

Omar Alkhazragi

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EDUCATION

KING ABDULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, Thuwal, KSA

- Electrophysics Ph.D. student in the Electrical and Computer Engineering Program 06/2019 – Present
GPA: 4.000/4.000
- Master of Science – Electrical Engineering 01/2018–06/2019
Degree awarded in June 2019
GPA: 4.000/4.000

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS, Dhahran, KSA 01/2014–01/2018

- Bachelor of Science – Electrical Engineering
Degree awarded in January 2018
GPA: 4.000/4.000
- GRE Quantitative Reasoning Score: 170/170
IELTS Band Score: 8.0

EXPERIENCE

KING ABDULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, Thuwal, KSA

- Research Assistant in the Photonics Laboratory 01/2018 – Present
- Semiconductor Optoelectronic Devices Course Teaching Assistant 09/2020–12/2020
- Visiting Student in the Photonics Laboratory 07/2017–08/2017

FUDAN UNIVERSITY, Shanghai, China September 2019

- Visiting Research Assistant in the Key Laboratory for Information Science of Electromagnetic Waves

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS, Dhahran, KSA 09/2016–06/2017

In collaboration with Georgia Institute of Technology

- Member of the Electrical Engineering Undergraduate Research Program

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS, Dhahran, KSA

- Communication Engineering Laboratory Teaching Assistant 02/2017–06/2017
- IEEE Student Branch Member and an Organizer of the IEEE GCC SYP Congress 2017 09/2016–06/2017

HONORS/AWARDS

- 8th KFUPM Student Scientific Conference – 1st Place – 2017
- Qiyas Excellence Award for Scientific Distinction – 2014
- KFUPM Physics Olympiad – 1st Place – 2014
- KFUPM High School National Mathematics Olympiad – Top 10 Students Nationwide – 2011

PUBLICATIONS

[Google Scholar](#)

Journal Papers

- **O. Alkhazragi**, C. H. Kang, M. Kong, G. Liu, C. Lee, K.-H. Li, H. Zhang, J. M. Wagstaff, F. Alhawaj, T. K. Ng, J. S. Speck, S. Nakamura, S. P. DenBaars, and B. S. Ooi, "7.4-Gbit/s visible-light communication utilizing wavelength-selective semipolar micro-photodetector," *IEEE Photonics Technology Letters* 32(13), 767-770 (2020).
 - **O. Alkhazragi**, F. Hu, P. Zou, Y. Ha, C. H. Kang, Y. Mao, T. K. Ng, N. Chi, and B. S. Ooi, "Gbit/s ultraviolet-C diffuse-line-of-sight communication based on probabilistically shaped DMT and diversity reception," *Optics Express* 28(7), 9111-9122 (2020).
 - **O. Alkhazragi**, A. Trichili, I. Ashry, T. K. Ng, M.-S. Alouini, and B. S. Ooi, "Wide-field-of-view optical detectors using fused fiber-optic tapers," *Optics Letters* 46, 1916-1919 (2021).
 - **O. Alkhazragi**, X. Sun, V. Zuba, E.-M. Amhoud, H. Oubei, T. K. Ng, B. Jones, M.-S. Alouini, and B. S. Ooi, "Spectrally resolved characterization of thermally induced underwater turbulence using a broadband white-light interrogator," *IEEE Photonics Journal* 11(5), Art. No. 7905609 (2019).
 - A. Tankimanova*, C. H. Kang*, **O. Alkhazragi***, H. Tang*, M. Kong, L. Sinatra, M. Lutfullin, D. Li, S. Ding, B. Xu, H. Alhashim, O. M. Bakr, K. Wang, X. Sun, T. K. Ng, and B. S. Ooi, "Colloidal PbS quantum dots for visible-to-near-infrared optical communication link," *IEEE Photonics Journal* 13(2), Art. no. 7901011 (2021).
- *Authors contributed equally
- M. Kong, C. H. Kang, **O. Alkhazragi**, X. Sun, Y. Guo, M. Sait, J. A. Holguin-Lerma, T. K. Ng, and B. S. Ooi, "A survey on energy-autonomous solar cell receivers toward application in satellite-air-ground-ocean communication," *Progress in Quantum Electronics*, p. 100300 (2020).
 - R. C. Subedi, S. Rossbach, C. H. Kang, **O. Alkhazragi**, X. Sun, J. A. Holguin-Lerma, S. Mitra, I. S. Roqan, A. R. Behzad, R. Sougrat, T. K. Ng, D. D. C. Bradley, C. M. Duarte, and B. S. Ooi, "Giant clam iridocyte-based high-speed photodetection for ultraviolet optical wireless communication," *Optica Materials Express* 11, 1515-1526 (2021).
 - M. Z. M. Khan, S. Mukhtar, J. A. Holguín-Lerma, **O. Alkhazragi**, I. Ashry, T. K. Ng, B. S. Ooi, "Prism-based tunable InGaN/GaN self-injection locked blue laser diode system: study of temperature, injection ratio and stability," *Journal of Nanophotonics* 14(3), 036001 (2020).
 - Shihada, O. Amin, C. Bainbridge, S. Jardak, **O. Alkhazragi**, T. K. Ng, B. S. Ooi, M. Berumen, and M.-S. Alouini, "Aqua-Fi: delivering internet underwater using wireless optical networks," *IEEE Communications Magazine* 58(5), 84-89 (2020).
 - J. A. Holguin-Lerma, M. Kong, **O. Alkhazragi**, X. Sun, T. K. Ng, and B. S. Ooi, "480-nm distributed-feedback InGaN laser diode for 10.5-Gbit/s visible-light communication," *Optics Letters* 45(3), 742-745 (2020).
 - X. Sun, M. Kong, **O. Alkhazragi**, C. Shen, E.-N. Ooi, X. Zhang, U. Buttner, T. K. Ng, and B. S. Ooi, "Non-line-of-sight methodology for high-speed wireless optical communication in highly turbid water," *Optics Communications* 461, 125264 (2020).

- **(Invited review article)** X. Sun, C. H. Kang, M. Kong, **O. Alkhazragi**, Y. Guo, M. Ouhssain, Y. Weng, B. H. Jones, T. K. Ng, and B. S. Ooi, "A review on practical considerations and solutions in underwater wireless optical communication," *Journal of Lightwave Technology* 38(2), 421-431 (2019).
- **(Invited tutorial)** Y. Guo, **O. Alkhazragi**, C. H. Kang, C. Shen, Y. Mao, X. Sun, T. K. Ng, and B. S. Ooi, "A tutorial on laser-based lighting and visible light communications: device and technology," *Chinese Optics Letters* 17(4), 040601 (2019).
- **(Invited article)** M. Sait, X. Sun, **O. Alkhazragi**, N. Alfaraj, M. Kong, T. K. Ng, and B. S. Ooi, "The effect of turbulence on NLOS underwater wireless optical communication channels," *Chinese Optics Letters* 17(10), 100013 (2019).
- C. H. Kang, G. Liu, C. Lee, **O. Alkhazragi**, J. M. Wagstaff, K.-H. Li, F. Alhawaj, T. K. Ng, J. S. Speck, S. Nakamura, S. P. Denbaars, and B. S. Ooi, "Semipolar (20 $\bar{2}$ 1) InGaN/GaN micro-photodetector for gigabit-per-second visible light communication," *Applied Physics Express* 13(1), 014001 (2019).
- C. H. Kang, A. Trichili, **O. Alkhazragi**, H. Zhang, R. C. Subedi, Y. Guo, S. Mitra, C. Shen, I. S. Roqan, T. K. Ng, M.-S. Alouini, and B. S. Ooi, "Ultraviolet-to-blue color-converting scintillating-fibers photoreceiver for 375-nm laser-based underwater wireless optical communication," *Optics Express* 27, 30450-30461 (2019).
- M. H. M. Shamim, **O. Alkhazragi**, T. K. Ng, B. S. Ooi, and M. Z. M. Khan, "Tunable dual-wavelength self-injection locked InGaN/GaN green laser diode," *IEEE Access* 7, 143324-143330 (2019).
- Y. Weng, Y. Guo, **O. Alkhazragi**, T. K. Ng, J.-H. Guo, and B. S. Ooi, "Impact of turbulent-flow-induced scintillation on deep-ocean wireless optical communication," *Journal of Lightwave Technology* 37(19), 5083-5090 (2019).
- M. H. M. Shamim, M. A. Shemis, C. Shen, H. M. Oubei, **O. Alkhazragi**, T. K. Ng, B. S. Ooi, M. Z. M. Khan, "Analysis of optical injection on red and blue laser diodes for high bit-rate visible light communication," *Optics Communications* 449, 79-85 (2019).
- Y. Guo, A. Trichili, **O. Alkhazragi**, I. Ashry, T. K. Ng, M. Alouini, and B. S. Ooi, "On the reciprocity of underwater turbulent channels," *IEEE Photonics Journal* 11(2), Art. No. 7901909 (2019).
- X. Sun, W. Cai, **O. Alkhazragi**, E.-N. Ooi, H. He, A. Chaaban, C. Shen, H. M. Oubei, M. Z. M. Khan, T. K. Ng, M.-S. Alouini, and B. S. Ooi, "375-nm ultraviolet-laser based non-line-of-sight underwater optical communication," *Optics Express* 26(10), 12870-12877, (2018).
- M. N. Eliwa, A. Alatawi, J. A. Holguin-Lerma, **O. Alkhazragi**, I. Ashry, T. K. Ng, and B. S. Ooi, "Single-port superluminescent-diode gain-chip for tunable single-wavelength and dual-wavelength blue-laser," *IEEE Photonics Journal* 13(1), Art. no. 1500611 (2021).
- Y. Guo, M. Kong, **O. Alkhazragi**, X. Sun, M. Sait, T. K. Ng, and B. S. Ooi, "Diffused-line-of-sight communication for mobile and fixed underwater nodes," *IEEE Photonics Journal* 12(6), Art. no. 7906413 (2020).
- M. Kong, J. Lin, Y. Guo, X. Sun, M. Sait, **O. Alkhazragi**, C. H. Kang, J. A. Holguin-Lerma, M. Kheireddine, M. Ouhssain, B. H. Jones, T. K. Ng, and B. S. Ooi, "AquaE-lite hybrid-solar-cell

receiver-modality for energy-autonomous terrestrial and underwater internet-of-things," *IEEE Photonics Journal* 12(4), Art. no. 7904713 (2020).

- X. Sun, M. Kong, **O. Alkhazragi**, K. Telegenov, M. Ouhssain, M. Sait, Y. Guo, B. H. Jones, J. S. Shamma, T. K. Ng, and B. S. Ooi, "Field demonstrations of wide-beam optical communication through water-air interface," *IEEE Access* 8, pp. 160480-160489, (2020).

Conference Papers

- **O. Alkhazragi**, F. Hu, P. Zou, Y. Ha, Y. Mao, T. K. Ng, N. Chi, and B. S. Ooi, "2.4-Gbps ultraviolet-C solar-blind communication based on probabilistically shaped DMT modulation," in *Optical Fiber Communication Conference (OFC) 2020*, paper M3I.5. San Diego, California United States, 8-12 March 2020.
- **(Invited Talk)** T. K. Ng, C. H. Kang, **O. Alkhazragi**, J. A. Holguin-Lerma, M. Kong, and B. S. Ooi, "High Speed Lasers and Photodetectors for Terrestrial Communications," in *26th Optoelectronics and Communications Conference*, Hong Kong, China, July 3-7, 2021.
- **(Invited talk)** E. Stegenburgs, A. Bertoncini, J. A. Hulguin-Lerma, M. Kong, A. Trichili, **O. Alkhazragi**, X. Sun, M. S. Alias, T. K. Ng, M.-S. Alouini, C. Liberale, and B. S. Ooi, "Single-frequency visible laser and vertical cavity surface emitting OAM laser for optical wireless communication," in *Optics and Photonics Taiwan International Conference (OPTIC 2020)*, Optical Waveguides and Communications session, National Taipei University of Technology, Taipei, Taiwan, 3-5 December, 2020.
- **(Invited talk)** C. Shen, **O. Alkhazragi**, X. Sun, Y. Guo, T. K. Ng, B. S. Ooi, "Laser-based visible light communications and underwater wireless optical communications: a device perspective," in *SPIE OPTO*, 2019, vol. 10939: SPIE.
- **(Invited talk)** B. S. Ooi, X. Sun, **O. Alkhazragi**, Y. Guo, T. K. Ng, and M. Alouini, "Visible diode lasers for high bitrate underwater wireless optical communications," in *Optical Fiber Communication Conference (OFC) 2019*, paper M3I.1.
- C. H. Kang, G. Liu, C. Lee, **O. Alkhazragi**, J. M. Wagstaff, K.-H. Li, F. Alhawaj, T. K. Ng, J. S. Speck, S. Nakamura, S. P. DenBaars, and B. S. Ooi, "1.5-Gbit/s filter-free optical communication link based on wavelength-selective semipolar (20 $\bar{2}$ 1) InGa \bar{N} /Ga \bar{N} micro-photodetector," in *Conference on Lasers and Electro-Optics (CLEO)*, San Jose, USA, 10-15 May 2020.
- M. Kong, J. A. Holguin-Lerma, **O. Alkhazragi**, X. Sun, T. K. Ng, and B. S. Ooi, "10-Gbit/s sky-blue distributed feedback laser diode-based visible light communication," in *Optical Fiber Communication Conference (OFC) 2020*, paper T3C.3. San Diego, California United States, 8-12 March 2020.
- H. M. Oubei, X. Sun, T. K. Ng, **O. Alkhazragi**, M. Alouini, and B. S. Ooi, "Scintillations of RGB laser beams in weak temperature and salinity-induced oceanic turbulence," in *2018 Fourth Underwater Communications and Networking Conference (UComms)*, 2018.