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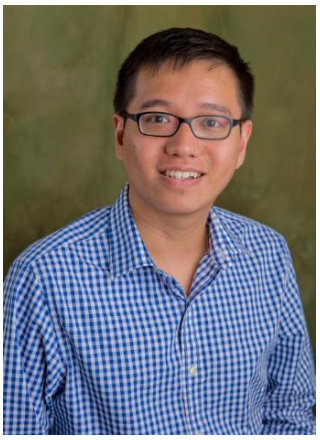
Information updated up to: ***November 2020***



Contact Information

Chee-Keong Tan, Ph.D.
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Department of Electrical and Computer Engineering
Wallace H. Coulter School of Engineering
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Research Group Website : https://webspace.clarkson.edu/~ctan/

Birth Date and Place & Citizenship

July 1988, Georgetown, Penang State, Malaysia;
Residency status: Currently US Permanent Resident (Green card holder)

Education

July 2011 – July 2016, ***Lehigh University (Bethlehem, Pennsylvania, USA)***
Ph.D. in Electrical Engineering, Department of Electrical and Computer Engineering

- Research Assistant, PhD Advisor: Prof. Nelson Tansu (ECE, Lehigh)
- Title: Dilute-Anion Nitride Semiconductor Materials and Nanostructures Design for Device Applications
- Research Areas: III-Nitride semiconductor materials and nanostructures for solid state lighting technologies.

Sep. 2008 – Jul. 2011, ***University of Sheffield (Sheffield, South Yorkshire, United Kingdom)***
Bachelor of Engineering (B.Eng.) in Electrical Engineering, Department of Electronic and Electrical Engineering

- Sheffield graduate award of University of Sheffield
- Thesis: Comparison of bulk and quantum well dilute nitride
- Graduate with First Class honors

Professional Experiences

August 2016 – present, ***Clarkson University (Potsdam, New York, USA)***
Tenure-Track Assistant Professor
Department of Electrical and Computer Engineering (ECE)
Wallace H. Coulter School of Engineering

July 2011 – July 2016, ***Lehigh University (Bethlehem, Pennsylvania, USA)***
Ph.D. Candidate and Research Assistant
Department of Electrical and Computer Engineering (ECE)
P. C. Rossin College of Engineering and Applied Science & Center for Photonics and Nanoelectronics (CPN)
Ph.D. Advisor: Prof. Nelson Tansu

July 2010 – September 2010, ***University of Sheffield (Sheffield, South Yorkshire, United Kingdom)***
Undergraduate Research Assistant
Department of Electronic and Electrical Engineering (EEE)
Semiconductor materials and devices group
Advisor: Prof. John P.R. David

July 2009 – September 2009, Lehigh University (Bethlehem, Pennsylvania, USA)
Undergraduate Research Assistant
Department of Electrical and Computer Engineering (ECE)
P. C. Rossin College of Engineering and Applied Science & Center for Optical Technologies (COT)
Advisor: Prof. Boon Siew Ooi

Research Interests

Wide and Ultrawide Bandgap Semiconductor Materials and Quantum Structure Engineering for Future Devices

My research interests are related to the novel materials and quantum structure design for future devices. Specifically, my research areas are related to design of dilute-anion III-Nitride semiconductor materials and quantum structures for solid state lighting technologies. Current research work include III-Oxide materials and quantum structures design, dopant and defects investigation to achieve high p-type conductivity in wide band gap materials, and mematerial design for optical signal control for biosensor and quantum communications. My research works cover primarily the aspect of computational design in semiconductors and quantum structures by using advanced computational techniques. Experimental works from materials epitaxy to device fabrications are also conducted as secondary activities with the goal of demonstrating and verifying proposed idea and concepts.

Leadership

2015-2016 Lehigh University Optics and Photonics Society (Vice President & Founding member)
2015-2016 SPIE Lehigh University Student Chapter (Vice President)
2014-2015 SPIE Lehigh University Student Chapter (Treasurer)
2010-2011 SPIE University of Sheffield Student Chapter (Student Advisor)
2010-2011 University of Sheffield Electronic & Electrical Engineering Society (Secretary)
2009-2010 SPIE University of Sheffield Student Chapter (President & Founder)

Awards and Honors Received

- ***SPIE Optics and Photonics Education Scholarship*** (Aug 2016), Lehigh University
- ***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, United States, February 2016
- ***2015 CPN – Sherman Fairchild Fellowship*** (Sep 2015 – present), Lehigh University
- ***SPIE Optics and Photonics Education Scholarship*** (Aug 2015), Lehigh University
- ***Rossin Doctoral Fellow*** (April 2015 – present), Lehigh University
- ***Who's Who in America*** (Since 2015), Inducted in 2015.
- ***Lehigh University Dean's Teaching Assistantship*** (January 2015 – June 2015), Lehigh University
- ***Sherman Fairchild Fellowship*** (September 2014 – September 2015), Lehigh University
- ***Lehigh University Research Assistantship*** (June 2014 – present), Lehigh University
- ***Lehigh University Fellowship*** (January 2014 – June 2014), Lehigh University
- ***Lehigh University Research Assistantship*** (July 2011 – January 2014), Lehigh University
- ***Lehigh University Dean's Scholarship*** (July 2011 – September 2012), Lehigh University
- ***Sheffield Graduate Award*** (July 2011), University of Sheffield
- ***University of Sheffield Engineering International Scholarships*** (2008 – 2011), University of Sheffield
- ***Bronze Award in National Physics Competition*** (2007), Malaysia
- ***Distinction in National Chemistry Quiz*** (2007), Malaysia
- ***Distinction in Australia New South Wales Mathematic Competition*** (2007), Malaysia
- ***Distinction in National Physics Competition*** (2005), Malaysia
- ***Merit in Australia New South Wales Mathematic Competition*** (2005), Malaysia

Professional Affiliations

2009 – 2011, Student Member, International Society for Optical Engineering (SPIE)
2014 – 2016, Student Member, International Society for Optical Engineering (SPIE)
2014 – 2016, Student Member, Institute of Electrical and Electronics Engineers (IEEE)
2014 – 2016, Student Member, American Physical Society (APS)
2016 – present, Member, International Society of Optical Engineering (SPIE)
2016 – 2017, 2020 – present, Member, Institute of Electrical and Electronics Engineers (IEEE)

Undergraduate and Graduate Courses Taught

The courses I have taught at Clarkson University includes

- Sophomore / Junior / Senior level (Fall) - ES241 Solid State Materials System for Advanced Technologies
- Sophomore / Junior level (Spring) – EE211 Sophomore Electrical Laboratory
- Junior / Senior level (Fall) – EE341 Microelectronics
- Junior / Senior level (Spring) – EE381 Electromagnetic Fields and Waves
- Junior / Senior level (Spring) – EE443 Semiconductor Materials and Devices for Engineers
- Master / PhD level (Spring) – EE544 Semiconductor Materials and Devices for Engineers

Technical Refereed Journal Publications and Conference Presentations

Refereed Journal Articles

- ✓ Total Refereed Journal Publications: 31
  - ➢ Additional Refereed Journals Currently Under Review / Submission (November 2020): 4
- ✓ **Isi Web of Knowledge Record** (as of November 2020): Total Citations = 502; h-index = 12
- ✓ **Google Scholar** (as of November 2020): Total Citations = 625; h-index = 13

Refereed Journal Publications

Research work at Lehigh University (Period: July 2011 – July 2016)

1. **C. K. Tan**, J. Zhang, X. H. Li, G. Y. Liu, B. O. Tayo, and N. Tansu, "First-Principle Electronic Properties of Dilute-As GaNAs Alloy for Visible Light Emitters", *IEEE / OSA Journal of Display Technology*, vol. 9, no. 4, pp. 272-279, April 2013. DOI: 10.1109/JDT.2013.2248342
2. G. Y. Liu, J. Zhang, **C. K. Tan**, and N. Tansu, "Efficiency-Droop Suppression by Using Large-Bandgap AlGaInN Thin Barrier Layers in InGaN Quantum Wells Light-Emitting Diodes", *IEEE Photonics Journal*, vol. 5, no. 2, Art. 2201011, April 2013. DOI: 10.1109/JPHOT.2013.2255028
3. **C. K. Tan**, and N. Tansu, "First-Principle Natural Band Alignment of GaN / Dilute-As GaNAs Alloy," *AIP Advances*, vol. 5, no. 1, p. 017129, January 2015. DOI: 10.1063/1.4906569
4. (**Invited Paper**) **C. K. Tan**, and N. Tansu, "Nanostructured Lasers: Electrons and Holes Get Closer," *Nature Nanotechnology*, vol. 10, no. 2, pp. 107-109, February 2015. DOI: 10.1038/nnano.2014.333
5. **C. K. Tan**, and N. Tansu, "Auger Recombination Rates in Dilute-As GaNAs Semiconductor", *AIP Advances*, vol. 5, no. 5, p. 057135, May 2015. DOI: 10.1063/1.4921394
6. P. F. Zhu, **C. K. Tan**, W. Sun, and N. Tansu, "Aspect Ratio Engineering of Microlens Arrays in Thin-Film Flip-Chip Light-Emitting Diodes", *Applied Optics*, vol. 54, no. 34, pp. 10299-10303, November 2015. DOI: 10.1364/AO.54.010299
7. **C. K. Tan**, D. Borovac, W. Sun and N. Tansu, "InGaN / Dilute-As GaNAs Interface Quantum Well for Red Emitters", *Scientific Reports* [Nature Publishing Group], vol. 6, Art. 19271, January 2016. DOI: 10.1038/srep19271.
8. **C. K. Tan**, D. Borovac, W. Sun and N. Tansu, "Dilute-As AlNAs Alloy for Deep Ultraviolet Emitters", *Scientific Reports* [Nature Publishing Group], vol. 6, Art. 22215, February 2016. DOI: 10.1038/srep22215
9. **C. K. Tan**, W. Sun, D. Borovac and N. Tansu, "Large Optical Gain AlInN-Delta-GaN Quantum Well for Deep Ultraviolet Emitters", *Scientific Reports* [Nature Publishing Group], vol. 6, Art. 22983, March 2016. DOI: 10.1038/srep22983
10. P. F. Zhu, H. Zhu, W. Qin, B. H. Dantas, W. Sun, **C. K. Tan**, and N. Tansu, "Narrow-Linewidth Red-Emission Eu^{3+}-Doped TiO_2 Spheres for Light-Emitting Diodes", *J. Appl. Phys.*, vol. 119, Art. 124305, March 2016.
11. **C. K. Tan**, D. Borovac, W. Sun, and N. Tansu, "First-Principle Electronic Properties of Dilute-P $GaN_{1-x}P_x$ Alloy for Visible Light Emitters", *Scientific Reports* [Nature Publishing Group], vol. 6, Art. 24412, April 2016. DOI: 10.1038/srep24412

Research work at Clarkson University (Period: August 2016 – present)

Year Aug 2016 - 2017

12. G. Zeng, **C. K. Tan**, N. Tansu, and B. A. Krick, "Ultralow Wear of Gallium Nitride", *Applied Physics Letters*, vol. 109, Art. 051602, August 2016. DOI: 10.1063/1.4960375
13. **C. K. Tan**, W. Sun, J. J. Wierer, Jr., and N. Tansu, "Effect of Interface Roughness on Auger Recombination Rates", AIP Advances, vol. 7, Art. 035212, March 2017. DOI:10.1063/1.4978777
14. W. Sun, **C. K. Tan**, and N. Tansu, "III-Nitride Digital Alloy: Electronics and Optoelectronics Properties of the InN/GaN Ultra-Short Period Superlattice Nanostructures", Scientific Reports [Nature Publishing Group], vol. 7, Art. 6671, July 2017. DOI: 10.1038/s41598-017-06889-3
15. W. Sun, **C. K. Tan**, and N. Tansu, "AlN/GaN Digital Alloy for Mid- and Deep-Ultraviolet Optoelectronics" Scientific Reports [Nature Publishing Group], vol. 7, Art. 11826, September 2017. DOI:10.1038/s41598-017-12125-9
16. I. E. Fragkos, **C. K. Tan**, Y. Fujiwara, V. Dierolf, and N. Tansu, "Pathway Towards High-Efficiency Eu-doped GaN Light-Emitting Diodes," Scientific Reports [Nature Publishing Group], vol. 7, Art. 14648, November 2017. DOI: 10.1038/s41598-017-15302-y
17. D. Borovac, **C. K. Tan**, and N. Tansu, "Investigations of the Optical Properties of GaNAs Alloys by First-Principle," Scientific Reports [Nature Publishing Group], vol. 7, Art. 17285, December 2017. DOI: 10.1038/s41598-017-17504-w

Year 2018

18. W. Sun, **C. K. Tan**, J. J. Wierer, Jr., and N. Tansu, "Ultra-Broadband Optical Gain in III-Nitride Digital Alloys," Scientific Reports [Nature Publishing Group], vol. 8, Art. 3109, February 2018. DOI: 10.1038/s41598-018-21434-6
19. D. Borovac, **C. K. Tan**, and N. Tansu, "Optical Properties and Refractive Indices of GaN1-xPx Alloys," Scientific Reports [Nature Publishing Group], vol. 8, Art. 6025, April 2018. DOI: 10.1038/s41598-018-24384-1
20. G. S. Zeng, X. F. Yang, **C. K. Tan**, C. J. Marvel, B. E. Koel, N. Tansu, and B. A. Krick, "Shear-Induced Band Bending in Gallium Nitride," ACS Applied Materials & Interfaces, vol. 10, no. 34, pp. 29048-29057, June 2018. DOI: 10.1021/acsami.8b02271
21. D. Borovac, **C. K. Tan**, and N. Tansu, "First-Principle Electronic Properties of Dilute-P AlNP Deep Ultraviolet Semiconductor", AIP Advances, vol. 8, Art. 085119, August 2018. DOI: 10.1063/1.5036978

Year 2019

22. X. Liu, and **C. K. Tan**, "Electronic Properties of Monoclinic $(In_xGa_{1-x})_2O_3$ Alloys by First Principle", AIP Advances, vol. 9, Art. 035318, March 2019. DOI:10.1063/1.5093195
23. J. Goodrich, D. Borovac, **C. K. Tan**, and N. Tansu, "Band Anti-Crossing Model in Dilute-As GaNAs Alloys", Scientific Reports [Nature Publishing Group], vol. 9, Art. 5128, March 2019. DOI: 10.1063/1.5086979
24. Z. Liu, X. Wang, Y. Liu, D. Y. Guo, S. Li, Z. Yan, **C. K. Tan**, W. Li, P. Li, and W. Tang, "High Performance Deep-UV Solar-Blind Photodetector Based on β-Ga_2O_3 Schottky Photodiode", J. Mat. Chem. C, October 2019 DOI: 10.1039/c9tc04912f
25. X. Liu, and **C. K. Tan**, "Structural and Electronic Properties of Dilute-Selenide Gallium Oxide", AIP Advances, AIP Advances, vol. 9, p. 125204, Dec. 2019. DOI: 10.1063/1.5128675

Year 2020 (Published work + papers under review / accepted)

26. D. Borovac, W. Sun, **C. K. Tan**, and N. Tansu, "First-Principle Electronic Properties of Dilute-As InGaNAs Alloys", J. Appl. Phys., vol. 127, p. 015103, Jan. 2020. DOI: 10.1063/1.5119371
27. X. Liu, and **C. K. Tan**, "First-Principle Investigation of Monoclinic $(Al_xIn_yGa_{1-x-y})_2O_3$ Quaternary Alloys", Semiconductor Science and Technology, vol. 35, p. 025023, Jan. 2020. DOI: 10.1088/1361-6641/ab607c
28. S. Ober, S. Austin, D. Crouse, and **C. K. Tan**, "New Fiber Bragg Grating for Filtration of Orbital Angular Momentum Wave Modes", AIP Advances, vol. 10, no. 2, Feb. 2020. DOI: 10.1063/1.5126610

29. C. Wu, D. Y. Guo, L. Y. Zhang, P. G. Li, F. B. Zhang, **C. K. Tan**, S. L. Wang, A. P. Liu, F. M. Wu, and W. H. Tang, "Systematic investigation of the growth kinetics of β-Ga_2O_3 epilayer by plasma enhanced chemical vapor deposition", Appl. Phys. Lett., vol. 116, no. 7, p. 072102, Feb. 2020. DOI: 10.1063/1.5142196
30. D. Y. Guo, K. Chen, S. L. Wang, F. M. Wu, A. P. Liu, C. R. Li, P. G. Li, **C. K. Tan**, and W. H. Tang, "Self-powered solar-blind photodetectors based on Ga_2O_3 phase junctions", Phys. Rev. Appl., vol. 13, p. 024051, Feb. 2020. DOI: 10.1103/13.024051
31. X. Liu, C. Sammarco, G. Zeng, D. Guo, W. H. Tang, and **C. K. Tan**, "Investigations of monoclinic- and orthorhombic-based $(B_xGa_{1-x})_2O_3$ alloys", Appl. Phys. Lett., vol. 117, p. 012104, Jul. 2020. DOI:/ 10.1063/5.0005808
32. X. Liu, and **C. K. Tan**, "Large bandgap tuning Al2(O1-xSex)3 III-Oxychalcogenides", (under review).
33. J. Goodrich, **C. K. Tan**, D. Borovac, and N. Tansu, "P-type doping in dilute-anion III-Nitride", (under review).
34. X. Liu, and **C. K. Tan**, "Ultrawide bandgap monoclinic and corundum-based AlInO alloys", (to be submitted).
35. X. Liu, and **C. K. Tan**, "Three-dimensional band alignment in Al_2O_3 / Ga_2O_3 heterostructures" (to be submitted)

✓ **More than 5 additional refereed journal papers in preparation for submission**

Refereed Conference Publications / Presentations

Undergraduate research (Period: September 2008 – June 2011)

1. C. L. Tan, H. S. Djie, **C. K. Tan**, V. Hongpinyo, Y. H. Ding, and B. S. Ooi, "The Effect of Multi Active Junctions on Broadband Emission from InAs/InGaAlAs Quantum-dash Structure", *The 22nd Annual Meeting of the IEEE Photonics Society (IEEE PS'09)*, Belek-Antalya, Turkey, (2009).
2. C. L. Tan, H. S. Djie, **C. K. Tan**, and B. S. Ooi, "Unique Lasing Mechanism of Localized Dispersive Nanostructures in InAs/InGaAlAs Quantum Dash Broad Interband Laser", *Novel In-Plane Semiconductor Lasers IX conference, SPIE Photonics West 2010*, San Francisco, CA, USA, (2010).
3. C. L. Tan, **C. K. Tan**, H. S. Djie, and B. S. Ooi, "Absence of Quantized Energy-states Local Diffusion in Semiconductor Quantum Dash structures", *IEEE/OSA Conference on Lasers and Electro-Optics 2010 (IEEE CLEO/QELS'10)*, San Jose, California, (2010).

Research work at Lehigh University (Period: July 2011 – July 2016)

4. **(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.
5. **(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.
6. **(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.
7. **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.
8. 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.
9. **(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.
10. G. Y. Liu, J. Zhang, **C. K. Tan**, and N. Tansu, "InGaN-Delta-InN Quantum Well Light-Emitting Diodes with Carrier Transport Effect," Proc. of the *SPIE Photonics West 2013*, San Francisco, CA, February 2013.
11. **C. K. Tan**, J. Zhang, G. Y. Liu, and N. Tansu, "Effect of Interband Energy Separation on the Interband Auger Processes in III-Nitride Semiconductors," Proc. of the *SPIE Photonics West 2013*, San Francisco, CA, February 2013.

12. **(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.
13. 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.
14. **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.
15. **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.
16. P. F. Zhu, **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.
17. P. F. Zhu, H. Y. Zhu, W. P. Qin, **C. K. Tan**, and N. Tansu, "Eu^{3+}-doped TiO_2 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.
18. P. F. Zhu, T. Toma, **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.
19. **(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.
20. **(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.
21. **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.
22. 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.
23. W. Sun, **C. K. Tan**, and N. Tansu, "Artifically-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.
24. **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.
25. **C. K. Tan**, and N. Tansu, "Barrier Engineering in AlGaN-Delta-GaN Heterostructure for Deep UV Emitters," Proc. of the *MRS International Conference on Materials for Advanced Technologies (ICMAT) 2015*, Singapore, Republic of Singapore, June 2015.
26. **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.
27. W. Sun, **C. K. Tan**, and N. Tansu, "Physics of Artificially-Engineered AlGaN and InGaN Based Digital Alloys," Proc. of the *SPIE Optics + Photonics 2015*, Low Dimensional Materials and Devices, San Diego, CA, August 2015.
28. 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.
29. **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.

30. **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.
31. **(Invited Conference Paper)** N. Tansu, **C. K. Tan**, and J. Wierer, "Tutorial on III-Nitride Solid State Lighting and Smart Lighting", Proc. of the *IEEE Photonics Conference 2015*, Reston, VA, October 2015.
32. **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*, Reston, VA, October 2015.
33. **C. K. Tan**, and N. Tansu, "Dilute-As AlNAs Semiconductor for Ultraviolet Emitters", Proc. of the *IEEE Photonics Conference 2015*, Arlington, VA, October 2015.
34. W. Sun, **C. K. Tan**, and N. Tansu, "Artificially Engineered InGaN-Based Digital Alloy for Optoelectronics", Proc. of the *IEEE Photonics Conference 2015*, Reston, VA, October 2015.
35. B. A. Krick, G. Zeng, **C. K. Tan**, and N. Tansu, "Surprisingly Low Wear Behaviour of Gallium Nitride", *2015 STLE Tribology Frontiers Conference*, Denver, CO, October 2015.
36. **(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.
37. **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.
38. 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.
39. W. Sun, **C. K. Tan**, and N. Tansu, "AlGaN 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.
40. 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.
41. **(Invited – Student Award Winner)** **C. K. Tan**, W. Sun, D. Borovac, J. J. Wierer, Jr., and N. Tansu, "InGaN-GaNAs 'Interface Quantum Well' for Long-Wavelength Emission", DOE R&D Workshop on Solid State Lighting 2016, Raleigh, NC, USA, February 2016.
42. 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.
43. 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.
44. G. S. Zeng, **C. K. Tan**, N. Tansu, and B. A. Krick, "Ultralow Wear of Gallium Nitride", The 58th Electronic Materials Conference (EMC), Delaware, DE, USA, June 2016.

Research work at Clarkson University (Period: August 2016 – Present)

45. **C. K. Tan**, W. Sun, D. Borovac, J. J. Wierer, and N. Tansu, "Electronics Properties of Dilute-Anion III-Nitride Semiconductors for Light Emitters", Proc. of the IEEE Lester Eastman Conference on High Performance Devices 2016, Bethlehem, PA, August 2016.
46. W. Sun, **C. K. Tan**, J. J. Wierer, Jr., 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.
47. I. E. 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.
48. **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.
49. **(Invited Conference Paper)** **C. K. Tan**, and N. Tansu, "Dilute-Anion III-Nitride: A Potential Visible Light Emitter", Proc. of the *IEEE Photonics Conference 2016*, Hawaii, October 2016.

50. **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.
51. 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.
52. 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.
53. 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.
54. 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.
55. **C. K. Tan**, D. Borovac, W. Sun, and N. Tansu, "Dilute-Anion Boron Nitride for Light Emitters", Proc. of the *IEEE Photonics Conference 2017*, Lake Buena Vista, Florida, October 2017.
56. 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*, Lake Buena Vista, Florida, October 2017.
57. I. 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*, Lake Buena Vista, Florida, October 2017.
58. 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*, Lake Buena Vista, Florida, October 2017.
59. (Invited Conference Paper) N. Tansu, J. J. Wierer, Jr., **C. K. Tan**, and W. Sun "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.
60. 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.
61. W. Sun, D. Borovac, **C. K. Tan**, and N. Tansu, "Characteristics of Dilute-As InGaNAs Quantum Wells for Laser Active Regions", Proc. of the SPIE Photonics West 2018, Novel In-Plane Semiconductor Lasers XVII, San Francisco, CA, Jan 2018.
62. D. Borovac, W. Sun, **C. K. Tan**, and N. Tansu, "Electronic Properties of the Dilute-As InGaNAs Alloy by using First-Principle Calculations", Proc. of the SPIE Photonics West 2018, Gallium Nitride Materials and Devices XIII, San Francisco, CA, Jan 2018.
63. D. Borovac, **C. K. Tan**, and N. Tansu, "Type-I and Type-II Band Alignment in Dilute-P GaNP / GaN Heterojunction", Proc. of the SPIE Photonics West 2018, Physics and Simulation of Optoelectronic Devices XXVI, San Francisco, CA, Jan 2018.
64. J. C. Goodrich, D. Borovac, **C. K. Tan**, and N. Tansu, "Band Anticrossing Model in Dilute-Anion III-nitride", Proc. of the SPIE Photonics West 2018, Novel In-Plane Semiconductor Lasers XVII, San Francisco, CA, Jan 2018.
65. C. Emerson, D. Borovac, **C. K. Tan**, and N. Tansu, "First-Principle Electronic Properties of Dilute-As AlNAs Nanosheets", Proc. of the SPIE Photonics West 2018, Physics and Simulation of Optoelectronic Devices XXVI, San Francisco, CA, Jan 2018.
66. (Invited Conference Paper) N. Tansu, J. J. Wierer, Jr., W. Sun, I. Fragkos, J. C. Goodrich, D. Borovac, O. Ogidi-Ekoko, and **C. K. Tan**, "Next Generation III-Nitride Materials and Devices – from Photonics to New Applications", Proc. of the International Symposium on Advanced Plasma Science and its Application for Nitrides and Nanomaterials (ISPlasma 2018), Nagoya, Japan, March 2018.
67. D. Borovac, W. Sun, **C. K. Tan**, and N. Tansu, "Dilute-As InGaNAs Quantum Wells for Red-Emitting Lasers", Proc. of the IEEE Photonics Conference 2018, Reston, VA, October 2018.
68. J. C. Goodrich, D. Borovac, **C. K. Tan**, and N. Tansu, "Investigation of Band Anticrossing Parameters for Dilute-Anion III-Nitride Alloys", Proc. of the IEEE Photonics Conference 2018, Reston, VA, October 2018.
69. **C. K. Tan**, D. Borovac, W. Sun, and N. Tansu, "InGaN-GaNAs Interface Quantum Well with AlGaN Interlayer for Amber-Red Emitters", Proc. of the IEEE Photonics Conference 2018, Reston, VA, October 2018.

70. **C. K. Tan**, D. Borovac, W. Sun, and N. Tansu, "Dilute-As AlNAs Semiconductor with P-Type Dopants for Deep Ultraviolet Emitters", Proc. of the SPIE Photonics West 2019, Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XXIII, San Francisco, CA, Jan 2019.
71. D. Borovac, **C. K. Tan**, and N. Tansu, "First-Principle Optical and Electronic Properties of Dilute-P AlNP Semiconductors for Deep-UV Applications", Proc. of the SPIE Photonics West 2019, Physics and Simulation of Optoelectronic Devices XXVII, San Francisco, CA, Jan 2019.
72. W. Sun, D. Borovac, **C. K. Tan**, and N. Tansu, "Large-Overlap Dilute-As InGaNAs Quantum Wells for Laser and LED", Proc. of the SPIE Photonics West 2019, Novel In-Plane Semiconductor Lasers XVIII, San Francisco, CA, Jan 2019.
73. J. C. Goodrich, D. Borovac, **C. K. Tan**, and N. Tansu, "Band Anticrossing in Dilute-Anion III-V Semiconductors", Proc. of the SPIE Photonics West 2019, Gallium Nitride Materials and Devices XIV, San Francisco, CA, Jan 2019.
74. S. Ober, S. Austin, D. Crouse, and **C. K. Tan**, "New Fiber Bragg Grating for Filtration of Orbital Angular Momentum Wave Modes", Proc. Of the SPIE Photonics West 2019, Optical Components and Materials XVI, San Francisco, CA, Jan 2019.
75. X. L. Liu, and **C. K. Tan**, "First-Principle Electronic Properties of Monoclinic $(AlxInyGa1\text{-}x\text{-}y)_2O_3$ Alloys", International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD), Ottawa, Canada, Jul. 2019.
76. X. L. Liu, and **C. K. Tan**, "β-(InxGa1-x)2O3 alloys as active region for deep ultraviolet photodetector", Proc. Of the SPIE Optics and Photonics 2019, Wide Bandgap Materials, Devices, and Applications IV, San Diego, CA, Aug. 2019.
77. X. L. Liu, and **C. K. Tan**, "Engineering Monoclinic (Al x In y Ga 1-x-y) 2 O 3 for Ultraviolet Photodetector", Proc. of the IEEE Photonics Conference 2019, San Antonio, TX, Oct. 2019.
78. **(Invited Conference Paper)** **C. K. Tan**, and N. Tansu, "Progress in Dilute-Anion III-Nitride Semiconductors", Proc. of the *IEEE Photonics Conference 2019*, San Antonio, TX, October 2019.
79. **[Moved to Dec 2020]** X. L. Liu, and **C. K. Tan**, "AlInGaO for Power Electronics", MRS Spring Meetings 2020, Phoenix, AZ, Apr. 2020.
80. **[Moved to Dec 2020]** X. L. Liu, and **C. K. Tan**, "Understanding of AlInO ternary alloy for GaN Power Electronics", MRS Spring Meetings 2020, Phoenix, AZ, Apr. 2020.
81. X. L. Liu, and **C. K. Tan**, "DFT study on the $(B_xGa_{1-x})_2O_3$ Alloys", SPIE Photonics West 2021, San Francisco, CA, Mar. 2021.
82. Z. Henderson, C. Sammarco, X. L. Liu, D. Borovac, and **C. K. Tan**, "GaN biosensor design with localized surface plasmon resonance", SPIE Photonics West 2021, San Francisco, CA, Mar. 2021.
83. X. L. Liu, H. Bilan, **C. K. Tan**, "Experimental Investigation on Selenium Ion-Implanted Gallium Oxide", SPIE Photonics West 2021, San Francisco, CA, Mar. 2021.

Patent or Invention Disclosures

1. Nelson Tansu, Wei Sun, and **Chee-Keong Tan**, New Solar Materials. (US Patent approved).
2. Nelson Tansu, and **Chee-Keong Tan**, New Deep UV Materials. (Patent filing).
3. **Chee-Keong Tan**, and Xiaoli Liu, New Electronic Materials. (Patent filing).
4. **Chee-Keong Tan**, David Crouse, Seamus Ober, and Xiaoli Liu, New Bragg Structures. (Patent filing).

Invited Seminar Talk

1. **C. K. Tan,** "*Dilute-As GaNAs Semiconductor for Visible Light Emitters"*, University of Sains Malaysia, Penang, Malaysia, July 2015.
2. **C. K. Tan,** "*Dilute-As GaNAs Semiconductor as Potential Visible Light Emitters"*, University of Malaya, Kuala Lumpur, Selangor, Malaysia, December 2016.

Research Grants

1. **PI:** **C. K. Tan**, and David Crouse
Title: Tuning the Deep Ultraviolet Emission in III-Nitride Light Emitting Diodes
Source of Support: NSF-IUCRC (Industry-University Cooperative Research Centers) – Center for Metamaterial
Award Amount: $10,000
Period: 11/1/16 – 10/31/17
Status: ***Awarded***

2. **PI:** David Crouse, **co-PI**: **C. K. Tan**
Title: Bragg Filter for Orbital Angular Momentum Fiber
Source of Support: NSF-IUCRC (Industry-University Cooperative Research Centers) – Center for Metamaterial
Award Amount: $10,000
Period: 11/1/17 – 10/31/18
Status: ***Awarded***

3. **PI:** David Crouse, **co-PI**: **C. K. Tan**
Title: Rapid Metasurface Etch-a-Sketch
Source of Support: NSF-IUCRC (Industry-University Cooperative Research Centers) – Center for Metamaterial
Award Amount: $40,000
Period: 11/1/17 – 10/31/18
Status: ***Awarded***

4. **PI:** **C. K. Tan**, **co-PI**: David Crouse, and Nelson Tansu
Title: Integrated Light Emitting Diode Biosensor
Source of Support: NSF-IUCRC (Industry-University Cooperative Research Centers) – Center for Metamaterial
Award Amount: $12,000
Period: 11/1/18 – 10/31/19
Status: ***Awarded***

5. **PI:** **C. K. Tan**, **co-PI**: David Crouse, and Nelson Tansu
Title: Integrated Visible Light Emitting Diode Biosensor (Follow up award from previous project)
Source of Support: NSF-IUCRC (Industry-University Cooperative Research Centers) – Center for Metamaterial
Award Amount: $40,000
Period: 9/1/19 – 5/30/21
Status: ***Awarded***

6. **PI:** David Crouse, **co-PI**: **C. K. Tan**
Title: Thermal Control of Metamaterial Thin Film
Source of Support: NSF-IUCRC (Industry-University Cooperative Research Centers) – Center for Metamaterial
Award Amount: $40,000
Period: 9/1/20 – 5/30/21
Status: ***Awarded***

7. **PI:** **C. K. Tan**, **co-PI**: Ming-Cheng Cheng
Title: Lattice-matched Ultrawide Bandgap III-Oxides
Source of Support: [Internal] Clarkson University Ignite Pilot Fellowship
Award Amount: $200,000
Period: 9/1/20 – 8/31/25
Status: ***Awarded***

8. **PI:** **C. K. Tan**, **co-PI**: Ming-Cheng Cheng
Title: Ultrawide Bandgap III-Oxide for Power Electronics
Source of Support: [Internal] Clarkson University New York State Center for Materials Processing (CAMP)
Award Amount: $65,000
Period: 1/1/21 – 12/31/21
Status: ***Awarded***

9. **PI: C. K. Tan**, **co-PI**: Ming-Cheng Cheng, Linghong Li and Nelson Tansu
Title: Collaborative Research: Gallium Oxide semiconductor materials investigation
Source of Support: National Science Foundation (NSF)
Award Amount: $600,000
Period: 7/1/20 – 6/30/23
Status: ***Pending***

10.**PI: C. K. Tan**, **co-PI**: Ming-Cheng Cheng, and Nelson Tansu
Title: III-Oxide materials and quantum structures
Source of Support: Department of Energy (DOE)
Award Amount: $900,000
Period: 7/1/20 – 6/30/23
Status: ***Pending***

11. **PI: C. K. Tan**, **co-PI**: Nelson Tansu, Luke Mawst, Jonathan J. Wierer, Jung Han, Israel Wachs
Title: Dilute-anion III-Nitride for photocatalysis
Source of Support: DOD Army Research Office - MURI
Award Amount: $6,250,000
Period: 1/1/21 – 12/31/26
Status: ***Pending***

12. **PI: C. K. Tan**
Title: CAREER: Materials properties and carrier transport in tunable III-Oxides
Source of Support: National Science Foundation (NSF)
Award Amount: $550,000
Period: 7/1/21 – 6/30/26
Status: ***Pending***

Research Work Featured in Magazine / Newspapers

1. **"Toward More Vibrant LEDs"** in ***Lehigh News Center Highlight***, May 9th 2016.
   http://www1.lehigh.edu/news/toward-more-vibrant-leds
2. **"Lehigh University's Chee-Keong Tan Makes Remarkable Achievement in Field of Solid State Lighting and LEDs"** in ***AZoOptics***, May 10th 2016.
   http://www.azooptics.com/News.aspx?newsID=22537
3. **"Toward More Vibrant LEDs (Lehigh University)"** in ***World News Network***, May 9th 2016.
   http://article.wn.com/view/2016/05/09/Toward_more_vibrant_LEDs_Lehigh_University/

Professional Services, Teaching and Educational Activities

National / International Level

1. ***Conference Presider (Session Chair)***, *SPIE Optics and Photonics 2015*, San Diego, CA, Nanoengineering: Fabrication, Properties, Optics, and Devices XII, Micro, Nano and Optical Materials, August 2015.
2. ***Conference Presider (Session Chair)***, *SPIE Optics and Photonics 2015*, San Diego, CA, Nanoengineering: Fabrication, Properties, Optics, and Devices XII, Nanometrology and Precision, August 2015.
3. ***Symposium Attendee (Invited)***, *International Year of Light 2015 Symposium hosted by National Science Foundation, National Academy of Sciences, American Institute of Physics, American Physical Society, Optical Society of America, IEEE Photonics Society, and SPIE*, Washington, DC, Light for a Better World: A Celebration of U.S. Innovation, September 2015.
4. ***Conference University Exhibitor***, *IEEE Photonics Conference 2015*, Reston, VA, October 2015.
5. ***Conference Presider (Session Chair)***, *IEEE Photonics Conference*, Waikoloa, Hawaii, October 2016.
6. ***NSF Graduate Research Fellowship Program reviewer (Physics session)***, 2019-present.
7. ***Conference Presider (Session Chair),*** *IEEE Photonics Conference*, San Antonio, Texas, October 2019.
8. ***MDPI Photonics Topic Editor,*** 2020-present.

9. ***Technical Committee Member (Semiconductor Lasers),*** *IEEE Photonics Conference*, October 2020.

University / Department Level

1. ***Research Undergraduate Student Mentor***, *NSF-supported Summer Experiences Research Program 2012*, Nicholas J. Stein (B.S., Lafayette College, United States), Lehigh University, Bethlehem, PA, June-August 2012.
2. ***Research Undergraduate Student Mentor***, *Summer Experiences Research Program 2015*, Breno H. Dantas (B.S., Universidade Federal de Pernambuco (UFPE), Brazil), Lehigh University, Bethlehem, PA, Summer 2015.
3. ***High School Student Mentor,*** Milind Jagota (Liberty High School, Bethlehem), Lehigh University, Bethlehem, PA, Summer 2015 – present.
4. ***Lehigh Undergraduate and Graduate Student Mentor (more than 15 students)***, *Laboratory for Emerging Photonics and Nanostructures,* Lehigh University, Bethlehem, PA, 2013 – present.
5. ***Substitute lecturer*** for ECE 450 course (Senior undergraduate / Graduate level), *Applied Quantum Mechanics for Engineers*, Lehigh University, Bethlehem, PA, Fall 2014.
6. ***Grader*** for ECE 126 course (Freshman / Sophomore undergraduate level), *Fundamentals of Semiconductor Devices*, Lehigh University, Bethlehem, PA, Spring 2015.
7. ***Visiting Lecturer Tour Organizer***, *SPIE Student Chapter at Lehigh University Technical Talk Event*, Prof. Mona Jarrahi (University of California Los Angeles, United States), Lehigh University, Bethlehem, PA, February 2015.
8. ***Visiting Lecturer Tour Organizer***, *SPIE Student Chapter at Lehigh University Technical Talk Event*, Prof. Eva M. Campo (Bangor University, United Kingdom), Lehigh University, Bethlehem, PA, June 2015.
9. ***Robotics Competition Judge***, Clarkson University, Potsdam, NY, 2017 - 2019.
10. ***Clarkson Undergraduate and Graduate Research Students Mentor (more than 10 students),*** Clarkson University, Potsdam, NY, 2016 – present.
11. ***Laboratory Safety Committee, Electrical Engineering Curriculum Committee, Graduate Student Committee,*** Clarkson University, Potsdam, NY, 2018 – present.
12. ***ECE Seminar Coordinator***, Clarkson University, Potsdam, NY, January 2019 – May 2019.

Journal Reviewing

1. ***Scientific Reports*** (published by Nature Publishing Group)
2. ***Photonics*** (published by MDPI)
3. ***Sensors*** (published by MDPI)
4. ***IEEE/OSA Journal of Display Technology*** (published by IEEE / OSA)
5. ***IEEE Photonics Journal*** (published by IEEE)
6. ***Optical Materials Express*** (published by Optical Society of America)
7. ***Electronics*** (published by MDPI)
8. ***Journal of Photonics for Energy*** (published by SPIE)
9. ***Journal of Nanophotonics*** (published by SPIE)
10. ***Transactions on Components, Packaging and Manufacturing Technology*** (published by IEEE)
11. ***Applied Surface Science*** (published by Elsevier)
12. ***Journal of Materials*** (published by Hindawi)
13. ***International Journal of Photoenergy*** (published by Hindawi)
14. ***Optics Express*** (published by OSA)
15. ***Transactions on Electron Devices*** (published by IEEE)
16. ***Applied Science*** (published by MDPI)

- ✓ **Include other journals that might not be necessarily mentioned above**

Research Group Members

Current Visiting Scientist / Postdoctoral Associate:

1. ***Dr. Damir Borovac*** (PhD., Lehigh University), starting from September 2020 - present.

Current Graduate Students:

1. ***Ms. Xiaoli Liu*** (M. S., Chongqing University), currently Ph.D. student at Clarkson University, starting from July 2018 - present.
Research work: III-Oxide electronics and optoelectronics (*Awarded IEEE Women in Photonics Initiative travel grant for IEEE IPC Conference 2019)*
2. ***Mr. Mohammad Kiamari*** (M. S., University of Iran), Ph.D. student enrolled at Clarkson University, starting from January 2021.
3. (In co-advising) ***Ms. Golsa Mirbagheri*** (M. S., University of Iran), currently Ph.D. student at Clarkson University, starting from July 2016 - present.

Current Undergraduate Students:

1. ***Mr. Seamus Ober***, B.S. Candidate (Class of 2020) at Clarkson University, starting from May 2018-present.
Research work: Bragg Structures for Optical Fiber
2. ***Mr. Cono Sammarco***, B.S. Candidate (Class of 2021) at Clarkson University, starting from May 2019-present.
Research work: Biosensor Device Design
3. ***Mr. Zane Henderson***, B.S. Candidate (Class of 2021) at Clarkson University, starting from May 2020-present.
Research work: Power Electronics Circuit Design
4.***Mr. Garrett Hayes***, B.S. Candidate (Class of 2021) at Clarkson University, starting from October 2020.
Research work: Semiconductor Characterization System Build

Former Undergraduate Students:

1. ***Mr. Joseph Frissora***, B.S., Clarkson University (Class of 2018), Spring 2017.
Research work: Building High Performance Computing Cluster
2. ***Mr. Christian Emerson***, B.S., Clarkson University (Class of 2018), Fall 2017 - Spring 2018.
Research work: III-Nitride Nanosheet Photodetector
3. ***Mr. John Phillips***, B.S., Clarkson University (Class of 2018), Summer 2018.
Research work: Visible Light Communications Circuit Design
4. ***Mr. Andrew Sharpe***, B.S., Clarkson University (Class of 2018), Summer 2018.
Research work: Visible Light Communications Circuit Design
5. ***Mr. Jared Dunbar***, B.S. Candidate (Class of 2019) at Clarkson University, January 2018 - Spring 2019.
Research work: Building High Performance Computing Cluster
6. ***Mr. Benjamin Irons***, B.S. Candidate (Class of 2020) at Clarkson University, January 2019 – Spring 2019.
Research work: Photodetector Device Design
7. ***Mr. Ki Lee***, B.S. Candidate (Class of 2021) at Clarkson University, Summer 2019.
Research work: Two-Dimensional Materials Design
8. ***Mr. Thomas Ngo***, B.S. Candidate (Class of 2020) at Clarkson University, Fall 2019.
Research work: Power Electronics Circuit Design
9. ***Mr. Minghua Tan***, B.S. Candidate (Class of 2021) at Clarkson University, Summer 2019.
Research work: Mechanical Properties Investigation

References

1. **Prof. Nelson Tansu (PhD Advisor) (recently moved to University of Adelaide as Head of School of Electrical and Electronic Engineering)**
   [Fellow of National Academy of Inventors - NAI Fellow, elected in 2016]
   [ISI Highly Cited Researcher, Clarivate Analytics, since 2018]
   Daniel E. '39 and Patricia M. Smith Endowed Chair Professor in Photonics and Nanoelectronics
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   CPN Web: http://www.lehigh.edu/~incpn/people/faculty/tansu.html

2. **Prof. Luke J. Mawst**
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3. **Prof. Ming-Cheng Cheng**
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