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PERSONAL Immigration Status: US Citizen

ACADEMIC EMPLOYMENT

- 07/2018 – **Ohio State University**, Columbus, OH, USA
Assistant Professor,
Electrical & Computer Engineering
- 11/2014 – 06/2018 **University of California at Santa Barbara**, CA, USA
Assistant Project Scientist, Electrical & Computer Engineering
❖ Advisor: Prof. Larry A. Coldren
❖ Research focus: InP-based photonic integrated circuits for chip-scale optical frequency synthesizers using an optical phase-locked loop, analog coherent photonic links, as well as packaged LiDAR systems
- 01/2013 – 10/2014 **University of California at Los Angeles**, CA, USA
Postdoctoral research scholar, Electrical Engineering
❖ Advisor: Prof. Kang L. Wang
❖ Research focus: Heteroepitaxial growth of GaAs on silicon by molecular beam epitaxy, van der Waals epitaxy, graphene devices, and VCSELs using graphene electrode
- 02/2012 – 12/2012 **McGill University**, Montreal, QC, Canada
Postdoctoral fellow, Electrical & Computer Engineering
❖ Advisor: Prof. Zetian Mi
❖ Research focus: Epitaxial growth and optical / electrical characterization of III-nitride single nanowire, nanoplasmonics, and quantum-dot semiconductor microtube resonators
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EDUCATION

- 05/2008 – 01/2012 **Tech. Univ. München, Walter Schottky Institut**, Munich, Germany
PhD, Electrical Engineering
❖ Thesis Advisor: Prof. Markus-C. Amann
❖ Thesis Title: Electrically-pumped GaSb-based vertical-cavity surface-emitting lasers (VCSELs)
- 04/ 2006 – 03/2008 **Ulm University**, Ulm, Germany
M.Sc., Electrical Engineering
❖ Thesis Advisor: Prof. Rainer Michalzik
❖ Thesis Title: Investigations into matrix-addressable GaAs-VCSEL arrays
- 07/2000 – 06/2005 **Bangladesh University of Engineering & Technology**, Dhaka, Bangladesh
B.Sc., Electrical & Electronics Engineering
❖ Thesis Advisor: Prof. Mohammad Ali
❖ Thesis Title: Computer interfacing of digital energy meter using data acquisition card
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RESEARCH INTERESTS

- Photonic integrated circuits
- Widely-tunable semiconductor lasers
- Photonic sensors
- High-power semiconductor lasers
- Quantum photonics
- Cell culture studies

AWARDS

03/2020	Air Force Research Lab Summer Faculty Fellowship
09/2018	Edmund Optics Education Award
01/2018	Semi-finalist SPIE 2018 Photonics West Start-up Challenge Competition
11/2017	IPC 2017 Student Travel Grant Recipient
11/2014	Literaturpreis der ITG 2014 Award- im VDE, Germany
05/2014	Nominee for the UCLA Chancellor's Award for Postdoctoral Research
11/2013–12/2014	Extreme Science and Engineering Discovery Environment (XSEDE), Computational Allocation Award, Principle Investigator, 'Computational study of van der Waal epitaxial growth' Stampede, 75000 SUs
10/2011	Recipient of the IEEE Photonics Society Graduate Student Fellowship 2011 for research accomplishments and academic record
11/2010	Best Student Paper Award (2nd place) in the 23rd Annual Meeting of the IEEE Photonics Society 2010, Denver, CO, USA.
10/2007–03/2008	M.Sc. Thesis Scholarship (awarded on a competitive basis) given by Ulm University, Ulm, Germany
06/2000–06/2005	Government Technical Scholarship given by Govt. of Bangladesh to students who have excellent academic record in secondary and intermediate schools

RESEARCH GRANTS

2016-2019	National Natural Science Foundation of China (NSFC), Key Project Grant, Co-PI, "Monolithically integrated complete polarization mode control of wavelength-tunable VCSEL arrays"
2019-2020	2019 Exploratory Materials Research Grant within The Ohio State University Materials Research Seed Grant Program (MRS GP) in the proposal entitled "Room-Temperature III-Nitride Based Single-Photon Emission".

TEACHING EXPERIENCE

08/2020-12/2020	Instructor, Course #5132, Photonics, 3 hrs/week, Graduate, The Ohio State University
01/2020-04/2020	Instructor, Course #6194.10, Advanced Semiconductor Lasers, 3 hrs/week, Graduate, The Ohio State University
08/2019-12/2019	Instructor, Course #3030, Physics of Semiconductor Device, 3 hrs/week, Junior Undergraduate, The Ohio State University
01/2019-04/2019	Instructor, Course #5194.14, Semiconductor Materials and Devices Characterization, 3 hrs/week, Senior Undergraduate and Graduate, The Ohio State University

10/2008–02/2011	Teaching Assistant, Advanced Optoelectronics course, Responsible for 1 hr/week exercise class (M.Sc. students), Technische Universität München, Germany
05/2011–08/2011	Lab Course Instructor, Optical Data Transmission, Responsible for the supervision of 4-hour lab course (M.Sc. students), Technische Universität München, Germany
05/2011–08/2011	Teaching Assistant, Optoelectronics-I course, Responsible for 1 hour/week exercise class (undergraduate students), Technische Universität München, Germany

PROFESSIONAL ACTIVITIES

2021	Program Chair in “Photonic Devices” in OSA’s Advanced Photonics, IPR 2021, in Montreal, QC, Canada
2020	Co-chair the session “Epitaxial Growth, Fabrication and Characterization” in IEEE RAPID 2020 , Miramar Beach, FL, USA
2020	Subcommittee Chair in Photonic Integration and Packaging (PIP) in IEEE Photonics Conference 2020 (annual meeting), Vancouver, BC, Canada.
2020	Subcommittee Chair in “Photonic Devices” in OSA’s Advanced Photonics, IPR 2020, in Montreal, QC, Canada
2020	Local Arrangement Chair in 78 th Device Research Conference (DRC), The Ohio State University, Columbus, OH, USA
2020	Technical Program Committee in “S&I3 Semiconductor Lasers” in OSA’s CLEO 2020, San Jose, CA, USA
2019	Guest Editor of the Special Issue on “Progress in Wide-Bandgap and Ultrawide-Bandgap Materials” in <i>Advances in Materials Science and Engineering</i> , Hindawi.
2019	Subcommittee Chair in Photonic Integration and Packaging (PIP) in IEEE Photonics Conference 2019 (annual meeting), Austin, TX, USA.
2019	Subcommittee Chair in “Photonic Devices” in OSA’s Advanced Photonics, IPR 2019, in Burlingame, CA, USA
2018	Guest Editor of the Feature Issue on “Mid-Infrared Lasers for Medical Applications” in <i>Biomedical Optics Express</i> , OSA
2018	Technical Program Committee in Photonic Integration and Packaging (PIP) in IEEE Photonics Conference 2018 (annual meeting), Reston, VA, USA
2018	Technical Program Committee in “Photonic Devices” in OSA’s Advanced Photonics, IPR 2018, Zurich, Switzerland
2017	Session Presider in “Integrated Optical Sources” within PIP1 session during IEEE Photonics Conference 2017 in Orlando, FL, USA.
2017	Session Presider in “Novel Silicon Photonics” during OSA’s Advanced Photonics, IPR 2017 in New Orleans, LA, USA.
2017	Guest Editor of the Feature Issue on “Near- to Mid-IR (1-13 μ m) III-V Semiconductor Lasers” in <i>Applied Optics</i> , OSA
2017	Serving in reviewing panel for the Bright Ideas Competition (\$30k US) at CLEO 2017
2017	Technical Program Committee in “Photonic Devices” in OSA’s Advanced Photonics, IPR 2017, New Orleans, LA, USA
2017	Technical Program Committee in Photonic Integration and Packaging (PIP) in IEEE Photonics Conference 2017 (annual meeting), Orlando, FL, USA
2016-current	OSA Laser Systems Technical group : Vice Co-Chair

2015	Guest Editor of the Special Issue on “Nanostructured Optoelectronics: Materials and Devices” in <i>Journal of Nanomaterial</i> , Hindawi
2010–current	Regular reviewer of <i>Opt. Express</i> , <i>IEEE Photon. J.</i> , <i>Photon. Res.</i> , <i>Opt. Lett.</i> , <i>Photon. Technol. Lett.</i> and <i>J. Phys. D: Appl. Phys.</i>
2014–current	Reviewer in OSA Youth Education Grants and Student Chapter Grants
10/2014	OSA Young Professionals - Science Writer in <i>Frontiers in Optics/ Laser Science 2014</i> , Tucson, AZ
06/2014	OSA Young Professionals - Science Writer in <i>CLEO 2014</i> , San Jose, CA
07/2013	Official Blogger in OSA <i>Advanced Photonics Congress 2013</i> , Rio Grande, Puerto Rico

MENTORED STUDENTS

PhDs currently working as primary advisor: 5

PhDs worked as co-advisor: 6

Masters worked as co-advisor: 2

PUBLICATIONS

Authored and coauthored more than 100 papers in leading technical journals and international conferences. These papers are cited more than 857 times, which is accurate as of April 2020 (citation counts fetched from [Google Scholar](https://scholar.google.com/)).

REFEREED

❖ BOOK CHAPTER

Y. Alaskar, **S. Arafin**, and K. L. Wang, “Heteroepitaxial growth of III-V semiconductors on 2D materials”, in “Two-dimensional Materials - Synthesis, Characterization and Potential Applications”, P. K. Nayak (Ed.), chapter 3, pp. 43-62, ISBN: 978-953-51-4813-5, InTech, Rijeka, Croatia, Aug. 2016.

❖ PATENTS

A. Banerjee, R. Chen, **S. Arafin**, and S. Mitragotri, “Oral drug delivery devices and methods using iontophoresis,” US Patent application #62/798,373, filed on Jan. 2019.

❖ JOURNALS

PUBLISHED

- [1] S. M. N. Hasan, B. P. Gunning, Z. J.-Eddine, H. Chandrasekar, M. H. Crawford, A. Armstrong, S. Rajan, and **S. Arafin**, “Effects of postgrowth buried *p*-GaN activation and delta-dose on electrical properties in all-MOCVD-grown diodes with a tunnel junction”, Under Review.
- [2] R. Arefin, W. You, S. H. Ramachandra, H. Jung, S. M. N. Hasan, M. Awwad, **S. Arafin**, “Theoretical analysis of tunnel-injected sub-300 nm AlGaIn UV lasers”, Under Review.
- [3] Z. J.-Eddine, S. M. N. Hasan, B. Gunning, H. Chandrasekar, M. Crawford, A. Armstrong, **S. Arafin**, and S. Rajan, “Fully transparent GaN homojunction tunnel junction-enabled cascaded blue LEDs”, *Appl. Phys. Lett.*, vol. 117, no. 5, July 2020.
- [4] R. Arefin, S. H. Ramachandra, H. Jung, W. You, S. M. N. Hasan, H. Turski, S. Dwivedi, **S. Arafin**, “III-N/Si₃N₄ integrated photonics platform for blue wavelengths”, *IEEE J. Quant. Electron.*, vol. 56, no. 4, pp. 1-9, May 2020.
- [5] **S. Arafin**, and H. Jung, “Recent progress on GaSb-based electrically-pumped VCSELs for wavelengths above 4 μm,” Proc. SPIE 10980, Image Sensing Technologies: Materials, Devices, Systems, and Applications VI, 109800H, pp. 1-8, May 2019.
- [6] **S. Arafin**, S. M. N. Hasan, Z. J.-Eddine, D. Wickramaratne, and S. Rajan, “Design of AlGaIn-based lasers with a buried tunnel junction for sub-300 nm emission,” *Semicon. Sci. Technol.*, vol. 34, no. 7, pp. 074002(1-6), Apr. 2019.

- [7] **S. Arafin**, A. P. McFadden, B. Paul, S. N. Hasan, J. Gupta, C. J. Palmstrøm and L. A. Coldren, "Study of wet and dry etching processes for antimonide-based photonic ICs," *Opt. Mater. Express*, vol. 9, no. 4, pp. 1-9, Mar. 2019.
- [8] A. Banerjee, R. Chen, **S. Arafin**, and S. Mitragotri. "Intestinal iontophoresis from mucoadhesive patches: A strategy for oral delivery" *J. Control. Release*, vol. 297, pp. 71-78, Jan. 2019.
- [9] A. Simsek, **S. Arafin**, S.-K. Kim, G. Morrison, L. Johansson, M. Mashanovitch, L. A. Coldren, and M. J. Rodwell, "Evolution of chip-scale heterodyne optical phase-locked loops towards watt-level power consumption" *IEEE J. Lightw. Technol.*, vol. 36, no. 2, pp. 258-264, Jan. 2018.
- [10] **S. Arafin**, and L. A. Coldren, "Advanced InP photonic integrated circuits for communication and sensing", (invited review), *IEEE J. Sel. Top. Quantum Electron.*, vol. 24, no. 1, May 2017.
- [11] **S. Arafin**, A. Simsek, M. Lu, M. J. Rodwell, and L. A. Coldren, "Heterodyne locking of an integrated optical phase-locked loop with on-chip modulators", *Opt. Lett.*, vol. 42, no. 19, Aug. 2017. **[Editor's Pick]**
- [12] B. Guan, P. Li, **S. Arafin**, Y. Alaskar, K. L. Wang, "Investigation of single-mode vertical-cavity surface-emitting lasers with graphene-bubble dielectric DBR," *Photonics and Nanostructures-Fundamentals and Applications*, vol. 28, pp. 56-60, Feb. 2018.
- [13] **S. Arafin**, G. Morrison, M. Mashanovitch, L. A. Johansson, and L. A. Coldren, "Compact low-power consumption single-mode coupled-cavity lasers," *IEEE J. Sel. Top. Quantum Electron.*, vol. 23, no. 6, pp. 1-9, May. 2017.
- [14] **S. Arafin**, A. Simsek, S.-K. Kim, W. Liang, D. Eliyahu, A. Matsko, L. Johansson, L. Maleki, M. J. Rodwell, and L. A. Coldren, "Power-efficient Kerr frequency comb based tunable optical source," *IEEE Photon. J.*, vol. 9, no. 3, pp. 1-14, Mar. 2017.
- [15] T. Eales, I. Marko, B. A. Ikyo, A. R. Adams, **S. Arafin**, S. Sprengel, M.-C. Amann and S. J. Sweeney, "Wavelength dependence of efficiency limiting mechanisms in type-I GaInAsSb/GaSb lasers emitting in the mid-infrared," *IEEE J. Sel. Top. Quantum Electron.* vol. 23, no. 6, pp. 1-9, Mar. 2017.
- [16] **S. Arafin**, A. Simsek, S.-K. Kim, S. Dwivedi, W. Liang, D. Eliyahu, J. Klamkin, A. Matsko, L. Johansson, L. Maleki, M. J. Rodwell, and L. A. Coldren, "Towards chip-scale optical frequency synthesis based on optical heterodyne phase-locked loop," *Opt. Express*, vol. 25, no. 2, pp. 681-695, Dec. 2016. **[Highlighted in Nat. Photon]**
- [17] A. B. Ikyo, I. P. Marko, K. Hild, A. R. Adams, **S. Arafin**, M. -C. Amann and S. J. Sweeney, "Temperature-stable mid-infrared GaInAsSb/GaSb vertical-cavity surface-emitting lasers (VCSELs)," *Nat. Sci. Rep.*, vol. 6, pp. 19595 (1-6), Jan. 2016.
- [18] W. Li, A. Mecozzi, M. Lu, M. Vasilyev, **S. Arafin**, D. Dadic, L. Johansson and L. A. Coldren, "First monolithically integrated dual-pumped phase-sensitive amplifier chip based on a saturated semiconductor optical amplifier," *IEEE J. Quantum Electron.*, vol. 52, no. 1, pp. 1-12, Jan. 2016.
- [19] Y. Alaskar*, **S. Arafin***, Q. Lin, J. McKay, D. Wickramaratne, M. S. Goorsky, R. K. Lake, M. A. Zurbuchen, and K. L. Wang, "Theoretical and experimental study of highly textured GaAs on silicon using a graphene buffer layer", in Proc. *18th Intl. Conf. Molecular Beam Epitaxy 2014, J. Cryst. Growth*, vol. 425, no.1, pp. 268-273, Sept. 2015. ***equal contribution.**
- [20] Y. Alaskar*, **S. Arafin***, D. Wickramaratne, M. A. Zurbuchen, L. He, R. K. Lake, and K. L. Wang, "Towards van der Waals epitaxial growth of GaAs on Si using a graphene buffer layer," *Adv. Funct. Mater.*, vol. 24, no. 42, pp. 6629-6638, Aug. 2014. ***equal contribution.**
- [21] Q. Wang , B. Guan , K. Liu, X. Liu, X. Jiang, Y. Ma, **S. Arafin**, G. Shen, "Temperature dependent polarization switch of 850-nm VCSELs with different apertures," *Opt. Laser Technol.*, vol. 63, pp. 19-23, Mar. 2014.

- [22] C.-P. Chu, **S. Arafin**, G. Huang, T. Nie, K. L. Wang, Y. Wang, J. Zou, S. M. Qasim, and M. S. BenSaleh, "Selectively grown GaAs nanodisks on Si(100) by molecular beam epitaxy," in Proc. *30th North American Conference on Molecular Beam Epitaxy (NAMBE) J. Vac. Sci. Technol. B*, vol. 32, no. 2, pp. 02C111(1-5), Feb. 2014.
- [23] L.-T. Chang, C.-Y. Wang, J. Tang, T. Nie, W. Jiang, C.-P. Chu, **S. Arafin**, L. He, M. Afsal, L.-J. Chen and K. L. Wang, "Electric-field control of ferromagnetism in Mn-doped ZnO nanowires," *Nano Lett.*, vol. 14, no. 4, pp. 1823–1829, Feb. 2014.
- [24] G. M. T. Chai, T. J. C. Hose, N. E. Fox, K. Hild, A. B. Ikyo, I. P. Marko, S. J. Sweeney, A. Bachmann, **S. Arafin**, M.-C. Amann. "Characterization of 2.3 μm GaInAsSb-based vertical-cavity surface-emitting laser structures using photomodulated reflectance," *J. Appl. Phys.*, vol. 115, no. 1, pp. 013102 (1-7), Jan. 2014.
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- [26] A. Kumar, **S. Arafin**, M.-C. Amann and R. Singh, "Temperature dependence of electrical characteristics of Pt/GaN Schottky diode fabricated by UHV e-beam evaporation," *Nanoscale Res. Lett.*, vol. 8, no. 1, pp. 481-488, Nov. 2013.
- [27] **S. Arafin**, X. Liu, and Z. Mi, "Review of recent progress on nitride nanowire lasers," (invited), *SPIE J. Nanophotonics*, vol. 7, no. 1, pp. 074599(1-27), Sept. 2013. [\[Top downloaded article\]](#)
- [28] M. H. T. Dastjerdi, M. Djavid, **S. Arafin**, X. Liu, P. Bianucci, P. J. Poole and Z. Mi, "Optically pumped rolled-up InAs/InGaAsP quantum dash lasers at room-temperature," *Semicond. Sci. Technol.* vol. 28, no. 9, pp. 094007(1-5), Aug. 2013. [\[selected as front-cover featured article\]](#)
- [29] M. Ortsiefer, C. Neumeier, J. Roskopf, **S. Arafin**, G. Boehm, A. Hangauer, J. Chen, R. Strzoda, and M.-C. Amann, "GaSb and InP-based VCSELs at 2.3 μm emission wavelength for tunable diode laser spectroscopy of carbon monoxide," (invited), in *Quantum Sensing and Nanophotonic Devices VIII*, M. Razeghi, R. Sudharsanan, and G. J. Brown, (Eds.) Proc. SPIE 7945, pp. 794509(1-7), Jan. 2011.
- [30] K. Vizbaras, **S. Arafin**, and M.-C. Amann, "Single mode and tunable GaSb-based VCSELs for wavelengths above 2 μm ," in *Vertical-Cavity Surface-Emitting Lasers XV*, J. K. Guenter, and C. Lei, (Eds.), Proc. SPIE 7952, pp. 79520D(1-7), 2011.
- [31] **S. Arafin**, A. Bachmann, K. Vizbaras, A. Hangauer, J. Gustavsson, J. Bengtsson, A. Larsson, and M.-C. Amann, "Comprehensive analysis of electrically-pumped GaSb-based VCSELs," *Opt. Express*, vol. 19, no. 18, pp. 17267-17282, Aug. 2011.
- [32] K. Vizbaras, M. Toerpe, **S. Arafin**, and M.-C. Amann, "Ultra-low resistive GaSb/InAs tunnel junctions," *Semicond. Sci. Technol.*, vol. 26, no. 7, pp. 07502(1-4), Apr. 2011.
- [33] **S. Arafin**, A. Bachmann, and M.-C. Amann, "Transverse-mode characteristics of GaSb-based VCSEL with buried tunnel junctions," *IEEE J. Sel. Top. Quantum Electron.*, vol. 17, no. 6, pp. 1576-1583, Mar. 2011.
- [34] K. Vizbaras, A. Bachmann, **S. Arafin**, K. Saller, S. Sprengel, G. Boehm, R. Meyer, and M.-C. Amann, "MBE growth of low threshold GaSb-based lasers with emission wavelengths in the range of 2.5 to 2.7 μm ," *J. Cryst. Growth*, vol. 323, no. 1, pp. 446-449, Dec. 2010.
- [35] **S. Arafin**, A. Bachmann, K. Vizbaras, J. Gustavsson, A. Larsson, and M.-C. Amann, "Large-area single-mode GaSb-based VCSELs using an inverted surface relief," in Proc. *23rd Annual Meeting of the IEEE Photonics Society 2010*, paper MI3, pp. 61-62, Denver, CO, USA, Nov. 2010.
- [36] A. Härkönen, A. Bachmann, **S. Arafin**, K. Haring, J. Viheriälä, M. D. Guina, and M. C. Amann, "2.34 μm electrically-pumped VCSEL with buried tunnel junction," in *Semiconductor Lasers and Laser Dynamics IV*, K. P. Panayotov, M. Sciamanna, A. A. Valle, and R. Michalzik, (Eds.), Proc. SPIE 7720, pp. 772015(1-7), 2010.

- [37] **S. Arafin**, A. Bachmann, K. Vizbaras, and M.-C. Amann, "Large-aperture single-mode GaSb-based BTJ-VCSELs at 2.62 μm ," in Proc. *22nd IEEE International Semiconductor Laser Conference, ISLC 2009*, paper TuB4, pp.47-48, Kyoto, Japan, Sept. 2010.
- [38] A. Bachmann, **S. Arafin**, and K. Kashani-Shirazi, "Single-mode electrically-pumped GaSb-based VCSELs emitting continuous-wave at 2.4 and 2.6 μm ," (invited), *New J. Phys.*, vol. 11, no. 12, pp. 125014-(1-17), Dec. 2009.
- [39] **S. Arafin**, A. Bachmann, K. Kashani-Shirazi, S. Priyabadini, and M.-C. Amann, "Low-resistive sulphur-treated ohmic contacts to n-type InAsSb," *IET Optoelectron.*, vol. 3, no. 6, pp. 259-263, Dec. 2009.
- [40] **S. Arafin**, A. Bachmann, K. Kashani-Shirazi, and M.-C. Amann, "Continuous-wave electrically-pumped GaSb-based VCSELs at $\sim 2.6 \mu\text{m}$ operating up to 50°C," in Proc. *22nd Annual Meeting of the IEEE Photonics Society 2009*, paper ThBB2, pp. 837-838, Belek-Antalya, Turkey, Oct. 2009.
- [41] **S. Arafin**, A. Bachmann, K. Kashani-Shirazi, and M.-C. Amann, "Continuous-wave single-mode electrically-pumped GaSb-based VCSELs at 2.5 μm ," in Proc. *8th Pacific Rim Conference on Lasers and Electro-Optics, CLEO/Pacific Rim 2009*, paper WG4-2, pp. 1-2, Shanghai, China, Sept. 2009.
- [42] **S. Arafin**, A. Bachmann, K. Kashani-Shirazi, and M.-C. Amann, "Electrically-pumped continuous-wave vertical-cavity surface-emitting lasers at 2.6 μm ," *Appl. Phys. Lett.*, vol. 95, no. 13, pp. 131120(1-3), Oct. 2009.
- [43] A. Bachmann, **S. Arafin**, K. Kashani-Shirazi, and M.-C. Amann, "Long wavelength electrically-pumped GaSb-based buried tunnel junction VCSELs," in Proc. *14th International Conference on Narrow Gap Semiconductors and Systems NGSS 2009*, published in *Physics Procedia*, vol. 3, no. 2, pp. 1155-1159, Sendai, Japan, July 2009.
- [44] A. Bachmann, K. Kashani-Shirazi, **S. Arafin**, and M.-C. Amann, "GaSb-based VCSEL with buried tunnel junction for emission around 2.3 μm ," *IEEE J. Sel. Top. Quantum Electron.*, vol. 15, no. 3, pp. 933-940, June 2009.
- [45] K. Kashani-Shirazi, K. Vizbaras, A. Bachmann, **S. Arafin**, and M.-C. Amann, "Low-threshold strained quantum-well GaSb-based lasers emitting in the 2.5- to 2.7 μm wavelength range," *IEEE Photon. Technol. Lett.*, vol. 21, no.16, pp. 1106-1108, June 2009.
- [46] K. Kashani-Shirazi, A. Bachmann, **S. Arafin**, K. Vizbaras, and M.-C. Amann, "Ultra-low threshold GaSb-based laser diodes at 2.65 μm ," in Proc. Conference on Lasers and Electro-Optics/International Quantum Electronics Conference, CLEO /IQEC 2009, paper CTuGG5, pp. 1-2, Baltimore, MD, USA, May 2009.

❖ CONFERENCE TALKS

- [1] S. M. N. Hasan, Z. Jamal-Eddine, B. Gunning, H. Chandrasekar, M. Crawford, A. Armstrong S. Rajan and **S. Arafin**, "Monolithic MOCVD-grown III-nitride tunnel junctions with ultra-low resistance" *62nd Electronic Material Conference 2020*, Columbus, OH, USA, July 2020.
- [2] Z. Jamal-Eddine, S. M. N. Hasan, B. Gunning, H. Chandrasekar, M. Crawford, A. Armstrong S. Rajan and **S. Arafin**, Theoretical analysis of transparent graded InGaN tunnel junctions for blue LEDs, *62nd Electronic Material Conference 2020*, Columbus, OH, USA, July 2020.
- [3] B. P. Gunning, S. M. N. Hassan, Z. J.-Eddine, H. Chandrasekar, H. Jung, M. H. Crawford, A. A. Armstrong, S. Rajan, and **S. Arafin**, "All-MOCVD tunnel junctions for reduced-droop high-power multi-junction cascaded LEDs", *8th International Symposium on Growth of III-Nitrides*, San Diego, CA, USA, May 2020.
- [4] R. Arefin, S. Ramachandra, H. Jung, S. M. N. Hasan, W. You, S. Dwivedi, and **S. Arafin**, "Gallium- and silicon nitride-based photonic integrated circuits for visible wavelengths", *CLEO 2020*, paper JTh2A.88, Virtual web-conference, May 2020.

- [5] A. Jain, **S. Arafin**, and S. Dwivedi, "CMOS compatible optical Isolator with tandem ring modulators," *2019 IEEE Photonics Conference (IPC)*, San Antonio, TX, USA, Oct. 2019.
- [6] **S. Arafin**, Larry A. Coldren and S. Dwivedi, "Design of high-power electrically-pumped VECSELs for the 3-4 μm wavelength range," *2019 IEEE Research and Applications of Photonics in Defense Conference (RAPID)*, Miramar Beach, FL, USA, Aug. 2019.
- [7] S. M. N. Hasan, Z. J.-Eddine, D. Wickramaratne, B. Paul, S. Rajan, and **S. Arafin**, "Design of tunnel-injected sub-300 nm AlGaIn-based lasers," *13th International Conference on Nitride Semiconductors 2019*, Bellevue, WA, USA, July 2019.
- [8] Z. J.-Eddine, S. M. N. Hasan, B. Gunning, H. Chandrasekar, H. Jung, M. Crawford, A. Armstrong, **S. Arafin**, and S. Rajan, "Sidewall activation of buried *p*-GaIn layers in tunnel-junction enabled multi-junction cascaded blue LEDs," (**Late News abstract**), *13th International Conference on Nitride Semiconductors 2019*, Bellevue, WA, USA, July 2019.
- [9] S. M. N. Hasan, S. Sharif, H. Jung, H. Tang, and **S. Arafin**, "MBE-Grown III-nitride based blue laser diodes on c-plane n-doped GaIn substrates", OSU Materials Week, Columbus, OH, USA (poster) May, 2019.
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- [1] **S. Arafin**, “Compound III-V semiconductor based classical and non-classical light emitters at visible through mid-infrared”, Dept. Electrical and Computer Engineering of University of Iowa, Oct. 15, 2020
- [2] **S. Arafin**, “Growth of large-area single-crystalline h-BN for single photon emission”, *2020 IEEE Research and Applications of Photonics in Defense Conference (RAPID)*, Miramar Beach, FL, USA, Aug. 2020.
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- [5] **S. Arafin**, “Highly-integrated optical phased-locked loop for LiDAR/remote sensing,” Paper 10980-28, *SPIE Defense + Commercial Sensing*, Session: Advanced Technology I, Baltimore, Maryland, USA, Apr. 2019
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- [7] **S. Arafin**, “The challenges of mid-IR LiDAR/remote sensing for the photonic chip,” *OSA Integrated Photonics in the Mid-IR Incubator*, Washington DC, USA, May 2018.
- [8] **S. Arafin**, “Semiconductor materials and photonic devices - from visible to mid-infrared,” Dept. of Electrical and Computer Engineering, The Ohio State University, Columbus, OH, USA, Mar. 2018.
- [9] **S. Arafin**, “Chip-scale optical frequency synthesis based on optical phase-locked loop,” Dept. of Electrical and Computer Engineering, University of Virginia, Charlottesville, VA, USA, Dec. 2017. [[link](#)]
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PRESS RELEASES

2014: *Adv. Funct. Mater.* paper on **Van der Waals epitaxial growth of GaAs on graphene/silicon** received a very extensive media coverage. The results were highlighted by more than 5 international online magazine/newsletters, e.g. [Compound Semiconductor](#), [Semiconductor Today](#), [UCLA Electrical Engineering](#) etc.

2017: *Opt. Express* paper on “**Towards chip-scale optical frequency synthesis based on optical heterodyne phase-locked loop**” was highlighted in [Compound Semiconductor](#), [Nat. Photon](#) and [ECE UCSB](#)

PROFESSIONAL SOCIETY MEMBERSHIPS

2009 – present	Senior Member , Institute of Electrical and Electronics Engineers (IEEE)
2009 – present	Senior Member , Optical Society of America (OSA)
2009 – present	Senior Member , Society of Photo-Optical Instrumentation Engineers (SPIE)
2012 – present	Member, European Physical Society (EPS)
2013 – present	Member, Die Informationstechnische Gesellschaft im VDE (ITG)
