasogi Yose, “Nelson: Si Kecil yang Suka Baca” [**Nelson Tansu**], ISBN: 978-602-03-1962-9, Gramedia Pustaka Utama (Indonesia), Sept. 2015. [**Indonesian Edition**]
2. Adela Gozali Yose, and Kasogi Yose, “Nelson: The Boy who Loved to Read” [**Nelson Tansu**], ISBN: 978-602-03-2223-0, Publisher: Gramedia Pustaka Utama (Indonesia), Oct. 2015. [**English Edition**].

Special Note:

The book (available in Indonesian and English editions) is targeted to serve as outreach program for children (age 4-10 years old) on the importance of education and persistence in the pursuit of goals in life. The character “Nelson” in this book is based on the true life story of Nelson Tansu, an Indonesian who is a Professor at Lehigh University, USA. The book provides inspiring lessons to young children to learn about “the love of reading”, “the pursuit of big dreams”, and “the value of persistence to achieve goals in life”. This book is considered as the role model children book in Indonesia, and this is a National Best Seller in Indonesia (population: 300 million).



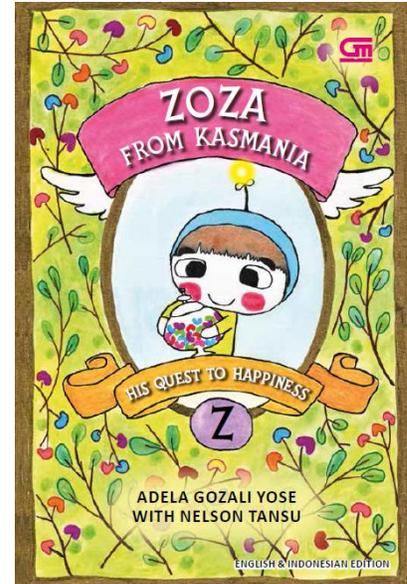
- http://www.lehigh.edu/engineering/news/faculty/2015/20151105_nelson_tansu_kids_book.html
- Selected as the Highlighted Book in the Children Book Category in the **Indonesia International Book Fair 2015 – only one book was selected nationally**. This event was the most prestigious book fair in Indonesia.
- Selected as one of the books representing Indonesia in the **Frankfurt Book Fair (October 2015, Germany)**.
- Covered in national media as the “role model book” for developing the “love of reading” for Indonesian children.
- Selected by numerous schools and foundations as “recommended books to promote education and the love of reading for Indonesian children”.
- Promoted as role model books in more than 120 major bookstores in Indonesia.
- **National Book Bestseller in Indonesia** (Top 5 out of 12000+ books in the children book category; Rank 1st out of 6000+ in the category of children book for education, sciences, knowledge, and general)
- Selected as one of the books representing Indonesia in the **Bologna Book Festival (April 2017, Italy)**.
- This book was selected to represent Indonesia in the **2017 AFCC Asian Children’s Book Award (organizer: National Book Development Council of Singapore) in Singapore – May 2017**.
- **Selected as the No.1 in the Najwa Shihab’s Recommended Book List (Children Book category) – July 2017**. Note: Shihab is the top TV personality in Indonesia with more than 4 million followers in social media.



- Adela Gozali Yose, and [Nelson Tansu](#), “Zoza from Kasmania: His Quest to Happiness”, ISBN: 978-602-06-3511-8, Publisher: Gramedia Pustaka Utama (Indonesia), January 2020. [[English and Indonesian Edition](#)]

Special Note:

The book (available in Indonesian and English editions) is targeted to serve as an outreach program for children (age 7-12 years old) on the importance of having good values in their pursuits of happiness. This book taught the values of ethics and integrity, sincerity and honesty, bravery to do the right things, and empathy and perseverance as important in one’s journey to adulthood.



Professional Services

National / International Panel

- US National Science Foundation (NSF) Panel Member** – ECS, Washington, DC, July 2003.
- US National Science Foundation (NSF) Panel Member** – ECS Electronics, Photonics and Device Technologies (EPDT) Program, Washington, DC, December 2003.
- Panel Review Member for Irish Research Council for Science, Engineering and Technology (IRCSET)** – EMBARK Initiative “Government of Ireland Postdoctoral Fellowships in Science, Engineering, and Technology”, IRCSET, Ireland, June 2004.
- US National Science Foundation (NSF) Panel Member** – ECS Electronics, Photonics and Device Technologies (EPDT) Program, Washington, DC, June 2006.
- Review Panel for US Department of Defense (DoD) and Major Research Universities in South Carolina** – 2007 DoD Experimental Program to Stimulate Competitive Research in South Carolina, June 2006.
- US National Science Foundation (NSF) Panel Member** – DMR Electronic Materials, Washington, DC, November 2007 – January 2008.
- Peer Reviewer for US National Research Council (NRC) of US National Academies** – 2007 NRC Survey of Program Quality Assessment, PhD Program in Electrical Engineering, April 2007.
- Proposal Evaluator for US Department of Energy (DOE)** – 2007 DOE Solid State Lighting Core Technology IV, July 2007.
- Proposal Evaluator for US Department of State** – 2007 Science Center Program of the US Department of State, October - November 2007.
- US National Science Foundation (NSF) Panel Member** – DMR Electronic Materials, Washington, DC, November 2007 – January 2008.
- Proposal Evaluator for W. M. Keck Foundation** – Keck Foundation Programs on Science & Engineering / Medical, February / March 2008.
- US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, March 2008.
- US National Science Foundation (NSF) Panel Member** – DMR Electronic Materials, Washington, DC, April 2008 – June 2008.
- Proposal Evaluator for US Department of Energy (DOE)** – 2008 DOE Solid State Lighting Core Technology V, July 2008.
- Symposium Organizing Committee, The NAE’s 2009 US Frontiers of Engineering (US FOE) Symposium**, US National Academy of Engineering (NAE), September 2009.
- US National Science Foundation (NSF) Panel Member** – DMR Electronic Materials, Washington, DC, November 2008.
- University of California (UC) Discovery Grants Review Committee**, Review Committee for Communications, Computing and Energy; and Review Committee for Electronics Manufacturing and New Materials, University of California, Berkeley, CA, January 2009.

18. **US National Science Foundation (NSF) Panel Member** – ECS Electronics, Photonics and Device Technologies (EPDT) Program – Nanophotonics I, Washington, DC, June 2009.
19. **US National Science Foundation (NSF) Panel Member** – ECS Electronics, Photonics and Device Technologies (EPDT) Program – Nanophotonics II, Washington, DC, June 2009.
20. **US National Science Foundation (NSF) Science and Technology Center (STC) Panel Member** – Science and Technology Center, July 2009.
21. **University of California (UC) Discovery Grants Review Committee**, Review Committee for Electronics Design, Engineering and New Materials (EENM); University of California, Berkeley, CA, May 2010.
22. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, July 2010.
23. **National Research Council Reviewer (Canada) – Quebec New Researcher Start Up Program for Sciences and Technologies**, New Researchers Start-up Program of Fonds québécois de la recherche sur la nature et les technologies (FQRNT), November – December 2010.
24. **US National Science Foundation (NSF) Panel Member** – ECCS Electronics, Photonics and Device Technologies (EPDT) Program, Washington, DC, December 2010.
25. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, July 2011.
26. **US National Science Foundation (NSF) Panel Member** – SBIR Panel – LEDs Materials and Devices, Washington, DC, July 2011.
27. **External Tenure and Promotion Reviewer**, University of Michigan – Ann Arbor, Department of Electrical and Computer Engineering, Summer / Fall 2011.
28. **US National Science Foundation (NSF) Panel Member** – STTR Program, Washington, DC, February 2012.
29. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, July 2012.
30. **External Tenure and Promotion Reviewer**, University of Jordan (Amman, Jordan), Department of Applied Physics, Spring 2012.
31. **Panel Review Member for “Portuguese Fundação para a Ciência e Tecnologia” (FCT = Portuguese Foundation for Science and Technology)**, - International Peer Review process for research projects in semiconductor research, Fall 2012.
32. **Panel Review Member for Czech Science Foundation**, International Peer Review process, Fall 2012.
33. **US National Science Foundation (NSF) Panel Member** – SBIR Program, Washington, DC, September 2012.
34. **US National Science Foundation (NSF) Panel Member** – ECCS Electronics, Photonics, Magnetics, and Device Technologies (EPMD) Program, Washington, DC, December 2012.
35. **US National Science Foundation (NSF) Panel Member** – SBIR Panel – LEDs and Lasers, Washington, DC, February 2013.
36. **External Tenure and Promotion Reviewer**, City University of New York – Brooklyn College, Department of Physics , Spring / Summer 2013.
37. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, July 2013.
38. **External Examiner / Evaluator**, Nanyang Technological University – Singapore, School of Electrical and Electronic Engineering, Fall 2013.
39. **Panel Review Member for Poland National Science Center** – international peer review of funding proposal for projects in semiconductor research, Fall 2013.
40. **IEEE Nanotechnology Technical Council**, Representative from IEEE Photonics Society, 2013-2016.
41. **External Examiner / Evaluator**, Nanyang Technological University – Singapore, School of Electrical and Electronic Engineering, Spring 2014.
42. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, July 2014.
43. **Science Review Panel for New Zealand Ministry of Business, Innovation & Employment (MBIE)**, Science Investment Round, Summer 2014.
44. **Academy of Finland – Natural Sciences and Engineering Research Evaluator (Finland)**, Proposal and Research Program Evaluator for the Academy of Finland, July – September 2014.
45. **External Examiner / Evaluator**, National University of Singapore – Singapore, Department of Electrical and Computer Engineering, Fall 2014.
46. **External Tenure and Promotion Reviewer**, Drexel University, Department of Electrical and Computer Engineering, Fall 2014.
47. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, November 2014.

48. **Panel Review for AAAS (American Association for the Advancement of Sciences)** – International peer review for the AAAS / India-US Science & Technology Forum (IUSSTF) 2015, January-February 2015.
49. **US National Science Foundation (NSF) Panel Member** – ECCS Electronics, Photonics, Magnetics, and Device Technologies (EPMD) Program, Washington, DC, March 2015.
50. **US National Science Foundation (NSF) Panel Member** – DMR Ceramic Program, Washington, DC, March 2015.
51. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, June 2015.
52. **OSA Executive Committee – Technical Group in Optoelectronics**, Optical Society of America, 2015-2017.
53. **External Faculty Tenure and Promotion Reviewer**, National Taiwan University, Department of Electrical Engineering and Computer Sciences, Spring-Summer 2015.
54. **US National Science Foundation (NSF) Panel Member** – ECCS Electronics, Photonics, Magnetics, and Device Technologies (EPMD) Program, Arlington, VA, January 2016.
55. **External Tenure and Promotion Reviewer**, Dartmouth College, Thayer School of Engineering, Spring 2016.
56. **External Faculty Tenure and Promotion Reviewer**, National Taiwan University, Department of Electrical Engineering and Computer Sciences, Spring-Summer 2016.
57. **External Faculty Tenure and Promotion Reviewer**, University of Central Florida, College of Optics and Photonics (CREOL), Spring-Summer 2016.
58. **Invited Panel Speaker on Broader Area Impact - Defining Broader Impact Activities for ECCS/NSF Grants**, ECCS Division, National Science Foundation, Arlington, VA, May 2016.
59. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, June 2016.
60. **Stanford Patent Peer Review Project Evaluator**, Stanford University, Stanford Law School, Stanford, CA, June 2016-present.
61. **Selected Participants for Royal Academy of Engineering (RAEng, UK)**, International Survey of Young Engineers – Issues and Needs, June 2016.
62. **Proposal / Grant Evaluator for UK Engineering and Physical Sciences Research Council (EPSRC) (United Kingdom)**, Proposal and Research Program Evaluator, July – August 2016.
63. **Proposal / Grant Evaluator for the Council of Canadian Academies (Canada)**, Research Excellence Categories and Comparison with Global Standard, July 2016.
64. **External Faculty Tenure and Promotion Reviewer**, Texas Tech University, Department of Electrical and Computer Engineering, Summer 2016.
65. **External Faculty Tenure and Promotion Reviewer**, Drexel University, Department of Electrical and Computer Engineering, Fall 2016.
66. **US National Science Foundation (NSF) Panel Member** – DMR Electronics and Photonics Materials (EPM) Program, Arlington, VA, January 2017.
67. **Proposal / Grant Evaluator for Japan Society for the Promotion of Science (JSPS)**, Grants-in-Aid for Scientific Research (KAKENHI) at universities and research institutions in Japan, January 2017.
68. **Proposal / Grant Evaluator for the Israeli Ministry of Science, Technology and Space** Proposal and Research Program Evaluator, February 2017.
69. **US National Science Foundation (NSF) Panel Member** – Physics Division, Atomic Molecular and Optical Physics Experiment Program, Arlington, VA, March 2017.
70. **US National Science Foundation (NSF) Engineering Research Center (ERC) Site Reviewer** – Engineering Research Center Site Reviewer, June 2017.
71. **US National Science Foundation (NSF) Panel Member** – Division of Material Research, Electronics and Photonics Materials, Arlington, VA, October 2017.
72. **National Academy of Inventors (NAI) Fellows Induction Conference (2018) Program Committee Member** – National Academy of Inventors, August 2017-present.
73. **External Tenure and Promotion (Full Professorship) Reviewer**, University of Michigan – Ann Arbor, Department of Electrical Engineering and Computer Sciences (EECS), Summer / Fall 2017.
74. **Proposal / Grant Evaluator for Japan Society for the Promotion of Science (JSPS)**, Grants-in-Aid for Scientific Research (KAKENHI) at universities and research institutions in Japan, December 2017 / January 2018.
75. **US National Science Foundation (NSF) Panel Member** – Physics Division, Atomic Molecular and Optical Physics Experiment Program, Arlington, VA, January / February 2018.
76. **US National Science Foundation (NSF) Engineering Research Center (ERC) Reverse Site Visit Panel** – Engineering Research Center Site Review Panel, June 2018.
77. **US National Science Foundation (NSF) CAREER Panel** – Experimental Nuclear Physics, Physics Division, September 2018.
78. **External Tenure and Promotion Reviewer**, Tsinghua University, Department of Electronics Engineering, Fall 2018.

79. **External Tenure and Promotion Reviewer**, SUNY Stony Brook, Department of Electrical and Computer Engineering, Fall 2018.
80. **External Tenure and Promotion Reviewer**, University of Michigan – Ann Arbor, Department of Electrical Engineering and Computer Sciences (EECS), Fall 2018.
81. **US National Science Foundation (NSF) Panel Member** – Quantum Technologies Panel, ECCS Division, January 2019.
82. **US National Science Foundation (NSF) Panel Member** – MRSEC Panel, DMR Division, January 2020.

Refereed Conference Program Committee / Presider

1. **Conference Presider (Session Chair)** – *IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2003*, Baltimore, MD, Surface Emitting Lasers (Session CWC), June 2003.
2. **Technical Program Committee Member** - The 7th Joint Conference on Information Sciences (JCIS) 2003 – The 2nd Symposium on Photonics, Networking and Computing (PNC) 2003, Cary, NC, USA, Sept 2003.
3. **Conference Presider (Session Chair)** - The 7th Joint Conference on Information Sciences (JCIS) 2003 – The 2nd Symposium on Photonics, Networking and Computing (PNC) 2003, Cary, NC, USA, Sept 2003.
4. **NRS Organizer Committee Member** – The Nano Research Society (NRS), November 2005 - present.
5. **International Program Committee (IPC)** - The IASTED International Conference on Optical Communication Systems and Networks (OCSN 2006), Banff, Canada, July 2006.
6. **International Advisory Committee** - The 2nd International Conference on Solid State Science and Technology 2006 (ICSSST 2006), Terengganu, Malaysia, September 2006.
7. **Conference Presider (Session Chair)** – *American Physical Society (APS) Annual March Meeting 2007*, Denver, CO, Growth of GaN and Related Materials, March 2007.
8. **Technical Program Committee Member** – IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2007, Sub Committee 6: Optical Materials Fabrication and Characterization, Baltimore, MD, May 2007.
9. **Conference Presider (Session Chair)** – *IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2007*, Baltimore, MD, UV and Visible Semiconductor Optoelectronics Materials, May 2007.
10. **International Program Committee (IPC)** - The IASTED International Conference on Wireless and Optical Communications (WOC) 2007, Montreal, Canada, May-June 2007.
11. **Conference Presider (Session Chair)** – *The 15th International Conference on Crystal Growth 2007*, Salt Lake City, UT, Wide Bandgap Semiconductors, August 2007.
12. **Conference Presider (Session Chair)** – *IEEE Lasers and Electro-Optics (LEOS) Annual Meeting 2007*, Buena Vista, Florida, Broadband LEDs and Switching, October 2007.
13. **Technical Program Committee Member** – IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2008, Sub Committee 6: Optical Materials Fabrication and Characterization, Long Beach, CA, May 2008.
14. **Conference Presider (Session Chair)** – *IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2007*, Baltimore, MD, Quantum Dots, May 2008.
15. **International Program Committee (IPC)** - The IASTED International Conference on Wireless and Optical Communications (WOC) 2008, Quebec City, Quebec, Canada, May-June 2008.
16. **Conference Presider (Session Chair)** – *IEEE Device Research Conference (DRC) 2008*, Santa Barbara, CA, Optoelectronics Devices, June 2008.
17. **International Program Committee (IPC)** - The IASTED International Conference on Nanotechnology and Applications (NANA) 2008, Crete, Greece, September-October 2008.
18. **Technical Program Committee Member** – SPIE Photonics West 2009, Sub Committee: Novel In-Plane Semiconductor Lasers, San Jose, CA, Jan 2009.
19. **Conference Presider (Session Chair)** – SPIE Photonics West 2009, Nitride Semiconductor Lasers, San Jose, CA, Jan 2009.
20. **International Program Committee (IPC)** - The IASTED International Conference on Solar Energy (SOE) 2009, Phuket, Thailand, March 2009.
21. **Technical Program Committee Member** – IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2009, Sub Committee 6: Optical Materials Fabrication and Characterization, Baltimore, MD, June 2009.
22. **Alternate Chair for Sub Committee 6** – IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2009, Sub Committee 6: Optical Materials Fabrication and Characterization, Baltimore, MD, June 2009.
23. **Technical Program Committee Member** – *American Physical Society (APS) Annual March Meeting 2009*, Sub Committee 2: Semiconductor Physics, Pittsburgh, PA, March 2009.
24. **Conference Presider (Session Chair)** – *American Physical Society (APS) Annual March Meeting 2009*, Pittsburgh, PA, Semiconductor Growth and Material Processing, March 2009.
25. **Conference Presider (Session Chair)** – *American Physical Society (APS) Annual March Meeting 2009*, Pittsburgh, PA, Optoelectronics Devices and Applications, March 2009.

26. **Technical Program Committee Member** – IEEE Sarnoff Symposium 2009, Princeton, NJ, March-April 2009.
27. **Technical Program Committee Member** – The 2nd International Conference on White LEDs and Solid State Lighting 2009, Taipei, Taiwan, December 2009.
28. **Technical Program Committee Member** – SPIE Photonics West 2010, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2010.
29. **Conference Presider (Session Chair)** – SPIE Photonics West 2010, Novel Semiconductor Lasers, San Francisco, CA, Jan 2010.
30. **Technical Program Committee Member** – *American Physical Society (APS) Annual March Meeting 2010*, Sub Committee 2: Semiconductor Physics, Portland, OR, March 2010.
31. **Conference Presider (Session Chair)** – *American Physical Society (APS) Annual March Meeting 2010*, Portland, OR, Semiconductor Growths and Wide Bandgap Semiconductor, March 2010.
32. **Technical Program Committee Member** – IEEE Sarnoff Symposium 2010, Princeton, NJ, March-April 2010.
33. **International Program Committee (IPC)** - The IASTED International Conference on Solar Energy (SOE) 2010, Banff, Canada, July 2010.
34. **Technical Program Committee Member** – SPIE Photonics West 2011, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2011.
35. **Technical Advisory Board** – International Conference on Advanced Science, Engineering and Information Technology (ICASEIT) 2011, Kuala Lumpur, Malaysia, Jan 2011.
36. **Chair for Technical Program Committee**– *American Physical Society (APS) Annual March Meeting 2011*, Sub Committee 2: Semiconductor Physics, Dallas, TX, March 2011.
37. **Conference Presider (Session Chair)** – *American Physical Society (APS) Annual March Meeting 2011*, Pittsburgh, PA, Compound and Oxide Semiconductors, March 2011.
38. **International Program Committee (IPC)** - The IASTED International Conference on Power and Energy Systems and Applications (PESA) 2011, Pittsburgh, PA, USA, November 2011.
39. **Technical Program Committee Member** – SPIE Photonics West 2012, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2012.
40. **Conference Presider (Session Chair)** – *IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2012*, San Jose, CA, Low-dimensional Photonic Structures, May 2012.
41. **Conference Presider (Session Chair)** – *IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2012*, San Jose, CA, Diode Lasers, May 2012.
42. **Conference Presider (Session Chair)** – *IEEE Photonics Conference (IPC) 2012*, Burlingame, CA, USA, High Power Lasers and Quantum Cascade Lasers, September 2012.
43. **Technical Program Committee Member** – IEEE / SPIE / OSA Asia Communications and Photonics Conference 2012, Sub Committee 6: Light Emitting Diodes, Photovoltaics and Optoelectronics in Energy, Guangzhou, China, November 2012.
44. **Lead Chair for Technical Committee SC6** – IEEE / SPIE / OSA Asia Communications and Photonics Conference (ACP) 2012, Sub Committee 6: Light Emitting Diodes, Photovoltaics and Optoelectronics in Energy, Guangzhou, China, November 2012.
45. **Conference Presider (Session Chair)** – IEEE / SPIE / OSA Asia Communications and Photonics Conference (ACP) 2012, LED Technologies and Applications, Guangzhou, China, November 2012.
46. **Technical Program Committee Member** – SPIE Photonics West 2013, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2013.
47. **Technical Program Committee Member** – IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2013, Science & Innovation 15: LEDs, Photovoltaics and Energy-Efficient ("Green") Photonics, San Jose, CA, June 2013.
48. **Conference Presider (Session Chair)** – IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2013, Science & Innovation 15: LEDs, Photovoltaics and Energy-Efficient ("Green") Photonics, San Jose, CA, June 2013.
49. **Technical Program Committee Member** – IEEE / SPIE / OSA Asia Communications and Photonics Conference 2013, Sub Committee 6: Light Emitting Diodes, Photovoltaics and Optoelectronics in Energy, Beijing, China, November 2013.
50. **Lead Chair for Technical Committee SC6** – IEEE / SPIE / OSA Asia Communications and Photonics Conference (ACP) 2013, Sub Committee 6: Light Emitting Diodes, Photovoltaics and Optoelectronics in Energy, Beijing, China, November 2013.
51. **Conference Presider (Session Chair)** – IEEE / SPIE / OSA Asia Communications and Photonics Conference (ACP) 2013, Light Extraction Efficiency in LEDs, Beijing, China, November 2013.
52. **Conference Presider (Session Chair)** – IEEE / SPIE / OSA Asia Communications and Photonics Conference (ACP) 2013, Novel Thermoelectric Materials, Beijing, China, November 2013.
53. **Technical Program Committee Member** – SPIE Photonics West 2014, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2014.

54. **Technical Program Committee Member** – International Conference on White LEDs and Solid State Lighting (White LEDs) 2014, 5th WLED 2014, Jeju, Korea, May 2014.
55. **Technical Program Committee Member** – IEEE/OSA Conference on Lasers and Electro-Optics (CLEO) 2014, Science & Innovation 15: LEDs, Photovoltaics and Energy-Efficient ("Green") Photonics, San Jose, CA, June 2014.
56. **International Advisory Board / Technical Committee** – CIMTEC 2014, Materials and Technologies for Solid State Lighting / Forum of New Materials, Montecatini Terme, Tuscany, Italy, June 2014.
57. **Technical Program Committee Chair** – PIERS (Progress in Electromagnetics Research Symposium) 2014, Computational Electromagnetics in Energy Based Technologies, Guangzhou, China, August 2014.
58. **Technical Program Committee Member** – IEEE / SPIE / OSA Asia Communications and Photonics Conference 2014, Sub Committee 6: Light Emitting Diodes, Photovoltaics and Optoelectronics in Energy, Shanghai, China, Nov 2014.
59. **Co-Chair for Technical Committee SC6** – IEEE / SPIE / OSA Asia Communications and Photonics Conference (ACP) 2014, Sub Committee 6: Light Emitting Diodes, Photovoltaics and Optoelectronics in Energy, Shanghai, China, November 2014.
60. **Technical Program Committee Member** – SPIE Photonics West 2015, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2015.
61. **Co-Chair for Symposium Organizing Committee** – Symposium on III-V Nitride, SiC, and Other Wide Bandgap Semiconductors; 20th American Conference on Crystal Growth and Epitaxy (ACCGE-20) and 17th U.S. Biennial Workshop on Organometallic Vapor Phase Epitaxy (OMVPE-17), Big Sky, Montana, USA, Aug 2015.
62. **Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2015, Semiconductor Lasers Technical Committee, Reston, VA, October 2015.
63. **Alternate Chair for Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2015, Semiconductor Lasers Technical Committee, Reston, VA, October 2015.
64. **Technical Program Committee Member** – SPIE Photonics West 2016, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2016.
65. **Technical Program Committee Member** – 18th International Conference on Metal Organic Vapor Phase Epitaxy (ICMOVPE-XVIII), San Diego, CA, July 2016.
66. **Technical Program Committee Member** – 25th IEEE International Semiconductor Laser Conference (ISLC), Kobe, Japan, San Diego, CA, September 2016.
67. **Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2016, Semiconductor Lasers Technical Committee, Waikoloa, Hawaii, October 2016.
68. **Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2016, Display and Lighting Technical Committee, Waikoloa, Hawaii, October 2016.
69. **Technical Program Committee Member** – SPIE Photonics West 2017, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2017.
70. **Conference Presider (Session Chair)** – SPIE Photonics West 2017, Materials, Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2017.
71. **Technical Program Committee Member** - 24th Congress of the International Commission for Optics (ICO-24), Optoelectronics and Photonic Devices, Tokyo, Japan, August 2017.
72. **Technical Program Committee Member** – SPIE Optics and Photonics 2017, Sub Committee: *International Conference on Solid State Lighting*, San Diego, CA, August 2017.
73. **Co-Chair for Symposium Organizing Committee** – Symposium on III-V Nitride and Other Wide Bandgap Semiconductors, 21st American Conference on Crystal Growth and Epitaxy (ACCGE-21) and 18th U.S. Biennial Workshop on Organometallic Vapor Phase Epitaxy (OMVPE-18), Santa Fe, New Mexico, USA, Aug 2017.
74. **Vice Chair for Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2017, Semiconductor Lasers Technical Committee, Lake Buena Vista, Florida, October 2017.
75. **Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2017, Semiconductor Lasers Technical Committee, Lake Buena Vista, Florida, October 2017.
76. **Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2017, Display and Lighting Technical Committee, Lake Buena Vista, Florida, October 2017.
77. **Technical Program Committee Member** – 11th International Symposium on Semiconductor Light Emitting Devices (ISSLED 2017), Banff, Canada, October 2017.
78. **Conference Presider (Session Chair)** – OSA Light, Energy and the Environment Congress 2017, Novel Materials and Strategies, Boulder CO, USA, November 2017.
79. **Technical Program Committee Member** – SPIE Photonics West 2018, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2018.
80. **Conference Presider (Session Chair)** – SPIE Photonics West 2018, Materials Development, Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2018.

81. **Conference Presider (Session Chair)** – ISPlasma 2018 / IC-PLANTS 2018, Nitride Semiconductor 1: Growth and Characterizations, Nagoya, Japan, March 2018.
82. **Chair for Technical Program Committee Member (Subcommittee Chair for Semiconductor Lasers)** – 2018 Compound Semiconductor Week (CSW) [45th International Symposium on Compound Semiconductors (ISCS) and 30th International Conference on Indium Phosphide and Related Materials (IPRM)], Boston, MA, May 2018.
83. **Conference Presider (Session Chair)** for Lasers – 2018 Compound Semiconductor Week (CSW) [45th International Symposium on Compound Semiconductors (ISCS) and 30th International Conference on Indium Phosphide and Related Materials (IPRM)], Boston, MA, May 2018.
84. **International Program Committee Member** – International Conference on Metal Organic Vapor Phase Epitaxy (IC-MOVPE) 2018, Nara, Japan, July 2018.
85. **Technical Program Committee Member** – SPIE Optics and Photonics 2018, Sub Committee: *International Conference on Solid State Lighting*, San Diego, CA, August 2018.
86. **Co-Chair for Technical Program Committee Member** – SPIE Optics and Photonics 2018, Sub Committee: *International Conference on Solid State Lighting*, San Diego, CA, August 2018.
87. **Technical Program Committee Member** – The 26th IEEE International Semiconductor Laser Conference (ISLC) 2018, Santa Fe, NM, USA, September 2018.
88. **Chair for Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2018, Semiconductor Lasers Technical Committee, Reston, VA, USA, October 2018.
89. **Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2018, Semiconductor Lasers Technical Committee, Reston, VA, USA, October 2018.
90. **Technical Program Committee Member** – SPIE Photonics West 2019, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2019.
91. **Technical Program Committee Member** – ISPlasma2019/IC-PLANTS2019, Nagoya, Japan, April 2019.
92. **Chair for Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2019, Semiconductor Lasers Technical Committee, San Antonio, TX, USA, October 2019.
93. **Technical Program Committee Member** – SPIE Photonics West 2019, Sub Committee: Novel In-Plane Semiconductor Lasers, San Francisco, CA, Jan 2020.
94. **Technical Program Committee Member** – International Workshop on Nitride Semiconductors (IWN) 2020, Berlin, Germany, August 2020.
95. **Technical Program Committee Member** – The 27th IEEE International Semiconductor Laser Conference (ISLC) 2020, Potsdam, Germany, October 2020.
96. **Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2020, Semiconductor Lasers Technical Committee, Vancouver, BC, Canada, October 2020.
97. **Chair for Technical Program Committee Member** – IEEE Photonics Conference (IPC) 2020, Semiconductor Lasers Technical Committee, Vancouver, BC, Canada, October 2020.
98. **General Conference Co-Chair** – International Conference on Metal Organic Vapor Phase Epitaxy (IC-MOVPE) 2022, Las Vegas, Nevada, USA, May 2022.

Refereed Journal Editorial

1. **Assistant / Associate Editor** – Nanoscale Research Letters (published by Springer and Nano Research Society), March 2006 - present.
2. **Primary Guest Editor** – IEEE Journal of Selected Topics on Quantum Electronics (JSTQE), Special Issue on Solid State Lighting (2009), IEEE Photonics Society (formerly IEEE LEOS), 2008-2009.
3. **Associate Editor** – IEEE Photonics Journal, IEEE Photonics Society, 2009-2014.
4. **Associate Editor** – Optical Materials Express, Optical Society of America, 2010-2015.
5. **Associate Editor** – IEEE/OSA Journal of Display Technology, IEEE Photonics Society & Optical Society of America (OSA), 2013-present.
6. **Editorial Board Member** – Journal of Materials, Hindawi Publishing, 2012-present.
7. **Editorial Board Member** – Photonics, MDPI – Basel, 2012-present.
8. **Editor in Chief (Elected)** - Photonics, MDPI – Basel, 2013-present.
9. **Editorial Board Member** – Journal of Photonics for Energy, SPIE, 2013-2015.
10. **Editorial Board Member (Condensed Matter Physics)** – Conference Papers in Physics, Hindawi Publishing, 2012-present.
11. **Editorial Board Member** – Advances in Optics, Hindawi Publishing, 2012-present.
12. **Guest Editor** - IEEE/OSA Journal of Display Technology, Special Issue on Solid State Lighting (2012-2013), IEEE Photonics Society & Optical Society of America (OSA), 2012-2013.
13. **Feature Editor** – Applied Optics + Optical Materials Express, Special Issue on Hybrid Organic-Inorganic Materials for Novel Photonic Applications, Optical Society of America, 2012-2013.

14. **Guest Editor** - International Journal of Photoenergy, Special Issue on Solid State Lighting with High Efficiency and Low Cost, Hindawi Publishing, 2013-2014.
15. **Editorial Board Member (Electronics, Photonics, and Device Physics)** – Scientific Reports, Nature Publishing Group – London, UK, 2014-present.
16. **Special Issue Editor** – Technology and Innovation: Journal of National Academy of Inventors, April 2018-present.

University Committee Services

University / College Level Committee / Service:

1. **Committee for Minor in Nanotechnology**, ECE Liaison to the Minor in Nanotechnology (2004-Present). This is a joint-multidisciplinary committee for departments affiliated with the Nanotechnology program at Lehigh.
2. **College Tour Volunteer**, in the Candidate's Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2005.
3. **Faculty Tour Volunteer**, in the "Lehigh Life Days" Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2006.
4. **College Tour Volunteer**, in the Candidate's Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2006.
5. **Freshman Advisor for Electrical Engineering**, Rossin College of Engineering and Applied Science, Lehigh University, Fall 2006-present.
6. **Volunteer Faculty Advisor for Mentoring Students of Color (Minority and Underrepresented)**, Lehigh University, Fall 2006-Summer 2008. The faculty advisor works together with minority and under-represented students, for assisting them to experience a successful and memorable academic career at Lehigh and beyond. Successful mentoring of the under-represented minority students on campus will help Lehigh's effort in improving the diversity environment, as well as helping in the recruitment of future minority students.
7. **Faculty Tour Volunteer**, in the "Lehigh Life Days" Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2007.
8. **Faculty Tour Volunteer**, in the "Admission / LVAIC Counselor Tour" Event, Lehigh University, April 2007.
9. **College Tour Volunteer**, in the Candidate's Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2007.
10. **Dr. Martin Luther King Day Committee**, Lehigh University, 2007-2008.
11. **Reviewer for Small Business Development (on Solar Technology)**, Small Business Development Center, Lehigh University, Fall 2007.
12. **College Tour Volunteer**, in the Candidate's Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2008.
13. **RCEAS Task Force for the Implementation of Global Lehigh**, Rossin College of Engineering and Applied Science, Lehigh University, 2008-2009.
14. **Organizing Chair**, Workshop on Solid State Material for Energy Applications, Center for Optical Technologies (COT) Open House 2008, Lehigh University, October 2008.
15. **Breakout Session Scribe and Report Writer**, Workshop on Energy, RCEAS Retreat 2009, Rossin College of Engineering and Applied Science, Lehigh University, January 2009.
16. **Faculty Tour Volunteer**, in the "Lehigh Life Days" Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2009.
17. **College Tour Volunteer**, in the Candidate's Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2009.
18. **Graduate Admission Committee**, Energy System Engineering MS Program, Rossin College of Engineering and Applied Science, Lehigh University, Spring 2009.
19. **RCEAS Energy Systems Research Subcommittee**, Rossin College of Engineering and Applied Science, Lehigh University, Spring 2009-present.
20. **Libsch Research Awards Committee**, Lehigh University, Spring 2009.
21. **Faculty Tour Volunteer**, in the "Lehigh Life Days" Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2010.
22. **College Tour Volunteer**, in the Candidate's Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2010.
23. **Graduate Admission Committee**, Energy System Engineering MS Program, Rossin College of Engineering and Applied Science, Lehigh University, Spring 2010.
24. **Libsch Research Awards Committee**, Lehigh University, Spring 2010.
25. **Provost's Committee on RCEAS Dean Review**, Lehigh University, Spring 2010 and Summer 2010.
26. **Organizing Committee for Lehigh Nano-Energy Workshop 2010**, Lehigh University, Spring 2010 - Fall 2010.

27. **Libsch Research Awards Committee**, Lehigh University, Spring 2011.
28. **Graduate Admission Committee**, Energy System Engineering MS Program, Rossin College of Engineering and Applied Science, Lehigh University, Spring 2011.
29. **Faculty Tour Volunteer**, in the “Lehigh Life Days” Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2011.
30. **College Tour Volunteer**, in the Candidate’s Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2011.
31. **Internal Review Committee**, Office of Research and Graduate Studies, Lehigh University, Fall 2011-present.
32. **Organizing Chair**, Workshop on Optoelectronics Materials and Devices, Center for Optical Technologies (COT) Open House 2011, Lehigh University, November 2011.
33. **New Research Center Committee**, Consolidation of New Centers, Rossin College of Engineering and Applied Science, Lehigh University, Fall 2011 - Spring 2012.
34. **College Tour Volunteer**, in the Candidate’s Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2012.
35. **Libsch Research Awards Committee**, Lehigh University, Spring 2012.
36. **Graduate Admission Committee**, Energy System Engineering MS Program, Rossin College of Engineering and Applied Science, Lehigh University, Spring 2012.
37. **Center for Photonics and Nanoelectronics Planning Committee**, Rossin College of Engineering and Applied Science, Lehigh University, Spring 2012 - present.
38. **Integrated Nanotechnology Facility Committee**, Rossin College of Engineering and Applied Science, Lehigh University, Spring 2012 - present.
39. **Faculty Innovation Grant (FIG) Review Committee**, Office of Research and Graduate Studies, Lehigh University, Spring 2012.
40. **Collaborative Research Opportunities (CORE) Review Committee**, Office of Research and Graduate Studies, Lehigh University, Spring 2012.
41. **Martin Luther King Day and Diversity Committee**, Lehigh University, 2012-2013.
42. **CHE Faculty Search Committee Member (2009-2010)**, Department of Chemical Engineering, Lehigh University, Fall 2012—Spring 2013.
43. **Libsch Research Awards Committee**, Lehigh University, Spring 2013.
44. **College Tour Volunteer**, in the Candidate’s Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2013.
45. **Faculty Innovation Grant (FIG) Review Committee**, Office of Research and Graduate Studies, Lehigh University, Spring 2013.
46. **Collaborative Research Opportunities (CORE) Review Committee**, Office of Research and Graduate Studies, Lehigh University, Spring 2013.
47. **Faculty Host for Indonesian Ambassador (Dr. Dino Patti Djalal) for the United States of America**, Office of International Affairs, Lehigh University, Fall 2013.
48. **Integrated Cleanroom and Nanofabrication Facility Committee Chair**, Rossin College of Engineering and Applied Science, Lehigh University, Fall 2013 - present.
49. **College Tour Volunteer**, in the Candidate’s Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2014.
50. **Chair for the Lehigh Intellectual Property Advisory Committee (LIPAC)**, Office of Research and Graduate Studies, Lehigh University, Summer 2014-present.
51. **MSE Faculty Search Committee Member (2014-2015)**, Department of Material Sciences and Engineering, Lehigh University, Fall 2014 - Spring 2015.
52. **Faculty Search Committee Member (2014-2015) for Anderson Endowed Chair Professorship in Energy Science and Engineering**, Rossin College of Engineering and Applied Sciences, Lehigh University, Fall 2014 – present.
53. **College Tour Volunteer**, in the Candidate’s Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2015
54. **Panel Session Organizing Chair**, Micro and Nanoelectronics Session, Lehigh Nano Network Workshop, *Lehigh University*, Bethlehem, Pennsylvania, USA, May 2015.
55. **MSE Faculty Search Committee Member (2015-2016)**, Department of Material Sciences and Engineering, Lehigh University, Fall 2015 - Spring 2016.
56. **Committee for Faculty Research Initiatives**, Lehigh University, Fall 2015-present.
57. **College Tour Volunteer**, in the Candidate’s Day Event, Rossin College of Engineering and Applied Science, Lehigh University, April 2016.

Departmental Level Committee / Service:

1. **ECE Faculty Volunteer**, in the High School Senior Open House, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, October 2004.
2. **ECE Departmental Seminar Series Coordinator**, Fall 2004-Spring 2008.
3. **ECE Faculty Volunteer**, in the High School Senior Open House, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, October 2005.
4. **ECE Faculty Volunteer**, in the Family Weekend Day Event, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, November 2005.
5. **Coordinator for ECE Ph.D. Qualifying Exam in Optoelectronics & Electromagnetism**, Department of Electrical and Computer Engineering, Lehigh University, Fall 2005-Present.
6. **ECE Undergraduate Curriculum Committee**, Department of Electrical and Computer Engineering, Lehigh University, Spring 2006-Present.
7. **ECE Task Force for Curriculum Review in Photonics and Optoelectronics (Graduate and Undergraduate) - ECE Retreat 2006**, Department of Electrical and Computer Engineering, Lehigh University, August 10th – 11th 2006.
8. **ECE Faculty Volunteer**, in the High School Senior Open House, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, October 2006.
9. **ECE Graduate Program Committee Member**, Department of Electrical and Computer Engineering, Lehigh University, Spring 2007-Present.
10. **ECE Webpage Committee Member**, Department of Electrical and Computer Engineering, Lehigh University, Spring 2007-Present.
11. **ECE Faculty Volunteer**, in the High School Senior Open House, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, October 2007.
12. **ECE Faculty Volunteer**, in Career Luncheon Series, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, Spring 2008.
13. **ECE Faculty Volunteer**, in the Family Weekend Day Event, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, November 2008.
14. **ECE Task Force for Curriculum Revisions in Photonics and Optoelectronics (Graduate and Undergraduate) 2009**, Department of Electrical and Computer Engineering, Lehigh University, Spring 2009.
15. **ECE Faculty Volunteer**, in the Family Weekend Day Event, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, November 2009.
16. **ECE Undergraduate Curriculum Committee Member**, Department of Electrical and Computer Engineering, Lehigh University, Fall 2009-Present.
17. **ECE Faculty Search Committee Member (2009-2010)**, Department of Electrical and Computer Engineering, Lehigh University, Fall 2009—Spring 2010.
18. **ECE Faculty Search Committee Chair (2010-2011)**, Department of Electrical and Computer Engineering, Lehigh University, Summer 2010—Spring 2011.
19. **ECE Faculty Volunteer**, in the High School Senior Open House, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, October 2010.
20. **ECE Faculty Volunteer**, in the Family Weekend Day Event, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, November 2010.
21. **Sherman Fairchild Chair / ECE Faculty Search Committee Member (2011-2012)**, Department of Electrical and Computer Engineering, Lehigh University, Summer 2011—Spring 2012.
22. **Chair for ECE Electromagnetic Consolidation Committee (2012-2013)**, Department of Electrical and Computer Engineering, Lehigh University, Fall 2012 - Spring 2013.
23. **ECE Faculty Search Committee Member (2013-2014)**, Department of Electrical and Computer Engineering, Lehigh University, Fall 2013 - Spring 2014.
24. **ECE Faculty Search Committee Member (2014-2015)**, Department of Electrical and Computer Engineering, Lehigh University, Fall 2014 - Spring 2015.
25. **CPN Technical Manager Search Committee Chair**, Center for Photonics and Nanoelectronics, *Lehigh University*, Bethlehem, Pennsylvania, USA, June-August 2015.
26. **CPN Fellowship Committee Chair**, Center for Photonics and Nanoelectronics, *Lehigh University*, Bethlehem, Pennsylvania, USA, May-August 2015.
27. **Chair for the Committee for 125th Year Celebration for ECE Department**, Department of Electrical and Computer Engineering, Lehigh University, Summer 2016 – December 2017.
28. **CPN Fellowship Committee Chair**, Center for Photonics and Nanoelectronics, *Lehigh University*, Bethlehem, Pennsylvania, USA, Fall 2016-Spring 2017.

29. **IEEE Advisor for the IEEE Student Chapter – Lehigh ECE**, Department of Electrical and Computer Engineering, Lehigh University, Fall 2016-present.
30. **ECE Faculty Presenter**, Engineering 5 Recruitment Activity, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, October 2016.
31. **ECE Faculty Volunteer**, Family Weekend Day Event, Department of Electrical and Computer Engineering, Rossin College of Engineering and Applied Science, Lehigh University, October 2016.
32. **PhD Qualifying Exam Committee:**
 - **Ph.D. Qualifying Exam Committee Member (Spring 2004)**, for Mr. Yang Wang, PhD student in the fields of photonics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2006)**, for Mr. Ronald A. Arif, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2006)**, for Mr. Yik Khoon Ee, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2007)**, for Ms. Hongping Zhao, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2009)**, for Ms. Guangyu Liu, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2009)**, for Xiao-Hang Li, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2010)**, for Ms. Jing Zhang, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2011)**, for Le Zhao, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2011)**, for Ruolin Chen, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2011)**, for Xiaomu Lin, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2011)**, for Shudeep Khanal, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Fall 2012)**, for Peifen Zhu, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Fall 2012)**, for Chee-Keong Tan, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2015)**, for Wei Sun, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2015)**, for Yuangyang Huang, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2015)**, for Yi Jiang, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2016)**, for Lian Duan, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Summer 2016)**, for Damir Borovac, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Chair (Spring 2017)**, for Justin C. Goodrich, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2017)**, for Syed Al Muyeed, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2017)**, for Yifeng Qian, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2017)**, for Jason Jerwick, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2017)**, for Dong Zhao, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Spring 2017)**, for Xiongliang Wei, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
 - **Ph.D. Qualifying Exam Committee Member (Summer 2017)**, for Matthew R. Peart, PhD student in the fields of nanoelectronics, Department of Electrical and Computer Engineering.

- **Ph.D. Qualifying Exam Committee Member (Summer 2018)**, for Onoriode Ogidi-Ekoko, PhD student in the fields of nanoelectronics, Department of Electrical and Computer Engineering.

33. PhD General Examination Committee:

- **Ph.D. General Exam Committee Member (Fall 2004)**, for Ms. Yijie Zhao, PhD student in the fields of microelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Spring 2007)**, for Ms. Yanli Zhang, PhD student in the fields of microelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Chair (Fall 2007)**, for Mr. Ronald A. Arif, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Fall 2007)**, for Mr. Jeff Biser, PhD student in the fields of photonics and optoelectronics, Department of Material and Science Engineering.
- **Ph.D. General Exam Committee Member (Spring 2008)**, for Mr. Cheng Chen, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Fall 2008-2010)**, for Mr. Nathan Woodward, PhD student in the fields of solid state and semiconductor physics, Department of Physics.
- **Ph.D. General Exam Committee Member (Fall 2008)**, for Mr. Kyle C. Wagner, PhD student in the fields of chemistry, Department of Chemistry.
- **Ph.D. General Exam Committee Member (Spring 2009)**, for Mr. Byunggook Lyu, PhD student in the fields of photonics and nonlinear optics, Department of Physics.
- **Ph.D. General Exam Committee Chair (Spring 2009)**, for Mr. Yik-Khoon Ee, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Spring 2009-2010)**, for Mr. Benjamin Tayo, PhD student in the fields of solid state physics, Department of Physics.
- **Ph.D. General Exam Committee Chair (Spring 2010)**, for Mr. Hua Tong, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Chair (Spring 2010)**, for Ms. Hongping Zhao, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Spring 2009-2011)**, for Mr. Benjamin Tayo, PhD student in the fields of solid state physics, Department of Physics.
- **Ph.D. General Exam Committee Member (Spring 2010-2011)**, for Mr. Jonathan D. Poplawsky, PhD student in the fields of solid state physics, Department of Physics.
- **Ph.D. General Exam Committee Member (Spring 2010-2011)**, for Mr. Pavel Irkhin, PhD student in the fields of solid state physics, Department of Physics.
- **Ph.D. General Exam Committee Member (Spring 2011)**, for Mr. Pu Zhao, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Fall 2012)**, for Mr. Guan Sun, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Fall 2012)**, for Mr. Brandon Mitchell, PhD student in the fields of solid state physics, Department of Physics.
- **Ph.D. General Exam Committee Chair (Fall 2012)**, for Ms. Guangyu Liu, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Chair (Spring 2013)**, for Ms. Jing Zhang, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Spring 2013)**, for Mr. Da Li, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Chair (Spring 2014)**, for Ms. Peifen Zhu, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Spring 2014)**, for Mr. Ruolin Chen, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Fall 2014)**, for Mr. Sudeep Khanal, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Spring 2015)**, for Mr. Andrew J. Helbers, PhD student in the fields of solid state physics, Department of Physics.
- **Ph.D. General Exam Committee Chair (Fall 2015)**, for Chee-Keong Tan, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Summer 2016)**, for Mr. Yongyang Huang, PhD student in the fields of photonics and bioengineering, Department of Electrical and Computer Engineering.

- **Ph.D. General Exam Committee Member (Spring 2017)**, for Ms. Ruoqiao Wei, PhD student in the field of semiconductor materials, Department of Physics.
- **Ph.D. General Exam Committee Chair (Summer 2018)**, for Mr. Wei Sun, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Chair (Summer 2018)**, for Mr. Ioannis Fragkos, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Fall 2018)**, for Mr. Yuan Jin, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Member (Summer 2018)**, for Mr. Liang Gao, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.
- **Ph.D. General Exam Committee Chair (Fall 2019)**, for Mr. Damir Borovac, PhD student in the fields of photonics and optoelectronics, Department of Electrical and Computer Engineering.

34. PhD Final Defense Committee:

- **Dr. Yijie Zhao, PhD in Electrical Engineering, Lehigh University (Spring 2006)**. Title: High-K Dielectrics for Scaled CMOS and SANOS Nonvolatile Semiconductor Memory Devices". Primary Advisor: Prof. Marvin H. White (Lehigh University, ECE)
- **Dr. Santosh K. Pandey, PhD in Electrical Engineering, Lehigh University (Spring 2006)**. Title: "Towards a BioChip for Cellular Electrophysiology with Integrated Low-Noise Signal Processing". Primary Advisor: Prof. Marvin H. White (Lehigh University, ECE)
- **Dr. Yanli Zhang, PhD in Electrical Engineering, Lehigh University (Spring 2008)**. Title: "Characterization and Modeling of Scaled NMOS Devices with High-K Dielectrics and Metal Gate Electrodes". Primary Advisor: Prof. Marvin H. White (Lehigh University, ECE)
- **Dr. Ronald A. Arif, PhD in Electrical Engineering, Lehigh University (Summer 2008)**. Title: "Polarization Engineering of III-Nitride Nanostructures for High Efficiency Solid State Lighting". Primary Advisor: Prof. Nelson Tansu (Lehigh University, ECE)
- **Dr. Gan Wang, PhD in Electrical Engineering, Lehigh University (Fall 2008)**. Title: "Characterization and Modeling of Nanoscaled SONOS / MANOS Nonvolatile Semiconductor Memory (NVSM) Devices". Primary Advisor: Prof. Marvin H. White (Lehigh University, ECE)
- **Dr. Yik-Khoon Ee, PhD in Electrical Engineering, Lehigh University (November 2009)**. Title: "Reduced Dislocation Engineering and Enhanced Light Extraction Efficiency of III-Nitride Light Emitting Diodes". Primary Advisor: Prof. Nelson Tansu (Lehigh University, ECE)
- **Dr. Cheng Chen, PhD in Physics, Lehigh Univ (April 2010)**. Title: "Modeling and characterization of quantum-dash lasers: Intrinsic dynamics and intermixing effects". Primary Advisor: Prof. James Hwang (Lehigh Univ, ECE).
- **Dr. Hua Tong, PhD in Electrical Engineering, Lehigh University (August 2010)**. Title: "Thermoelectric Characteristics and Measurements of Ternary III-Nitride Semiconductors". Primary Advisor: Prof. Nelson Tansu (Lehigh University, ECE)
- **Dr. Hongping Zhao, PhD in Electrical Engineering, Lehigh University (October 2010)**. Title: "Enhancement of Internal Quantum Efficiency and Optical Gain for Nitride Light-Emitting Diodes and Laser Diodes". Primary Advisor: Prof. Nelson Tansu (Lehigh University, ECE)
- **Dr. Nathan Woodward, PhD in Physics, Lehigh University (April 2011)**. Title: "Optical and Magneto-Optical Studies of Rare Earth-doped Gallium Nitride". Primary Advisor: Prof. Volkmar Dierolf (Lehigh University, Physics)
- **Dr. Ravi S. Tummidi, PhD in Electrical Engineering, Lehigh University (August 2011)**. Title: "Novel Waveguide Architectures for Light Sources in Silicon Photonics". Primary Advisor: Prof. Thomas L. Koch (Lehigh Univ, ECE)
- **Dr. Jonathan D. Poplawsky, PhD in Physics, Lehigh University (April 2012)**. Title: "Studies of Excitation Mechanisms in Eu-Doped GaN under Simultaneous Electron Beam and Laser Excitations". Primary Advisor: Prof. Volkmar Dierolf (Lehigh University, Physics)
- **Dr. Benjamin Tayo, PhD in Physics, Lehigh University (August 2012)**. Title: "Theoretical Studies of the Interaction of Excitons with Charged Impurities in Single-Walled Carbon Nanotubes". Primary Advisor: Prof. Slava V. Rotkin (Lehigh University, Physics)
- **Dr. Pu Zhao, PhD in Electrical Engineering, Lehigh University (August 2012)**. Title: "Compact Terahertz Sources Based on Difference Frequency Generation". Primary Advisor: Prof. Yujie Ding (Lehigh University, ECE)
- **Dr. Pavel Irkhin, PhD in Physics, Lehigh University (August 2012)**. Title: "Photoexcitation and transport in molecular crystals". Primary Advisor: Prof. Ivan Biaggio (Lehigh University, Physics)
- **Dr. Jeffrey M. Biser, PhD in Physics, Lehigh University (April 2012)**. Title: "Fabrication of Nanodot Decorated Sapphire Substrates for Abbreviated Growth Mode Deposition of Gallium Nitride". Primary Advisor: Prof. Richard P. Vinci and Prof. Helen M. Chan (Lehigh University, Material Science and Engineering)

- **Dr. Guangyu Liu, PhD in Electrical Engineering, Lehigh University (May 2013).** Title: “Device Engineering for Internal Quantum Efficiency Enhancement and Efficiency Droop Issue in III-Nitride Light-Emitting Diodes”. Primary Advisor: Prof. Nelson Tansu (Lehigh University, ECE)
- **Dr. Jing Zhang, PhD in Electrical Engineering, Lehigh University (May 2013).** Title: “Ternary III-Nitride Semiconductors for Thermoelectricity and Light Emitters”. Primary Advisor: Prof. Nelson Tansu (Lehigh Univ, ECE)
- **Dr. Guan Sun, PhD in Electrical Engineering, Lehigh University (November 2013).** Title: “Novel Optical Study and Application on III-Nitride Materials”. Primary Advisor: Prof. Yujie Ding (Lehigh Univ, ECE)
- **Dr. Brandon Mitchell, PhD in Physics, Lehigh University (April 2014).** Title: “Investigation on the Influence of Defects and Doping in Rare Earth Doped Gallium Nitride”. Primary Advisor: Prof. Volkmar Dierolf (Lehigh Univ, Physics)
- **Dr. Peifen Zhu, PhD in Electrical Engineering, Lehigh University (November 2014).** Title: “Light Extraction and Nanomaterials for III-Nitride Based White Light-Emitting Diodes”. Primary Advisor: Prof. Nelson Tansu (Lehigh Univ, ECE)
- **Dr. Da Li, PhD in Electrical Engineering, Lehigh University (April 2015).** Title: “Novel Applications in Nonlinear Crystals Based on Second-Order Nonlinear Optical Interactions”. Primary Advisor: Prof. Yujie Ding (Lehigh Univ, ECE)
- **Dr. Ruolin Chen, PhD in Electrical Engineering, Lehigh University (May 2015).** Title: “Novel Optical Applications based on Photon-phonon Interactions”. Primary Advisor: Prof. Yujie Ding (Lehigh Univ, ECE)
- **Dr. Chee-Keong Tan, PhD in Electrical Engineering, Lehigh University (July 2016).** Title: “Dilute-Anion Nitride Semiconductors and Nanostructures”. Primary Advisor: Prof. Nelson Tansu (Lehigh Univ, ECE)
- **Dr. Sudeep Khanal, PhD in Electrical Engineering, Lehigh University (November 2016).** Title: “Terahertz Quantum Cascade Lasers”. Primary Advisor: Prof. Sushil Kumar (Lehigh Univ, ECE)
- **Dr. Guosong Zeng, PhD in Mechanical Engineering, Lehigh University (June 2017).** Title: “Investigation of Wear Mechanism of Gallium Nitride”. Primary Advisors: Prof. Nelson Tansu (Lehigh Univ, ECE) and Prof. Brandon A. Krick (Lehigh Univ, MEM).
- **Dr. Andrew J. Helbers, PhD in Physics, Lehigh University (August 2017).** Title: “Magneto-Optical Properties of Rare-Earth Doped Semiconductors”. Primary Advisor: Prof. Volkmar Dierolf (Lehigh Univ, Physics).
- **Dr. Ioannis Fragkos, PhD in Electrical Engineering, Lehigh University (April 2019).** Title: “GaN:Eu and InGaN based Active Regions for Long Wavelength Emission”. Primary Advisor: Prof. Nelson Tansu (Lehigh Univ, ECE)
- **Dr. Wei Sun, PhD in Electrical Engineering, Lehigh University (April 2019).** Title: “Band Structure Engineering and Material Synthesis in Nanoscale III-Nitride”. Primary Advisor: Prof. Nelson Tansu (Lehigh Univ, ECE)
- **Dr. Yongyang Huang, PhD in Electrical Engineering, Lehigh University (April 2019).** Title: “Development of High-speed Optical Coherence Tomography for Time-lapse Non-destructive Characterization of Samples”. Primary Advisor: Prof. Chao Zhou (Lehigh Univ, ECE)
- **Dr. Liang Gao, PhD in Electrical Engineering, Lehigh University (Jan. 2020).** Title: “Electrically Tunable Terahertz Quantum Cascade Lasers”. Primary Advisor: Prof. Sushil Kumar (Lehigh Univ, ECE)

Journal Reviewing

1. **Applied Physics Letters** (published by American Institute of Physics)
2. **Journal of Applied Physics** (published by American Institute of Physics)
3. **IEEE Photonic Technology Letters** (published by IEEE Photonics Society)
4. **IEEE Photonics Journal** (published by IEEE Photonics Society)
5. **IEEE Journal of Quantum Electronics** (published by IEEE Photonics Society)
6. **IEEE Journal of Selected Topics in Quantum Electronics** (published by IEEE Photonics Society)
7. **IEEE / OSA Journal of Lightwave Technology** (published by IEEE Photonics Society and OSA)
8. **IEEE Transaction on Nanotechnology** (published by IEEE)
9. **IEEE Transaction on Electron Devices** (published by IEEE Electron Device Society)
10. **IEEE Journal of Photovoltaic** (published by IEEE)
11. **IEEE Electron Device Letters** (published by IEEE Electron Device Society)
12. **Optics Express** (published by Optical Society of America)
13. **Optical Materials Express** (published by Optical Society of America)
14. **Advanced Materials** (published by Wiley Interscience)
15. **Advanced Functional Materials** (published by Wiley Interscience)
16. **Advanced Energy Materials** (published by Wiley Interscience)
17. **Advanced Optical Materials** (published by Wiley Interscience)
18. **Small** (published by Wiley Interscience)
19. **Journal of Optics** (published by Institute of Physics, Bristol, UK)
20. **Thin Film Solids** (published by Elsevier Science)

21. **Journal of Crystal Growth** (published by Elsevier Science)
22. **Journal of Vacuum Science and Technology B** (published by American Vacuum Science)
23. **Physica Status Solidi A** (published by Wiley Interscience)
24. **Physica Status Solidi B** (published by Wiley Interscience)
25. **Physica Status Solidi C** (published by Wiley Interscience)
26. **Journal of Physics D: Applied Physics** (published by Institute of Physics, Bristol, UK)
27. **Japanese Journal of Applied Physics** (published by Japan Society of Applied Physics, and Institute of Pure and Applied Physics)
28. **Applied Physics Express** (published by Japan Society of Applied Physics)
29. **IET Electronics Letters** (published by IET, UK)
30. **Semiconductor Science and Technology** (published by Institute of Physics, Bristol, UK)
31. **Nanotechnology** (published by Institute of Physics, Bristol, UK)
32. **Optics Communication** (published by Elsevier Science)
33. **Electrochemical and Solid-State Letters** (published by The ElectroChemical Society)
34. **Optical Engineering** (published by International Society of Optical Engineering, SPIE)
35. **Nanoscale Research Letters** (published by Springer Verlag and Nano Research Society)
36. **TMS Journal of Electronic Materials** (published by TMS)
37. **Europhysics Letters** (published by European Physical Society)
38. **New Journal of Physics** (published by Institute of Physics, Bristol, UK)
39. **Physica E** (published by Elsevier Science)
40. **Chinese Optics Letters** (published by Chinese Lasers Physics, China)
41. **Semiconductor Photonics and Technology** (published by OSA and Chinese Lasers Physics)
42. **Solid-State Electronics** (published by Elsevier Science)
43. **Current Opinion in Solid State and Materials Science** (published by Elsevier Science)
44. **Journal of Optics** (published by Institute of Physics, Bristol, UK)
45. **Material Chemistry and Physics** (published by Elsevier Science)
46. **Organic Electronics** (published by Elsevier Science)
47. **Journal of Modern Optics** (published by Taylor and Francis, UK)
48. **Journal of Materials Chemistry A** (published by Royal Society of Chemistry, UK)
49. **Journal of Materials Chemistry C** (published by Royal Society of Chemistry, UK)
50. **RSC Advances** (published by Royal Society of Chemistry, UK)
51. **New Journal of Chemistry** (published by Royal Society of Chemistry, UK)
52. **CrystEngComm** (published by Royal Society of Chemistry, UK)
53. **Nanoscale** (published by Royal Society of Chemistry, UK)
54. **Catalysis Science & Technology** (published by Royal Society of Chemistry, UK)
55. **ACS Nano** (published by American Chemical Society)
56. **Scientific Reports** (published by Nature Publishing, UK)
57. **Journal of Nanoparticle Research** (published by World Scientific, Singapore)
58. **NANO** (published by World Scientific, Singapore)
59. **Physics Letters A** (published by Elsevier Science)
60. **Journal of Photonics for Energy** (published by SPIE)
61. **Journal of Alloys and Compounds** (published by Elsevier)
62. **Acta Materialia** (published by Elsevier)
63. **Materials for Renewable and Sustainable Energy** (published by Springer)
64. **Nature Nanotechnology** (published by Nature Publishing, UK)
65. **Sciences Advances** (published by AAAS)

Book Reviewing

1. **Book reviewer** for John Wiley and Sons.
2. **Book reviewer** for Oxford University Press.
3. **Book reviewer** for Cambridge University Press.
4. **Book reviewer** for Springer Verlag.

Research Grants at Lehigh University

Investigator: [Prof. Nelson Tansu](#) (Total Funding ~ \$13.92 million, July 2003-Present)

Project#1 (Support Status: Approved / Past)

PIs: James C. M Hwang, Thomas L. Koch, Yujie Ding, [Nelson Tansu](#), Boon S. Ooi, and A. M. McAulay

Project/Proposal Title: **Optical InterConnects Phase II**

Source of Support: Pennsylvania Department of Community and Economic Development

Award Amount: \$ 340,000

Period Covered: 3/1/04-12/31/04

Indirect Cost: 10%

Project#2 (Support Status: Approved / Past)

PIs: Volkmar Dierolf, [Nelson Tansu](#), Slade Cargill, Helen M. Chan, Richard P. Vinci

Project/Proposal Title: **Wide-Bandgap Semiconductor Optoelectronics**

Source of Support: DOD Army Research Lab / Army Research Office

Award Amount: \$ 968,000

Period Covered: 3/1/04-2/28/05

Indirect Cost: 57%

Project#3 (Support Status: Approved / Past)

PIs: James C. M Hwang, Thomas L. Koch, Yujie Ding, [Nelson Tansu](#), Boon S. Ooi, and A. M. McAulay

Project/Proposal Title: **Optical InterConnects Phase III**

Source of Support: Pennsylvania Department of Community and Economic Development

Award Amount: \$ 390,000

Period Covered: 1/1/05-12/31/05

Project#4

Support Status: Approved / Past

PIs: Volkmar Dierolf, [Nelson Tansu](#), Slade Cargill, Helen M. Chan, Richard P. Vinci

Project/Proposal Title: **Wide-Bandgap Semiconductor Optoelectronics for UV Light Sources**

Source of Support: DOD Army Research Lab / Army Research Office

Award Amount: \$ 528,000

Period Covered: 3/1/05-2/28/06

Indirect Cost: 57%

Project#5 (Support Status: Approved / Past)

PIs: Yujie Ding, [Nelson Tansu](#), and Filbert J. Bartoli

Project/Proposal Title: **Nanostructures, Devices, and Characterizations from Mid-infrared to Terahertz**

Source of Support: DOD Army Research Lab / Army Research Office

Award Amount: \$ 654,000

Period Covered: 3/1/06-12/31/07

Indirect Cost: 57%

Project#6 (Support Status: Approved / Past)

PIs: Volkmar Dierolf, [Nelson Tansu](#), Slade Cargill, James Hwang, Helen M. Chan, Richard P. Vinci

Project/Proposal Title: **Wide-Bandgap Semiconductor Optoelectronics for Deep UV Emitters and Detectors**

Source of Support: DOD Army Research Lab / Army Research Office

Award Amount: \$ 853,000

Period Covered: 3/1/06-12/31/07

Indirect Cost: 57%

Project#7 (Support Status: Approved / Active)

PIs: Volkmar Dierolf, [Nelson Tansu](#)

Title: **NanoPhotonics – Wide Bandgap Semiconductors**

Source of Support: State of Pennsylvania Department of Community and Economic Development

Award Amount: \$ 170,000

Period Covered: 07/01/06-06/30/08

Project#8 (Support Status: Approved / Active)

PIs: [Nelson Tansu](#)

Project/Proposal Title: **New Class of Photovoltaic Materials for High Efficiency Solar Cells**

Source of Support: Pennsylvania Infrastructure Technology Alliance (PITA)

Award Amount: \$ 45,000

Period Covered: 01/01/07-06/30/08

Project#9 (Support Status: Approved / Active)

PIs: Yujie Ding, [Nelson Tansu](#), and Filbert J. Bartoli

Project/Proposal Title: **Nanostructures, Devices, and Characterizations from Mid-infrared to Terahertz II**

Source of Support: DOD Army Research Lab / Army Research Office

Award Amount: \$ 225,170

Period Covered: 5/1/07-12/30/08

Indirect Cost: 58.73%

Project#10 (Support Status: Approved / Active)

PIs: Volkmar Dierolf, [Nelson Tansu](#), Slade Cargill, James Hwang, Helen M. Chan, Richard P. Vinci
Project/Proposal Title: **Wide-Bandgap Semiconductor Optoelectronics for Deep UV Emitters and Detectors**
Source of Support: DOD Army Research Lab / Army Research Office
Award Amount: \$ 462,875 Period Covered: 5/1/07-12/30/08
Indirect Cost: 58.73%

Project#11 (Support Status: Approved / Active)

PIs: [Nelson Tansu](#)
Title: **Nanostructure Engineering of III-Nitride Active Regions for High- Performance Visible Emitters and Lasers**
Source of Support: National Science Foundation – Directorate for Engineering (Award 0701421)
Award Amount: \$ 270,000 Period Covered: 07/01/07-06/30/11
Indirect Cost: 58.73%

Project#12 (Support Status: Approved / Active)

PIs: Helen M. Chan, [Nelson Tansu](#), and Richard P. Vinci
Project/Proposal Title: **FRG: Nanopatterning of Sapphire Substrates for Improved III-Nitride Growth**
Source of Support: NSF – Directorate for Mathematical and Physical Sciences (DMR)
Award Amount: \$ 320,000 Period Covered: 08/15/07-08/14/10
Indirect Cost: 58.73%

Project#13 (Support Status: Approved / Active)

PIs: [Nelson Tansu](#), and Volkmar Dierolf
Project/Proposal Title: **Enhancement of Radiative Efficiency with Staggered InGaN Quantum Well Light Emitting Diodes**
Source of Support: Department of Energy
Total Award Amount: \$ 748,926 Period Covered: 07/15/08-07/14/11
Matching Funds: \$150,581 (Non-Federal), Total Federal Budget: \$ 598,445
Indirect Cost: 58.73%

Project#14 (Support Status: Approved / Active)

PIs: [Nelson Tansu](#), Volkmar Dierolf
Title: **NanoPhotonics – NanoPhotonics for Green Energy**
Source of Support: State of Pennsylvania Department of Community and Economic Development
Award Amount: \$ 120,078 Period Covered: 07/01/08-06/30/10

Project#15 (Support Status: Approved / Active)

PIs: James F. Gilchrist, [Nelson Tansu](#), and Xuanhong Cheng
Project/Proposal Title: **Investigation of Microsphere Convective Deposition for Photonic, Biological, and Materials Applications**
Source of Support: National Science Foundation – Directorate for Engineering (CBET)
Award Amount: \$ 300,000 Period Covered: 08/15/08-08/14/12
Indirect Cost: 58.73%

Project#16 (Support Status: Approved / Active)

PIs: [Nelson Tansu](#)
Proposal Title: **Nanostructure Engineering of III-Nitride Semiconductors for High Efficiency Solid State Lightings**
Source of Support: Lehigh Innovation Seed Grant 2008
Award Amount: \$ 20,000 Period Covered: 08/1/08-07/31/09

Project#17 (Support Status: Approved / Active)

PIs: Tanya Paskova, Claire F. Gmachl, and [Nelson Tansu](#)
Project/Proposal Title: **DARPA SBIR Phase I: III-Nitride Quantum Cascade Laser Development at $\lambda \sim 1.55 \mu\text{m}$ Based on Native GaN Substrates and Strain-Compensation Heterostructure Engineering**
Source of Support: DARPA
Award Amount: \$ 100,000 Period Covered: 01/01/09-12/31/09

Project#18 (Support Status: Approved / Active)

PIs: Franky So, [Nelson Tansu](#), James F. Gilchrist
Project/Proposal Title: **High Efficiency Organic Lighting Emitting Devices for Lighting**
Source of Support: Department of Energy

Total Award Amount: \$ 950,000 Period Covered: 07/01/09-06/30/13

Project#19 (Support Status: Approved / Active)
PIs: [Nelson Tansu](#), and John P. Coulter
Proposal Title: **High -Efficiency (>50%) InGaN Nanostructures Solar Cells**
Source of Support: Lehigh Energy Research Seed Grants
Award Amount: \$ 55,000 Period Covered: 07/01/09-06/30/10

Project#20 (Support Status: Approved / Active)
PIs: [Nelson Tansu](#)
Project/Proposal Title: **High-Efficiency InN-Based Semiconductor Solar Photovoltaic Cells on Silicon Substrates**
Source of Support: NSF – Directorate for Mathematical and Physical Sciences (DMR)
Award Amount: \$ 332,000 Period Covered: 09/01/09-08/31/13

Project#21 (Support Status: Approved / Active)
PIs: [Nelson Tansu](#)
Project/Proposal Title: **Investigation of III-Nitride LEDs Grown on Flexible GaN Substrates**
Source of Support: Goldeneye LEDs
Award Amount: \$ 18,500 Period Covered: 12/01/09-05/31/10

Project#22 (Support Status: Approved / Active)
PI: [Nelson Tansu](#)
Project/Proposal Title: **High Efficiency Droop-Free III-Nitride Light-Emitting Diodes for Solid State Lighting**
Source of Support: NSF – Directorate of Engineering (ECCS)
Award Amount: \$ 352,000 Period Covered: 08/15/10-08/14/14

Project#23 (Support Status: Approved / Active)
PIs: Tanya Paskova, Claire F. Gmachl, [Nelson Tansu](#), O. Malis, and M. Manfra
Project/Proposal Title: **DARPA SBIR Phase II: III-Nitride Quantum Cascade Laser Development at $\lambda \sim 1.55 \mu\text{m}$ Based on Native GaN Substrates and Strain-Compensation Heterostructure Engineering**
Source of Support: DARPA
Award Amount: \$ 750,000 Period Covered: 01/01/11-12/31/12

Project#24 (Support Status: Approved / Active)
PI: [Nelson Tansu](#)
Project/Proposal Title: **High Efficiency Silicon Based Solar Cells**
Source of Support: Avantor (Industry)
Award Amount: \$ 65,000 Period Covered: 07/01/11-01/31/12

Project#25 (Support Status: Approved / Active)
PI: James F. Gilchrist, Mark Snyders, J. Mittal, [Nelson Tansu](#), and Xuanhong Cheng
Project/Proposal Title: **SNM: Technologies for Nanoparticle Monolayer Self-Organization and Deposition**
Source of Support: NSF – Scalable Nanomanufacturing
Award Amount: \$ 1,100,000 Period Covered: 09/01/11-08/31/15

Project#26 (Support Status: Approved / Active)
PIs: [Nelson Tansu](#)
Title: **NanoPhotonics for Green Energy Applications**
Source of Support: State of Pennsylvania Department of Community and Economic Development
Award Amount: \$ 97,000 Period Covered: 01/01/12-06/30/12
Indirect Cost: 10%

Project#27 (Support Status: Approved / Active)
PIs: [Nelson Tansu](#)
Project/Proposal Title: **High Efficiency III-Nitride LEDs – Droop Suppression Approach**
Source of Support: Veeco, Inc.
Award Amount: \$ 15,000 Period Covered: 01/1/14-06/30/14
Indirect Cost: 0%

Project#28 (Support Status: Approved / Active)
PIs: [Nelson Tansu](#)
Project/Proposal Title: **Investigation of GaN Devices on New Materials**

Source of Support: Singulus Technologies, Inc.
Award Amount: \$ 18,000 Period Covered: 05/1/14-12/31/14

Project#29 (Support Status: Approved / Active)

PIs: [Nelson Tansu](#)

Project/Proposal Title: **Valence Subband Engineering in High Al-content AlGaIn Quantum Wells Active Regions for Deep Ultraviolet Lasers and Emitters**

Source of Support: NSF – Directorate of Engineering (ECCS)
Award Amount: \$ 385,000 Period Covered: 07/1/14-06/30/17

Project#30 (PI: Chao Zhou, and [Nelson Tansu](#))

Project/Proposal Title: **Integrated Photonics for Medical Imaging**

Source of Support: Lehigh Faculty CORE Grant
Award Amount: \$ 60,000 Period Covered: 09/1/14-08/31/15

Project#31 (PIs: Volkmar Dierolf, Ivan Biaggio, Daniel Ou-Yang, Jean Toulouse, Yujie Ding, [Nelson Tansu](#), and Himanshu Jain)

Project/Proposal Title: **Laser and Imaging Facility with a Femtosecond Pulse Laser System**

Source of Support: Lehigh CREF (Critical Research Equipment Fund) Grant
Award Amount: \$ 170,000 Period Covered: 09/1/14-08/31/15

Project#32 (PIs: [Nelson Tansu](#))

Project/Proposal Title: **Physics, Materials, and Electronics Properties of Dilute-As GaNAs Semiconductors**

Source of Support: NSF – Directorate for Mathematical and Physical Sciences (DMR)
Award Amount: \$ 400,000 Period Covered: 07/1/15-06/30/18

Project#33 (PI: Volkmar Dierolf, and [Nelson Tansu](#))

Project/Proposal Title: **A Novel Approach for Monolithic Integration of the Red Color for Solid State Lighting and Color Displays.**

Source of Support: Lehigh Faculty CORE Grant
Award Amount: \$ 60,000 Period Covered: 09/1/15-08/31/16

Project#34 (PIs: Svetlana Tatic-Lucic, [Nelson Tansu](#), Parv Venkitasubramaniam, Chao Zhou, and Shaline Kishore)

Project/Proposal Title: **GAANN Graduate Research in Electrical Engineering**

Source of Support: U.S. Department of Education
Award Amount: \$ 808,320 Period Covered: 9/1/15-08/14/18

Project#35 (PIs: Nicholas C. Strandwitz, [Nelson Tansu](#), Steven McIntosh, John Dupont, and Greg Ferguson)

Project/Proposal Title: **CREF: Acquisition of a Versatile X-Ray Diffraction Instrument for Materials Analysis**

Source of Support: Lehigh CREF (Critical Research Equipment Fund) Grant
Award Amount: \$ 219,000 Period Covered: 1/1/16-12/31/16

Project#36 (PI: Jonathan J. Wierer, and [Nelson Tansu](#))

Project/Proposal Title: **Novel methods and designs for edge termination in vertical AlGaIn PIN diodes**

Source of Support: DOE Sandia National Laboratories
Award Amount: \$ 50,000 Period Covered: 1/1/16-12/31/16

Project#37 (PI: Jonathan J. Wierer, and [Nelson Tansu](#))

Project/Proposal Title: **The Nanosciences of III-nitride heterointerfaces**

Source of Support: DOE Sandia National Laboratories
Award Amount: \$ 100,000 (equivalent contribution from Sandia) Period Covered: 6/1/16-12/31/16

Project#38 (PI: Jonathan J. Wierer, and [Nelson Tansu](#))

Project/Proposal Title: **Nanowire LED Technologies**

Source of Support: Glo, Inc. (Industry)
Award Amount: \$ 105,000 Period Covered: 8/1/16-5/31/17

Project#39 (PI: Jonathan J. Wierer, and [Nelson Tansu](#))

Project/Proposal Title: **Light Extraction in Nanowire LEDs**

Source of Support: Glo, Inc. (Industry)
Award Amount: \$ 120,000 Period Covered: 8/1/16-7/31/17

Project#40 (PI: [Nelson Tansu](#), Jonathan J. Wierer, and Nicholas C. Strandwitz)

Project/Proposal Title: **High-Power GaN MOS-Based Field Effect Transistors**

Source of Support: Lehigh Accelerator Fund

Award Amount: \$ 100,000 Period Covered: 1/1/17-12/31/18

Project#41 (PI: Jonathan J. Wierer, and [Nelson Tansu](#))

Project/Proposal Title: **The Nanosciences of III-nitride heterointerfaces**

Source of Support: DOE Sandia National Laboratories

Award Amount: \$ 100,000 (equivalent contribution from Sandia) Period Covered: 1/1/17-5/31/17

Project#42 (PI: Jonathan J. Wierer, and [Nelson Tansu](#))

Project/Proposal Title: **Synthesis of Controlled III-Nitride Nanostructures**

Source of Support: NSF – Directorate for Mathematical and Physical Sciences (DMR)

Award Amount: \$ 479,736 Period Covered: 7/1/17-6/30/20

Project#43 (PI: Jonathan J. Wierer, and [Nelson Tansu](#))

Project/Proposal Title: **Novel methods and designs for edge termination in vertical AlGaIn PIN diodes – Phase II**

Source of Support: DOE Sandia National Laboratories

Award Amount: \$ 21,000 Period Covered: 7/1/17-12/31/17

Project#44 (PI: [Nelson Tansu](#))

Project/Proposal Title: **Wide Bandgap Semiconductor Research**

Source of Support: Gerondelis Foundation

Award Amount: \$ 5,000 Period Covered: 8/1/17-7/31/18

Project#45 (PI: [Nelson Tansu](#), Siddha Pimputkar, Jonathan J. Wierer, Volkmar Dierolf, and Nicholas C. Strandwitz)

Project/Proposal Title: **MRI: Development of a High Pressure Spatial CVD for Functional Materials**

Source of Support: National Science Foundation

Award Amount: \$ 815,000 Period Covered: 9/15/17-8/14/20

Project#46 (PI: Chee-Keong Tan, David Crouse, and [Nelson Tansu](#))

Project/Proposal Title: **Integrated Visible Light Emitting Diodes Biosensor**

Source of Support: NSF-IUCRC (Industry–University Cooperative Research Centers) Center for Metamaterial

Award Amount: \$ 12,000 Period Covered: 7/1/19-6/30/20

Project#47 (PI: Jonathan J. Wierer, and [Nelson Tansu](#))

Project/Proposal Title: **AlInN-GaN Vertical Power Electronic Devices**

Source of Support: National Science Foundation - ECCS

Award Amount: \$ 467,000 Period Covered: 9/1/19-8/31/22

Project#48 (PIs: Nicholas C. Strandwitz, [Nelson Tansu](#), Siddha Pimputkar, Joshua C. Agar)

Project/Proposal Title: **CREF: Acquisition of a Versatile Mass Spectrometry System for Analysis of Reaction**

Products and Integration with Data Science Methods for Thin Film and Bulk Syntheses

Source of Support: Lehigh CREF (Critical Research Equipment Fund) Grant

Award Amount: \$ 65,000 Period Covered: 1/1/20-12/31/21

Current Pending Proposals:

- ✓ **More than 6 pending proposals with values of \$ 6 million [as PI]**
- ✓ **1 additional pending center proposal (NSF ERC program) at \$50-60 million [as PI]**

Teaching and Educational Aspects (<http://www.ece.lehigh.edu/~tansu/teaching.html>)

Courses Taught at Lehigh:

- **Fall 2003:** I taught a graduate-level new course **ECE 450-16 “Physics and Applications of Photonic Crystals”** in the ECE department at Lehigh. This was the first new course that I introduced at Lehigh. This course emphasizes on the fundamental physics of linear- and nonlinear-photonic-crystals, challenges in fabrication of photonic crystals material and devices, and various applications of photonic crystal devices. This course is intended for upper-undergraduate and first-year graduate students in electrical engineering, physics, material science engineering, and others, who are interested in photonics & semiconductor optoelectronics.
- **Fall 2003:** **ECE 492 “Pre-Dissertator Research”** (for graduate students).
- **Spring 2004:** I taught a senior level course **ECE 308 “Physics and Models of Electronic and Optoelectronic Devices”** in the ECE department at Lehigh. The goal of this course is to provide students with strong understanding on topics related to fundamentals of semiconductor physics & semiconductor electronics-optoelectronics devices.

Teaching Evaluations:

- 1) Overall Quality of the Course: 5.0/5.0

- 2) Overall Instructor's Teaching Effectiveness: 4.90/5.0
- 3) Instructor knew the subject well: 5.0/5.0
- 4) Instructor was generally well prepared for the class: 5.0/5.0
- 5) Instructor was enthusiastic about teaching: 5.0/5.0

- **Spring 2004: ECE 392 "Advanced Independent Studies"** (for senior-level undergraduate students).
- **Fall 2004:** I developed a new course on *quantum mechanics for engineers*, which was offered on Fall 2004 as a senior / 1st-year-graduate level course **ECE 350/450-17 "Applied Quantum Mechanics for Engineers"** in the ECE department at Lehigh. This is the second new course that I introduce at Lehigh.

Teaching Evaluations:

- 1) Overall Quality of the Course: 4.43/5.0
- 2) Overall Instructor's Teaching Effectiveness: 4.64/5.0
- 3) Instructor knew the subject well: 5.0/5.0
- 4) Instructor was generally well prepared for the class: 5.0/5.0
- 5) Instructor was enthusiastic about teaching: 5.0/5.0

- **Fall 2004:** ECE 257 "Senior Design Projects" (for senior undergraduate students). ECE 257 is the first half of the senior design course for ECE students, with the continuing course ECE 258 to be offered in the Spring 2005. In this course, students (for those under my guidance) work on projects related to photonics and optoelectronics.
- **Spring 2005: ECE 308 "Physics and Models of Electronic and Optoelectronic Devices"** in the ECE department at Lehigh.

Teaching Evaluations:

- 1) Overall Quality of the Course: 4.67/5.0
- 2) Overall Instructor's Teaching Effectiveness: 4.71/5.0
- 3) Instructor knew the subject well: 4.83/5.0
- 4) Instructor was generally well prepared for the class: 5.0/5.0
- 5) Instructor was enthusiastic about teaching: 4.67/5.0

- **Spring 2005: ECE 258 "Senior Design Projects"** (for senior undergraduate students). ECE 258 is the second half of the senior design course for ECE students, with the first course ECE 257 offered in the Fall 2004. In this course, students (for those under my guidance) will be working on projects related to photonics and optoelectronics.
- **Fall 2005: ECE 350/450-17 "Applied Quantum Mechanics for Engineers"** in the ECE department at Lehigh, which was offered for senior / 1st-year-graduate level.

Teaching Evaluations:

- 1) Overall Quality of the Course: 5.0/5.0
- 2) Overall Instructor's Teaching Effectiveness: 4.92/5.0
- 3) Instructor knew the subject well: 5.0/5.0
- 4) Instructor was generally well prepared for the class: 5.0/5.0
- 5) Instructor was enthusiastic about teaching: 5.0/5.0

- **Fall 2005: ECE 492 "Pre-Dissertator Research"** (for graduate students).
- **Spring 2006: ECE 203 "Introduction to Electromagnetic Waves"** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.

Teaching Evaluations:

- 1) Overall Quality of the Course: 4.11/5.0
- 2) Overall Instructor's Teaching Effectiveness: 4.1/5.0
- 3) Instructor knew the subject well: 4.89/5.0
- 4) Instructor was generally well prepared for the class: 4.89/5.0
- 5) Instructor was enthusiastic about teaching: 4.96/5.0

- **Spring 2006: ECE 492 "Pre-Dissertator Research"** (for graduate students).
- **Fall 2006: ECE 202 "Introduction to Engineering Electromagnetic"** in the ECE department at Lehigh. The ECE 202 is the first course of the undergraduate engineering electromagnetic course offered for ECE junior students.

Teaching Evaluations:

- 1) Overall Quality of the Course: 4.15/5.0
- 2) Overall Instructor's Teaching Effectiveness: 4.38/5.0
- 3) Instructor knew the subject well: 4.92/5.0
- 4) Instructor was generally well prepared for the class: 4.77/5.0
- 5) Instructor was enthusiastic about teaching: 4.69/5.0

- **Fall 2006: ECE 350/450-17 "Applied Quantum Mechanics for Engineers"** in the ECE department at Lehigh, which was offered for senior / 1st-year-graduate level.

Teaching Evaluations:

- 1) Overall Quality of the Course: 4.80/5.0
- 2) Overall Instructor's Teaching Effectiveness: 4.80/5.0
- 3) Instructor knew the subject well: 5.0/5.0
- 4) Instructor was generally well prepared for the class: 5.0/5.0
- 5) Instructor was enthusiastic about teaching: 5.0/5.0

- **Fall 2006: ECE 308 “Physics and Models of Electronic and Optoelectronic Devices”** in the ECE department at Lehigh.
- **Fall 2006: ECE 492 “Pre-Dissertator Research”** (for graduate students).
- **Spring 2007: ECE 203 “Introduction to Electromagnetic Waves”** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 3.28/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 3.33/5.0
 - 3) Instructor knew the subject well: 4.89/5.0
 - 4) Instructor was generally well prepared for the class: 4.67/5.0
 - 5) Instructor was enthusiastic about teaching: 4.72/5.0
- **Spring 2007: ECE 492 “Pre-Dissertator Research”** (for graduate students).
- **Fall 2007: ECE 450-017 “Nitride Semiconductor Device Physics”** in the ECE department at Lehigh. The course is intended for graduate students on the physics and devices of III-Nitride and III-V-Nitride semiconductor optoelectronics and nanostructures. The course covers both the fundamental and applications of nitride semiconductors.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 5.0/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 5.0/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 5.0/5.0
 - 5) Instructor was enthusiastic about teaching: 4.75/5.0
- **Fall 2007: ECE 492 “Pre-Dissertator Research”** (for graduate students).
- **Spring 2008: ECE 203 “Introduction to Electromagnetic Waves”** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.62/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.48/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.95/5.0
 - 5) Instructor was enthusiastic about teaching: 5.0/5.0
- **Spring 2008: ECE 492 “Pre-Dissertator Research”** (for graduate students).
- **Fall 2008: ECE 350/450-17 “Applied Quantum Mechanics for Engineers”** in the ECE department at Lehigh, which was offered for senior / 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.80/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.80/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 5.0/5.0
 - 5) Instructor was enthusiastic about teaching: 5.0/5.0
- **Fall 2008: ECE 492 “Pre-Dissertator Research”** (for graduate students).
- **Spring 2009: ECE 203 “Introduction to Electromagnetic Waves”** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.40/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.47/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.93/5.0
 - 5) Instructor was enthusiastic about teaching: 4.73/5.0
- **Spring 2009: ECE 492 “Pre-Dissertator Research”** (for graduate students).
- **Fall 2009: ECE 350/450-17 “Applied Quantum Mechanics for Engineers”** in the ECE department at Lehigh, which was offered for senior / 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 5.0/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.88/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 5.0/5.0
 - 5) Instructor was enthusiastic about teaching: 5.0/5.0
- **Fall 2009: ECE 492 “Pre-Dissertator Research”** (for graduate students).
- **Spring 2010: ECE 203 “Introduction to Electromagnetic Waves”** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.68/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.53/5.0

- 3) Instructor knew the subject well: 4.89/5.0
 - 4) Instructor was generally well prepared for the class: 4.47/5.0
 - 5) Instructor was enthusiastic about teaching: 4.84/5.0
- **Fall 2010: ECE 350/450 “Applied Quantum Mechanics for Engineers”** in the ECE department at Lehigh, which was offered for senior / 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 5.0/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 5.0/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 5.0/5.0
 - 5) Instructor was enthusiastic about teaching: 5.0/5.0
 - **Fall 2010: ECE 492 “Pre-Dissertator Research”** (for graduate students).
 - **Fall 2010: ECE 451 “Semiconductor Physics and Devices”** in the ECE department at Lehigh, which was offered for 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.89/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.89/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 5.0/5.0
 - 5) Instructor was enthusiastic about teaching: 5.0/5.0
 - **Spring 2011: ECE 203 “Introduction to Electromagnetic Waves”** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.23/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.27/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.46/5.0
 - 5) Instructor was enthusiastic about teaching: 4.92/5.0
 - **Fall 2011: ECE 451 “Semiconductor Physics and Devices”** in the ECE department at Lehigh, which was offered for 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.89/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 5.0/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.89/5.0
 - 5) Instructor was enthusiastic about teaching: 4.78/5.0
 - **Spring 2012: ECE 203 “Introduction to Electromagnetic Waves”** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 3.83/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.04/5.0
 - 3) Instructor knew the subject well: 4.58/5.0
 - 4) Instructor was generally well prepared for the class: 4.46/5.0
 - 5) Instructor was enthusiastic about teaching: 4.54/5.0
 - **Fall 2012: ECE 451 “Semiconductor Physics and Devices”** in the ECE department at Lehigh, which was offered for 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.64/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.71/5.0
 - 3) Instructor knew the subject well: 4.93/5.0
 - 4) Instructor was generally well prepared for the class: 4.86/5.0
 - 5) Instructor was enthusiastic about teaching: 4.86/5.0
 - **Spring 2013: ECE 203 “Introduction to Electromagnetic Waves”** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 3.88/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 3.96/5.0
 - 3) Instructor knew the subject well: 4.92/5.0
 - 4) Instructor was generally well prepared for the class: 4.40/5.0
 - 5) Instructor was enthusiastic about teaching: 4.80/5.0
 - **Fall 2013: ECE 451 “Semiconductor Physics and Devices”** in the ECE department at Lehigh, which was offered for 1st-year-graduate level.
Teaching Evaluations:

- 1) Overall Quality of the Course: 4.71/5.0
 - 2) Overall Instructor's Teaching Effectiveness: 4.86/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.71/5.0
 - 5) Instructor was enthusiastic about teaching: 4.86/5.0
- **Spring 2014: ECE 203 "Introduction to Electromagnetic Waves"** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.39/5.0
 - 2) Overall Instructor's Teaching Effectiveness: 4.39/5.0
 - 3) Instructor knew the subject well: 4.86/5.0
 - 4) Instructor was generally well prepared for the class: 4.83/5.0
 - 5) Instructor was enthusiastic about teaching: 4.92/5.0
 - **Fall 2014: ECE 350/450 "Applied Quantum Mechanics for Engineers"** in the ECE department at Lehigh, which was offered for senior / 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.91/5.0
 - 2) Overall Instructor's Teaching Effectiveness: 5.0/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.91/5.0
 - 5) Instructor was enthusiastic about teaching: 5.0/5.0
 - **Spring 2015: ECE 203 "Introduction to Electromagnetic Waves"** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.32/5.0
 - 2) Overall Instructor's Teaching Effectiveness: 4.37/5.0
 - 3) Instructor knew the subject well: 4.95/5.0
 - 4) Instructor was generally well prepared for the class: 5.0/5.0
 - 5) Instructor was enthusiastic about teaching: 4.95/5.0
 - **Fall 2015: ECE 451 "Semiconductor Physics and Devices"** in the ECE department at Lehigh, which was offered for 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.78/5.0
 - 2) Overall Instructor's Teaching Effectiveness: 4.89/5.0
 - 3) Instructor knew the subject well: 4.94/5.0
 - 4) Instructor was generally well prepared for the class: 4.94/5.0
 - 5) Instructor was enthusiastic about teaching: 4.94/5.0
 - **Spring 2016: ECE 203 "Introduction to Electromagnetic Waves"** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.35/5.0
 - 2) Overall Instructor's Teaching Effectiveness: 4.51/5.0
 - 3) Instructor knew the subject well: 4.76/5.0
 - 4) Instructor was generally well prepared for the class: 4.62/5.0
 - 5) Instructor was enthusiastic about teaching: 4.78/5.0
 - **Fall 2016: ECE 451 "Semiconductor Physics and Devices"** in the ECE department at Lehigh, which was offered for 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.95/5.0
 - 2) Overall Instructor's Teaching Effectiveness: 4.95/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.95/5.0
 - 5) Instructor was enthusiastic about teaching: 5.0/5.0
 - **Winter 2016: ECE 450 "Engineering Teaching & Research Methods"** in the ECE department at Lehigh, which was offered for GAANN Fellowship recipients.
 - **Spring 2017: ECE 203 "Introduction to Electromagnetic Waves"** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.12/5.0
 - 2) Overall Instructor's Teaching Effectiveness: 4.28/5.0
 - 3) Instructor knew the subject well: 4.92/5.0
 - 4) Instructor was generally well prepared for the class: 4.32/5.0
 - 5) Instructor was enthusiastic about teaching: 4.88/5.0

- **Fall 2017: ECE 451 “Semiconductor Physics and Devices”** in the ECE department at Lehigh, which was offered for 1st-year-graduate level.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 4.65/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.80/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.95/5.0
 - 5) Instructor was enthusiastic about teaching: 5.0/5.0
- **Spring 2018: ECE 203 “Introduction to Electromagnetic Waves”** in the ECE department at Lehigh. The ECE 203 is the second course of the undergraduate engineering electromagnetic course offered for ECE junior students.
Teaching Evaluations:
 - 1) Overall Quality of the Course: 3.9/5.0
 - 2) Overall Instructor’s Teaching Effectiveness: 4.0/5.0
 - 3) Instructor knew the subject well: 5.0/5.0
 - 4) Instructor was generally well prepared for the class: 4.83/5.0
 - 5) Instructor was enthusiastic about teaching: 4.83/5.0
- **Fall 2018: ECE 350/450 “Applied Quantum Mechanics for Engineers”** in the ECE department at Lehigh [junior / senior and 1st year graduate students].
Teaching Evaluations:
 - 1) Instructor presented content in an organized manner: 4.82/5.0
 - 2) Instructor’s teaching methods contributed to my understanding of the course material: 4.55/5.0
 - 3) Instructor was responsive when I had difficulties or questions: 4.72/5.0
 - 4) The course increased my knowledge of the subject matter: 4.82/5.0
- **Spring 2019: ECE 402 “Advanced Engineering Electromagnetics”** in the ECE department at Lehigh [first-year graduate level].
Teaching Evaluations:
 - 1) Instructor presented content in an organized manner: 5.0/5.0
 - 2) Instructor’s teaching methods contributed to my understanding of the course material: 4.92/5.0
 - 3) Instructor was responsive when I had difficulties or questions: 5.0/5.0
 - 4) The course increased my knowledge of the subject matter: 5.0/5.0
- **Fall 2019: ECE 451 “Semiconductor Physics and Devices”** in the ECE department at Lehigh, which was offered for 1st-year-graduate level.
Teaching Evaluations:
 - 1) Instructor presented content in an organized manner: 4.94/5.0
 - 2) Instructor’s teaching methods contributed to my understanding of the course material: 4.82/5.0
 - 3) Instructor was responsive when I had difficulties or questions: 5.0/5.0
 - 4) The course increased my knowledge of the subject matter: 4.88/5.0
- **Selected Students’ Comments on Teaching (Quotes from Course Evaluation Reports)**
ECE 308 Physics of Semiconductor Electronics and Optoelectronics Devices (Spring 2004, Spring 2005): *Holy Wow! This class was awesome. I wish I would give him 6’s instead of 5’s (max is 5). It was a class that I really really enjoyed. It was hard, and I am afraid for my grade; but it was worth it. This professor, Prof. Tansu, is an absolutely wonderful teacher. This school needs more teachers like him. Wow, by far the most informative learning and yes to a certain degree the most enjoyable class I’ve ever taken at Lehigh. I can’t give him enough credit. Dr. Nelson Tansu knows the subject very well. Prof. Tansu is an excellent teacher. A lot of senior professors should learn from him how to teach well.*
ECE 350 / 450 Applied Quantum Mechanics (Fall 2004, Fall 2005, Fall 2006, Fall 2008): *I strongly think this course should be one of the core courses for ECE students, especially for students in the area of photonics. This course should be core course of ECE department. One of the best courses in ECE. This course should be made as one of the options of required courses for graduate students. GOOD JOB! The computational aspects of this course are very exciting! That really helped me to understand the materials much better. Very detailed instruction and this is helpful for most part. Prof. Tansu is probably one of the best professors I’ve had at Lehigh. He is very enthusiastic about teaching and helping students. He also makes the materials interesting to learn. The homework really help me learn the subject. It is kind of long and challenging, however I feel more accomplished after finishing it. Very knowledgeable and excellent instructor. Homework has been tough, but we learn a lot from it. This course should be made core course. All ECE graduate from Lehigh needs quantum mechanics in the nanotechnology era. This course was very informative. I learnt a great deal by taking this course. There was a lot to cover, but it was covered in a very systematic manner. The assignments were very challenging, and tested the concepts learnt in lectures. The notes provided by the instructor were exhaustive and very well prepared. Overall the experience of taking this course was very satisfying. This was possibly the best course that I have ever taken. I would recommend it to anyone willing to be challenged and excited by physics and engineering. Professor Tansu is an excellent teacher. It is a tough class, but I was impressed with Prof. Tansu’s ability to communicate the subject matter very well. I had fun in the class. Dr. Tansu presented the material in a clear and coherent manner. Very good class notes, and he is available for discussions at anytime. The course is very useful and interesting, and Prof. Tansu goes through the material very details.*

ECE 202 and ECE 203 Engineering Electromagnetics and Electromagnetic Waves (Spring 2006, Fall 2006, Spring 2007, Spring 2008): *Prof. Tansu has done it again, always very clear in teaching, very enthusiastic, and always available for conferences with students. If only other professors in Lehigh are like him...; The course was very interesting. The instructor exhibited sound knowledge of the subject; Overall, the course increased my (student's) knowledge of Electromagnetics; Excellent Job; Prof. Tansu was extremely enthusiastic about teaching, which really helped you pay attention in class; Instructor really cared about his students. Always available for extra help. Coursework was hard, but I learned a lot. Instructor also included more examples later in the course, which I like; I feel like I am much more solid on the EM topics, so overall I am pleased with the semester; It was a hard class, but well taught. Very good course, and Prof. Tansu was very helpful; lecture style was extremely clear and thorough; Great lecture, fast paced, and lots of works; Does excellent job of making sure everyone understands; very good course, taught well; This was a great course that was challenging and interesting, but fairly hard and much is expected; The packets of lecture notes at the end of each sections were very helpful; The professor was extremely enthusiastic about the course, and I greatly enjoyed it.*

Other Teaching Experiences:

- Other teaching experiences (Spring 2003): substitute lecturer for ECE 536 (Integrated Optoelectronics, 25-30 students), & ECE 335 (Semiconductor Devices, 70 students) at the University of Wisconsin-Madison. Samples of students' comments on my lectures: "(He) was exceptional in his performance of instructing the class", "If you are ever trying to decide who you should have substitute your class while you're away, definitely choose him", "Send him my compliments on the lecturing", "Personally, I've never had a better instructor than him for any engineering course".

Current Research Group Members

Current Research Scientists and Postdoctoral Fellows:

1. **Dr. Renbo Song** (Ph.D., Lehigh University), Scientist / Scientific Technical Manager at Lehigh University starting from Fall 2015 - present.

Current Graduate Students (PhD and MS Students):

PhD Candidates

1. **Matt Peart** (B.S., Villanova University), currently Ph.D. student at Lehigh University, starting from Summer 2015-present. [co-advised with Prof. Jonathan J. Wierer]
2. **Xiongliang Wei** (B.S., Huazhong University of Science and Technology), currently Ph.D. student at Lehigh University, starting from Summer 2015-present. [co-advised with Prof. Jonathan J. Wierer]
3. **Justin C. Goodrich** (B.S., Lehigh University), currently Ph.D. student at Lehigh University, starting from Summer 2016-present.
4. **Onoriode Ogidi-Ekoko** (B.S., Lehigh University; M.S., Lehigh University), currently Ph.D. student at Lehigh University, starting from Fall 2016-present.
5. **Syed Ahmed Al Mueeed** (B.S., Dhaka University; M.S., Dhaka University), currently Ph.D. student at Lehigh University, starting from Summer 2016-present. [co-advised with Prof. Jonathan J. Wierer]
6. **Haotian Xue** (B.S., University of Science and Technology of China, China), currently Ph.D. student at Lehigh University, starting from Fall 2018-present.
7. **Hanlin Fu** (B.S., University of Science and Technology of China, China; M.S., Lehigh University), currently Ph.D. student at Lehigh University, starting from Summer 2019-present.

MS Candidates

8. **Wen Liang** (B.S., Harbin Institute of Technology, China), currently M.S. student at Lehigh University, starting from Fall 2018-present.

Current Undergraduate Students:

1. **Chen Zhao** (B.S., Lehigh University), B.S. Candidate (Class of 2020) at Lehigh University, Summer 2019 - present. Research topic: III-nitride semiconductors lasers
2. **Evan Chansky** (B.S., Lehigh University), B.S. Candidate (Class of 2020) at Lehigh University, Fall 2019 - present. Research topic: optical gain measurements in III-nitride semiconductors nanostructures.

Outreach High School Students:

1. **Ronak Singh** (11th Grade, Parkland High School, Allentown, PA), Fall 2018 - present. Research Works on: Nanophotonics Technologies
2. **(Ms.) Ankhitha Manjunatha** (11th Grade, Parkland High School, Allentown, PA), Fall 2018 - present. Research Works on: Nanophotonics Technologies

Research Group Alumni

PhD Alumni:

1. **Dr. Ronald A. Arif** (B.S. with 1st class honor, Nanyang Technological University, Singapore; MS, Lehigh University), Ph.D., Lehigh University (July 2008). Period: Jan 2004-July 2008.
Thesis: Polarization Engineering and Approaches for High-Performance III-Nitride Light Emitters
Awards: Sherman Fairchild Fellowship on Solid State Studies (2006-2007).
Current Position: Senior Research Scientist / Member of Technical Staff at VEECO, Inc. (Somerset, NJ); Formerly Member of Technical Staff in Epi R&D Group at Cree, Inc. (Durham, NC)
<https://www.linkedin.com/in/ronald-arif-4bb5aa7>
2. **Dr. Yik-Khoon Ee** (B.S. with 1st class honor, Nanyang Technological University, Singapore; MS, Lehigh University), Ph.D., Lehigh University (November 2009). Period: June 2005-November 2009.
Thesis: Reduced Dislocation Engineering and Enhanced Light Extraction Efficiency of III-Nitride Light Emitting Diodes
Awards: Sherman Fairchild Fellowship on Solid State Studies (2007-2008).
Current Position: Engineering Program Manager - Display Hardware Technologies at Apple (Cupertino, CA); Formerly Senior Development Engineer and Engineering Manager at Philips Lumileds (San Jose, CA)
<https://www.linkedin.com/in/yik-khoon-brandon-ee-a257a414>
3. **Dr. Hua Tong** (B.S. with Rank 1st in Class, Tsinghua University, China; MS, Tsinghua University, China); Ph.D., Lehigh University (August 2010); Postdoctoral, Lehigh University (August 2010-November 2010). Period in Group: October 2006 – November 2010.
Thesis: Thermoelectric Characteristics and Measurements of Ternary III-Nitride Semiconductors
Awards: The Anadigics Fellowship
Current Position: MOCVD Scientist / Member of Technical Staff at Valence Process Equipment (Malvern, PA)
<https://www.linkedin.com/in/huatong>
4. **Prof. (Ms.) Hongping Zhao** (B.S. with Rank 2nd / 250, Nanjing Normal University, China; MS with Rank 1st / 135, Southeast University, China); Ph.D., Lehigh University, (Jan 2007-October 2010); Postdoctoral, Lehigh University (November 2010-May 2011). Period in Group: January 2007 – May 2011.
Thesis: Enhancement of Internal Quantum Efficiency and Optical Gain for Nitride Light-Emitting Diodes and Laser Diodes
Awards: The 2008 SPIE Educational Scholarship on Optical Science and Engineering, Sherman Fairchild Fellowship on Solid State Studies (2008-2009), The 2009 SPIE Educational Scholarship on Optical Science and Engineering, Rossin Doctoral Fellowship (2010).
Current Position: Tenured Associate Professor (August 2017-present), ECE Department, Ohio State University (Columbus, OH).
Past Position: Tenure-Track Assistant Professor (Summer 2011-July 2017), Department of Electrical Engineering and Computer Sciences, Case Western Reserve University (Cleveland, OH);
<https://ece.osu.edu/people/zhao.2592>
https://scholar.google.com/citations?user=r6v_dc8AAAAJ&hl=en
5. **(Ms.) Guangyu Liu** (B.S. with Rank 2nd in Class, Huazhong University of Science and Technology, China), Ph.D., Lehigh University, (June 2008 – May 2013); Postdoctoral, Lehigh University (June 2013 – August 2013). Period in Group: June 2008 – August 2013.
Thesis: Device Engineering for Internal Quantum Efficiency Enhancement and Efficiency Droop Issue in III-Nitride Light-Emitting Diodes
Awards: Dean's Assistantship Fellowship (2008-2009), Sherman Fairchild Fellowship on Solid State Studies (2009 - 2010), Sherman Fairchild Fellowship on Solid State Studies (2012-2013), The 2012 SPIE Educational Scholarship in Optics and Photonics.
Current Position: Member of Technical Staff at Intel R&D Group (Hillsboro, OR)
<https://scholar.google.com/citations?user=hORCybsAAAAJ&hl=en>
6. **Prof. (Ms.) Jing Zhang** (B.S., Huazhong University of Science and Technology, China), Ph.D., Lehigh University, (June 2009 – May 2013); Postdoctoral, Lehigh University (June 2013 – August 2013). Period in Group: June 2009 – August 2013.
Thesis: Ternary III-Nitride Semiconductors for Thermoelectricity and Light Emitters
Awards: Dean's Assistantship Fellowship (2009-2010), Sherman Fairchild Fellowship on Solid State Studies (2010 - 2011), Sherman Fairchild Fellowship on Solid State Studies (2012-2013), The 2012 SPIE Educational Scholarship in Optics and Photonics.
Past Position: Tenure-Track Assistant Professor (Fall 2013 – Summer 2014), Department of Physics, St. John's University (New York, NY)
Current Position: Kate Gleason Endowed (Tenure-Track) Assistant Professor (Fall 2014-present), Department of Electrical and Microelectronics Engineering, Rochester Institute of Technology (Rochester, NY)
<http://www.rit.edu/kgcoe/staff/jing-zhang> [NSF CAREER Recipient 2018]
<https://scholar.google.com/citations?user=FOqP658AAAAJ&hl=en>

7. **Prof. (Ms.) Peifen Zhu** (B.S., Liaocheng University, China; M.S., Jilin University, China; M.S., Texas Tech University), Ph.D., Lehigh University, (June 2011 – December 2014). Period in Group: June 2011 – December 2014.
Thesis: Light Extraction and Nanomaterials for III-Nitride Based White Light-Emitting Diodes
Awards: Dean's Assistantship Fellowship (2011-2012), Sherman Fairchild Fellowship on Solid State Studies (2014 - 2015).
Current Position: Assistant Professor (Fall 2014 - present), Department of Physics and Engineering Physics, University of Tulsa (Tulsa, OK)
<https://faculty.utulsa.edu/~peifen-zhu> [NSF CAREER Recipient 2020]
<https://scholar.google.com/citations?user=9qEoPVYAAAAJ>
8. **Prof. Chee-Keong Tan** (B.S. with 1st Class Honor, University of Sheffield, UK), Ph.D. Lehigh University (July 2011- July 2016). Period in Group: July 2011 – July 2016.
Thesis: Dilute-Anion III-Nitride Semiconductor Materials and Nanostructures
Awards: Dean's Assistantship Fellowship (2011-2012). CPN Graduate Fellowship (2014-2015), 2015 SPIE Educational Scholarship on Optical Science and Engineering, 2016 SPIE Educational Scholarship on Optical Science and Engineering
Current Position: Assistant Professor (Fall 2016 - present), Department of Electrical and Computer Engineering, Clarkson University (Potsdam, NY)
http://www.clarkson.edu/ece/faculty_staff/faculty/tan.html
<https://scholar.google.com/citations?user=Xvu7eSAAAAAJ&hl=en>
https://www.researchgate.net/profile/Chee-Keong_Tan
9. **Dr. Guosong Zeng** (B.S., Tianjin University, China; M.S., Lehigh University), Ph.D. in Mechanical Engineering, Lehigh University (July 2012-July 2017). Period in Group: Jan 2014 – June 2017.
Thesis: Investigation of Wear Mechanism of Gallium Nitride
Awards: 2017 STLE Graduate Fellowship Award
Current Position: Member of Technical Staff, Lawrence Berkeley National Laboratory (Berkeley, CA)
<https://scholar.google.com/citations?user=ucvx4yEAAAAJ&hl=en>
https://www.researchgate.net/profile/Guosong_Zeng
<https://www.linkedin.com/in/guosong-zeng-4991a941/>
10. **Dr. Wei Sun** (B.S., Beijing Institute of Technology, China; M.S., Lehigh University), Ph.D. in Electrical Engineering, Lehigh University (Spring 2014-April 2019). Period in Group: February 2014 – April 2019.
Awards: Dean's Assistantship Fellowship (2014-2015).
Thesis: Band Structure Engineering and Material Synthesis in Nanoscale III-Nitride
Current Position: Member of Technical Staff, Finisar / II-VI Incorporated (Sherman, TX)
<https://scholar.google.com/citations?hl=en&user=rOKd6wkAAAAJ>
<https://www.linkedin.com/in/weisun87/>
https://www.researchgate.net/profile/Wei_Sun135
11. **Dr. Ioannis E. Fragkos** (B.S., University of Crete, Greece; M.S., University of Crete, Greece), Ph.D. in Electrical Engineering, Lehigh University (January 2014-April 2019). Period in Group: Summer 2015 – April 2019.
Thesis: GaN:Eu and InGaN based Active Regions for Long Wavelength Emission
Current Position: Laser Design Engineer, Rockley Photonics Inc. (Pasadena, CA)
<https://scholar.google.com/citations?user=pgy70IIAAAAJ&hl=en>
<https://www.linkedin.com/in/ioannis-e-fragkos-582aa97a/>
https://www.researchgate.net/profile/Ioannis_Fragkos2
12. **Dr. Damir Borovac** (B.S., Lehigh University), Ph.D. in Electrical Engineering, Lehigh University (June 2015-May 2020).
Thesis: Physics and Materials of Dilute-Anion and AllnN III-Nitride Semiconductors
<https://scholar.google.com/citations?hl=en&user=XORg5psAAAAJ>
<https://www.linkedin.com/in/damirborovac/>

Former Post-Doc/Research Scientist:

1. **Dr. (Ms.) Ming Han** (B.S., Zhejiang University, China; M.S., Beijing University, China; Ph.D., Columbia University; Post-Doctoral at Lehigh University).
Current Position: Member of Technical Staff at CyOptics, Inc. (Breinigsville, PA, USA)
2. **Dr. Jizhong Li** (B.S., Qufu Normal University, China; M.S., Shandong University, China; Ph.D., Kansas State University; Post-Doctoral at North Carolina State University, Research Fellow / Scientist at Lehigh University).
Current Position: Member of Technical Staff at VEECO, Inc. (Somerset, NJ, USA)
3. **Dr. M. Jamil** (B.S., Quaid-i-Azam University, Pakistan; M.S., SUNY - Albany; Ph.D., State University of New York - Albany), Post-Doctoral Research Fellow at Lehigh University starting from August 2006 – July 2008).
Current Position: Member of Technical Staff, Crystal IS, Inc., (Troy, NY).
4. **Dr. G. S. Huang** (B.S., Shandong University, China; M.S., Shandong University, China; Ph.D., Chinese Academy of Sciences, China; Postdoctoral, Nanyang Technological University and National Chiao-Tung University), Post-Doctoral Research Fellow at Lehigh University from August 2007 – December 2010.
Current Position: MOCVD Engineer at Aixtron, Inc (Sunnyvale, CA, USA).

5. **Dr. Juan Herbsommer** (B.S., Universidad Nacional de Cuyo, Argentina; Ph.D., Universidad Nacional de Cuyo, Argentina; Postdoctoral, Bell Laboratories - Lucent Technologies), Visiting Scientist at Lehigh University from July 2008 – December 2010.
Current Position: Senior Technologist at Texas Instruments, Inc. (Dallas, TX, USA)
<https://www.linkedin.com/in/juan-herbsommer-30177915> .
6. **Dr. Marco Mastrapasqua** (Ph.D., Politecnico di Milano, Milano Italy; Postdoctoral, Bell Laboratories - Lucent Technologies), Visiting Scientist at Lehigh University from Fall 2009 till Spring 2011.
Current Position: President of Ciel Semiconductor (Lebanon, NJ)
7. **Dr. Renbo Song** (B.S., Shandong University, China; MS, Shandong University, China; Ph.D., Lehigh University, July 2009), Visiting Scientist at Lehigh University from April 2010 – June 2011.
Current Position: MOCVD Scientist / Member of Technical Staff at Valence Process Equipment (Malvern, PA)
8. **Dr. Benjamin O. Tayo** (B.S., University of Bueau, Cameroon; MS, University of Trieste, Italy; Ph.D., Lehigh University, July 2012), Visiting Scientist at Lehigh University from Fall 2012 till Spring 2013.
Current Position: Assistant Professor, Department of Physics, Pittsburgh State University (Pittsburgh, KS)
9. **Dr. Te Li** (Ph.D., Chinese Academy of Sciences, China; Postdoctoral, Nanyang Technological University, Singapore), Postdoctoral / Visiting Scientist at Lehigh University starting from Fall 2013 – April 2015.
Current Position: Assistant Professor, Department of Physics, Changchun University of Science and Technology (CUST), China.

MS / MEng Alumni (by Research):

1. **Ronald A. Arif** (B.S. with 1st class honor, Nanyang Technological University, Singapore; MS, Lehigh University), MS in Electrical Engineering, Lehigh University, January 2004-December 2005.
2. **Zhian Jin** (B.S., Shanghai Jiao Tong University, China), MS in Electrical Engineering, Lehigh University, September 2004-May 2006.
3. **Jason R. Haas** (B.S. with Honors, Lehigh University), M.S. in Electrical Engineering (Presidential Scholar), Lehigh University, June 2005-August 2006.
4. **Yik Khoon Ee** (B.S. with 1st class honor, Nanyang Technological University, Singapore; MS, Lehigh University), MS in Electrical Engineering, Lehigh University, Summer 2005-May 2007.
5. **Ravi Sekhar Tummididi** (B.E. with 1st Class Distinction, Maharashtra University, India; MS, Lehigh University), MS in Electrical Engineering, Lehigh University, Fall 2005-May 2007.
6. **Ms. Tidapan Sursattayawong** (B.S., Chulalongkorn University, Thailand; M.S., Chulalongkorn University, Thailand), MS in Electrical Engineering, Lehigh University, Fall 2008-May 2010.
Awards: Royal Thai Fellowship (2008-2010).
7. **Vincent A. Handara** (B.S., University of Wisconsin-Madison), MS in Electrical Engineering, Lehigh University, Fall 2008-May 2010.
8. **Shaofei Zhang** (B.S., Nanjing Institute of Technologies, China), MS in Electrical Engineering, Lehigh University, Fall 2008-May 2010.
9. **Joseph B. Mulhern** (B.S., Villanova University), MS in Energy Systems Engineering, Lehigh University, Summer 2009-May 2010.
10. **Nan-Lung Wu** (B.S., National Sun-Yat-Sen University, Taiwan), M.S. in Mechanical Engineering, Lehigh University Spring 2009-December 2010.
11. **Xiao-Hang Li** (B.S. with Rank 1st in Class, Huazhong University of Science and Technology, China), M.S. in Electrical Engineering, Lehigh University, Summer 2008-May 2011. [currently: Assistant Professor, King Abdullah University of Sciences and Technologies]
<https://www.kaust.edu.sa/en/study/faculty/xiaohang-li>
<https://scholar.google.com/citations?user=y2AAXjwAAAAJ&hl=en>
12. **(Ms.) Guangyu Liu** (B.S. with Rank 2nd in Class, Huazhong University of Science and Technology, China), M.S. in Electrical Engineering, Lehigh University, Summer 2008-May 2011.
13. **Takahiro Toma** (B.S., Ritsumeikan University, Japan; M.S., Ritsumeikan University, Japan), M.S. in Electrical Engineering, Lehigh University, Fall 2009-May 2011.
14. **Nicholas Lacroce** (B.S., Shippensburg University), M.S. in Electrical Engineering, Lehigh University, Fall 2014-Summer 2016.
15. **Matt Peart** (B.S., Villanova University), M.S. in Electrical Engineering, Lehigh University, Summer 2015-Summer 2016. [co-advised with Prof. Jonathan J. Wierer]
16. **Xiongliang Wei** (B.S., Huazhong University of Science and Technology), M.S. in Photonics, Lehigh University, Summer 2014-Summer 2016. [co-advised with Prof. Jonathan J. Wierer]
17. **Mark J. Dipsey** (B.S., Lehigh University), M.S. in Electrical Engineering, Lehigh University, Summer 2015-Summer 2016. <https://www.linkedin.com/in/mark-dipsey-24205459>
18. **(Ms.) Liangyue Yan** (B.S., Zhejiang Normal University), M.S. in Electrical Engineering, Lehigh University, Fall 2014-Summer 2016.
19. **(Ms.) Yiming Zhong** (B.S., Nanjing University), M.S. in Electrical Engineering, Lehigh University, Fall 2015-May 2017.
20. **Hanlin Fu** (B.S., University of Science and Technology of China, India), M.S. in Electrical Engineering, Lehigh University, Fall 2016-Dec 2017.

21. **Austin M. Slosberg** (B.S., Univ of Rochester), M.S. in Electrical Engineering, Lehigh Univ, Summer 2016-Dec 2017.
22. **Jiaheng Wu** (B.S., Sun Yat Sen University, China), M.S. in Electrical Engineering, Lehigh University, Fall 2017-Spring 2019.

Former Undergraduate Students:

1. **Sean Anderson** (B.S., Lehigh University), completed PhD degree in the Institute of Optics at the Univ of Rochester. <https://www.linkedin.com/in/seanpanderson>
2. **Touhid Choudhury** (B.S., Lehigh University), Summer 2004. Touhid graduated with his MS in EE at Lehigh Univ.
3. **Bilal M. Khan** (B. S., Lehigh University), Fall 2004-Spring 2005, currently pursuing PhD in EE at Cornell University.
4. **Rajiv Methora** (B.S., Lehigh University), Fall 2004-Spring 2005. Rajiv had graduated with his MS degree in ISE at Lehigh University. Currently, Mr. Methora works as Financial Analyst for Ernst and Young (New York City, NY). <https://www.linkedin.com/in/rajivmehrotrarm>
5. **Aziz Iqbal** (B.S., Lehigh University), Fall 2004-Spring 2005. Aziz currently works as engineer for Black and Decker.
6. **Brandon R. Davis** (B.S., Lehigh University), B.S. Candidate (Class of 2007) at Lehigh University starting from Fall 2006-Spring 2007. Research Works on: Design and Fabrication of Nitride-Based Distributed Bragg Reflectors. Currently, Mr. Davis is pursuing his MS degree at Lehigh University.
7. **Steven J. Millman** (B.S., Lehigh University), B.S. Candidate (Class of 2007) at Lehigh University starting from Fall 2006-Spring 2007. Research Works on: Design and Fabrication of Nitride-Based Distributed Bragg Reflectors. Currently, Mr. Millman is pursuing his MS degree at Lehigh University.
8. **Yush P. Gupta** (B.S., Carnegie Mellon University), B.S. Candidate (Class of 2010) at Carnegie Mellon University, from May 2007- Aug 2007. Research Works on: Modeling of Surface Plasmon Devices.
9. **Samuel B. Wechsler** (B.S., Lehigh Univ), B.S. Candidate (Class of 2008) at Lehigh Univ, Summer 2007-Fall 2007. Research Works on: Nanopatterning of SiO₂ Mask for Selective Area Epitaxy of InGaN-GaN Light Emitting Diodes.
10. **Brian S. Berner** (B.S., Lehigh University), B.S. Candidate (Class of 2010) at Lehigh University, Fall 2007. Research Works on: Modeling of InN-Based Semiconductor Solar Cells.
11. **Ms. Alexandra M. Driscoll** (B.S., Lehigh University), B.S. Candidate (Class of 2009) at Lehigh University, Summer 2008. Research Works on: Characterization of Staggered InGaN Quantum Well Light Emitting Diodes. (co-advised with Prof. V. Dierolf, Physics, Lehigh)
12. **Steven Paro** (B.S., Lehigh University), B.S. Candidate (Class of 2009) at Lehigh University, Spring 2008. Research Works on: Radiative Heat Transfer of Nano-scale Devices.
13. **Jason Tremmel** (B.S., Lehigh University), B.S. Candidate (Class of 2009) at Lehigh University, Fall 2008 - Spring 2009. Research Works on: High Efficiency III-Nitride Solar Cells.
14. **Christopher Spagna** (B.S., Lehigh University), B.S. Candidate (Class of 2009) at Lehigh University, Fall 2008 - Spring 2009. Research Works on: High Efficiency III-Nitride Solar Cells.
15. **Alexander C. Wendt** (B.S., Lehigh University), B.S. Candidate (Class of 2010) at Lehigh University, Summer 2009 – May 2010. Research Works on: Modeling of Single Mode High Power VCSELs. <https://www.linkedin.com/in/alex-wendt-92b12680>
16. **Greg D. Roberts** (B.S., University of California – Berkeley), B.S. Candidate (Class of 2015) at University of California – Berkeley, Summer 2012. Research Works on: Visible Light Communications.
17. **Nicholas J. Stein** (B.S., Lafayette College), B.S. Candidate (Class of 2013) at Lafayette College, Summer 2012. Research Works on: Solar Cells Measurements and Characterizations.
18. **Michael H. Wilson** (B.S., Lehigh University), B.S. Candidate (Class of 2014) at Lehigh University, Summer 2012. Research Works on: Visible Light Communications.
19. **Peter O. Weigel** (B.S., Lehigh University), B.S. Candidate (Class of 2013) at Lehigh University, Fall 2011 – Spring 2013. Research Works on: Light Extraction in III-Nitride Light-Emitting Diodes. <https://www.linkedin.com/in/peter-weigel-66092733>
20. **Nicholas Lay** (B.S., Lehigh University), B.S. Candidate (Class of 2014) at Lehigh University, Fall 2012. Research Works on: Grating-Based LEDs.
21. **Justin C. Goodrich** (B.S., Lehigh University), B.S. Candidate (Class of 2014) at Lehigh University, Fall 2013-Spring 2014. Research Works on: Visible Light Communications.
22. **Alex Kyritsis** (B.S., Lehigh University), B.S. Candidate (Class of 2014) at Lehigh University, Fall 2013-Spring 2014. Research Works on: Visible Light Communications.
23. **Brento H. Dantas** (B.S., Universidade Federal de Pernambuco (UFPE), Brazil), B.S. Candidate (Class of 2016), Summer 2015. Research Works on: Nanostructures for White LEDs
24. **(Ms.) Weihe Chen** (B.S., Lehigh University), B.S. Candidate (Class of 2017) at Lehigh University, Summer 2014 – Summer 2015. Research Works on: Waveguide Engineering in VCSELs
25. **Nicholas Trivelis** (B.S., Lehigh University), B.S. Candidate (Class of 2017) at Lehigh University, Spring 2015 – Summer 2015. Research Works on: Flexible Electronics
26. **Ricardo Alvarez** (B.S., Lehigh University), B.S. Candidate (Class of 2017) at Lehigh University, Summer 2015. Research Works on: Flexible Electronics
27. **Eric J. Harrold** (B.S., Lehigh University), B.S. Candidate (Class of 2018) at Lehigh University, Summer 2016 – Fall 2016. Research Works on: III-nitride semiconductors photoacoustic devices

28. **Eric T. Reid** (B.S., Lehigh University), B.S. Candidate (Class of 2017) at Lehigh University, Summer 2015 – Summer 2017. Research Works on: III-nitride semiconductors electronics
29. **(Ms.) Korey Finn** (B.S., Lehigh University), B.S. Candidate (Class of 2017) at Lehigh University, Summer 2016 – May 2017. Research Works on: Visible light communications
30. **Zachary Brogie** (B.S., Lehigh University), B.S. Candidate (Class of 2017) at Lehigh University, Summer 2016 – May 2017. Research Works on: Visible light communications
31. **(Ms.) Katharine Porfirio** (B.S., Lehigh University), B.S. Candidate (Class of 2017) at Lehigh University, Summer 2016 – May 2017. Research Works on: Touchscreen technologies
32. **Ross Zimmerman** (B.S., Lehigh University), B.S. Candidate (Class of 2018) at Lehigh University, Summer 2017 – Spring 2018. Research Works on: III-nitride semiconductors lasers
33. **Xiaotong Ye** (B.S., Lehigh University), B.S. Candidate (Class of 2019) at Lehigh University, Summer 2018 – Spring 2019. Research Works on: III-nitride semiconductors lasers
34. **Kyle Wojciechowski** (B.S., Lehigh University), B.S. Candidate (Class of 2019) at Lehigh University, Summer 2018 – Spring 2019. Research Works on: Wearable technologies for healthcare
35. **Michael Sullivan** (B.S., Lehigh University), B.S. Candidate (Class of 2019) at Lehigh University, Fall 2018 – Spring 2019. Research Works on: Wearable technologies for healthcare

Former Outreach High School Students:

1. **Yush P. Gupta** (10th, 11th, and 12th Grade, Moravian Academy, Bethlehem, PA), Summer 2004, Summer 2005, Summer 2006, currently an undergraduate student in Electrical and Computer Engineering at Carnegie Mellon Univ. Research Works on: Quasi-Guided VCSELs and Q-FDTD Modeling of Quantum Dots Nanostructure. <https://www.linkedin.com/in/yush-gupta-6265a822>
Present Role: Entrepreneur and CTO / Co-Founder of LibertyX (Tech Start Up)
2. **David M. Schindler** (11th Grade, Moravian Academy, Bethlehem, PA), Summer 2005, currently an undergraduate student in Electrical and Computer Engineering at Rensselaer Polytechnic Institute. Research Works on: Design and Modeling of Quasi-Guided VCSELs.
3. **Nathaniel C. Thomas** (12th Grade, Palisades High School, Kintnersville, PA), Fall 2006-Spring 2007, currently an undergraduate student in Physics and Mathematics at Massachusetts Institute of Technology. Research Works on: Modeling of Electronics Properties of Quantum Dots Nanostructures. <https://www.linkedin.com/in/nathaniel-thomas-18603079>
Selected Awards: NSF Graduate Fellowship (2012-2018), Marshall Scholarship (2011)
4. **Ms. Kavita Jain-Cocks** (12th Grade, Moravian Academy, Bethlehem, PA), Summer 2009. Research Works on: Characterizations of III-Nitride Light-Emitting Diodes.
5. **Ms. Callie Woods** (12th Grade, Moravian Academy, Bethlehem, PA), Summer 2009. Research Works on: Characterizations of III-Nitride Light-Emitting Diodes.
6. **Ms. Stephanie Mark** (11th Grade, Liberty High School, Bethlehem, PA), Summer 2010. Research Works on: Modeling of Single Mode High Power VCSELs.
7. **Milind Jagota** (11th Grade, Liberty High School, Bethlehem, PA), Summer 2014 – Summer 2016. Research Works on: Transparent Conducting Layers via Nanostructures
Awards: Intel International Science and Engineering Fair (4th Place National), Siemens Competition in Math, Science & Technology (3rd Place National; Top 1st in Regional V), 2016 Intel STS Science Talent Competition (2nd Place National).

Reference List for Nelson Tansu**1. Prof. Luke J. Mawst (IEEE Fellow)**

Full Professor
Department of Electrical and Computer Engineering
Reed Center for Photonics
University of Wisconsin-Madison
1415 Engineering Dr., Madison, WI 53706, USA
Email: mawst@engr.wisc.edu, Phone: 1-(608)-263-1705

NAE: U.S. National Academy of Engineering
NAI: U.S. National Academy of Inventors
IEEE: Inst. of Electrical & Electronics Engr.
OSA: The Optical Society of America

2. Prof. James J. Coleman (IEEE Fellow, OSA Fellow, NAE Member, NAI Fellow)

Intel Alumni Endowed Chair Professor Emeritus in Engineering, University of Illinois-Urbana Champaign
Presidential Distinguished Professor, Department of Electrical Engineering, University of Texas – Arlington
Arlington, TX 76019, USA
Email: james.coleman@uta.edu

3. Prof. Thomas L. Koch (IEEE Fellow, OSA Fellow, NAE Member, NAI Fellow)

Dean, College of Optical Sciences
Professor, College of Optical Sciences
& Department of Electrical and Computer Engineering
University of Arizona
1630 E. University Blvd., Tucson, AZ 85721
E-mail: tkoch@optics.arizona.edu, Phone: 520-621-2448

4. Prof. Dan Botez (IEEE Fellow, OSA Fellow)

Philip Dunham Reed Professor
Department of Electrical and Computer Engineering
Reed Center for Photonics, Director
University of Wisconsin-Madison
1415 Engineering Dr., Madison, WI 53706, USA
Email: botez@engr.wisc.edu, Phone: 1-(608)-263-4643

5. Prof. James S. Harris (IEEE Fellow, OSA Fellow, NAE Member)

James and Ellenor Chesebrough Professor
Department of Electrical Engineering
& Department of Applied Physics
& Department of Material Science and Engineering
Stanford University
Paul G. Allen Center for Integrated Systems, Rm. 328, Stanford, CA 94305, USA
Email: harris@snowmass.stanford.edu, Phone: 1-(650) 723-9775

6. Prof. Theodore Moustakas (IEEE Fellow, APS Fellow, ECS Fellow, NAI Fellow)

Emeritus, Distinguished Professor of Photonics and Optoelectronics
Department of Electrical and Computer Engineering
Division of Material Science and Engineering
Department of Physics
Photonics Center
Boston University
8 Saint Mary's Street, Boston, MA 02215
Email: tdm@bu.edu

7. Prof. Yong-Hang Zhang (IEEE Fellow, OSA Fellow)

Associate Dean for Research and Professor
Ira Fulton Schools of Engineering
School of Electrical, Computer, and Energy Engineering
Arizona State University
Tempe, A Z 85287-5706
Email: yhzhang@asu.edu
Phone: 480-965-2562

- 8. Prof. Carmen S. Menoni (IEEE Fellow)**
Distinguished Professor of Electrical and Computer Engineering
Colorado State University
Fort Collins, CO 80523-1373
Tel: 970.491.8659
Email: c.menoni@ieee.org
- 9. Prof. Thomas F. Kuech (NAE Member)**
Milton J. and A. Maude Shoemaker and Beckwith-Bascom Professor
Department of Chemical and Biological Engineering
Department of Materials Science and Engineering
University of Wisconsin-Madison
Email: fkuech@wisc.edu
- 10. Prof. Chennupati Jagadish AC (IEEE Fellow, NAI Fellow, NAE Member)**
Distinguished Professor
Department of Electronic Materials Engineering
Research School of Physical Sciences and Engineering
The Australian National University
Canberra, ACT 2601, Australia
Tel: 61-2-6125-0363, FAX: 61-2-6125-0511,
Email: chennupati.jagadish@anu.edu.au
- 11. Prof. Xiuling Li (IEEE Fellow)**
Professor
Electrical and Computer Engineering
University of Illinois – Urbana Champaign
2262 Micro and Nanotechnology Lab
208 N. Wright Street, Urbana, IL 61801
(217) 265-6354
xiuling@illinois.edu
- 12. Prof. Steven P. DenBaars (IEEE Fellow, NAE Member, NAI Fellow)**
Mitsubishi Distinguished Professor, Materials
Distinguished Professor, Electrical & Computer Engineering
University of California, Santa Barbara
Santa Barbara, CA 93106-5050
(805) 893-8511
denbaars@engineering.ucsb.edu
- 13. Prof. Hao-Chung Kuo (IEEE Fellow, OSA Fellow)**
Distinguished Professor
Department of Photonics
National Chiao Tung University
Hsinchu, ROC
hckuo@faculty.nctu.edu.tw
- 14. Dr. Aref Chowdhury (Bell Labs Fellow, OSA Fellow)**
Chief Technology Officer Optics
Nokia Bell Labs
600 Mountain Avenue, Murray Hill, NJ 07974
Email: arefc@bell-labs.com
Phone: (908) 582-2173
- 15. Prof. S. David Wu (IIE Fellow)**
President-Designate of Baruch College, City University of New York (starting on July 1st, 2020)
Provost and Executive Vice President, George Mason University
Former Dean (2005-2014), College of Engineering and Applied Sciences, Lehigh University
Email: davidwu@gmu.edu
Phone: (703) 993-8776