**Dr. Salam Nazhan Ahmed AL Zaidi, PhD in Optoelectronics**

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| **University of Diyala**  **Department of Power and Electrical Machines**  **Baqubah, Diyala, Iraq** | [salam.n.a@uodiyala.edu.iq](mailto:salam.n.a@uodiyala.edu.iq)  [salam\_nzhan@yahoo.com](mailto:salam_nzhan@yahoo.com)  Phone: [phone]  Mobile: [+]  Fax: [fax] |

Education:

BSc and MSc in 1999 and 2005 from College of Science, Al-Mustansiria University, Iraq. PhD in Optoelectronics from Northumbria University at Newcastle, UK

Thesis:

OPTICAL AND ELECTRICAL CHARACTERISTICS OF VERTICAL-CAVITY SURFACE-EMITTING LASERS FOR FREE SPACE OPTICAL COMMUNICATIONS

Research Experience

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| *Jan 2013 – Jan 2016* | | **PhD Student at**  Faculty of Engineering and Environment  Department of Physics and Electrical Engineering  Northumbria University,  Newcastle upon Tyne, United Kingdom | |
| *Dec 2012 – Jul 2013* | | **Study characteristics of VCSELs under external optical feedback**  Bangor University, School of Electronic Engineering  Bangor, United Kingdom  Study Characteristics of VCSELs under external optical feedback  and rotated polarization angle | |
| *May 2011 – Nov 2012* | | **PhD Student at**  Bangor University, School of Electronic Engineering  , | |
| *Jul 2002 – Present* | | **Lecturer at**  University of Diyala, | |
| Current experiences and working on; | Theoretical knowledge together with practical laboratory experience in the VCSEL characteristics with the external optical feedback, polarization properties study under variable angle of polarization rotating optical feedback, VCSEL properties with the modulation signal for wireless optical communication. | |

Awards & Grants: PhD from Northumbria University, Newcastle upon Tyne,

United Kingdom

Skills & Activities

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| *Skills* | Optoelectronics, Photonics, Optics, Optical Physics, Semiconductor Laser and applications, Laser devices, Characteristics of VCSELs under external optical feedback, Nonlinear Optics, Laser Dynamics and Chaos Synchronization, Optical Switching, polarization switching, Optical Communications, Optical Devices, Wireless Communications |
| Languages: | Arabic, English |
| Memberships: | IEEE member, OCRG members |
| Interests: | Main research interests are an optical and electrical characteristic of semiconductor laser diode, mainly  vertical-cavity surface emitting lasers (VCSELs) for free space optical communications, the research area including; polarization switching, relative intensity noise, hysteresis properties, nonlinear  dynamics and chaos synchronization under optical feedback, practical and theoretical investigation. |

Publications Highlights

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| Books |

1. Chapter in in book( [Advances in Optics: Reviews](https://scholar.google.co.uk/citations?view_op=view_citation&hl=en&user=TPCZMxMAAAAJ&citation_for_view=TPCZMxMAAAAJ:YOwf2qJgpHMC) 5). (2022)

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| Patent |

1. . (2019),

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| Journals |

1. **Salam Nazhan** and Zabih Ghassemlooy, “[Antiphase chaotic synchronization enhancement in a vertical cavity surface emitting laser](https://www.osapublishing.org/abstract.cfm?uri=ao-58-35-9491)**”** **Applied Optics Vol. 58, Issue 35, pp. 9491-9497** (2019),
2. **NAZHAN, S. (2022**). Ultra-high Power Reduction in Modulated VCSEL for Lasing. Nonlinear Optics, Quantum Optics: Concepts in Modern Optics, 55. (2022)
3. **Salam Nazhan** and Zabih Ghassemlooy, "Polarization output power stabilization of a vertical-cavity surface-emitting laser," J. Opt. Soc. Am. B 35, 1615-1619 (2018),
4. **S. Nazhan** and Z. Ghassemlooy, "Polarization Switching Dependence of VCSEL on Variable Polarization Optical Feedback," in IEEE Journal of Quantum Electronics, vol. 53, no. 4, pp. 1-7, Aug. 2017.doi: 10.1109/JQE.2017.2718550
5. **Nazhan, S**.; Ghassemlooy, Z.; Busawon, K.: “Harmonic distortion dependent on optical feedback, temperature and injection current in a vertical cavity surface emitting laser,” J. of Physics D: Applied Physics, 49 (14), pp. 145107, 10 March 2016
6. **Nazhan, S**.; Ghassemlooy, Z.; Busawon, K.; Gholami, A., "Suppressing the nonlinearity of free running VCSEL using selective-optical feedback," IEEE Photonics Technology Letters, 28 (2), pp.185-188, 15 Jan. 2016
7. **Nazhan, S**.; Ghassemlooy, Z.; Busawon, K., “Chaos synchronization in vertical-cavity surface-emitting laser based on rotated polarization preserved optical feedback,” Chaos: An Interdisciplinary Journal of Nonlinear Science, 26 (1), pp.013109, 2016
8. **Nazhan, S**., Ghassemlooy, Z., Busawon, K., and Gholami, A.: “Investigation of polarization switching of VCSEL subject to intensity modulated and optical feedback,” Optics & Laser Technology, 75, pp. 240-245, 2015
9. **S. Nazhan, H. Al-Musawi, K. Humood** “Experimental Demonstration of an Ultra-Low Power Vertical-Cavity Surface-Emitting Laser for Optical Power Generation” International Journal of Electronics and Communication Engineering, Vol. 15, 1, Pp19-23. (2021)

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| Conferences |

1. **S. Nazhan**,"Experimental investigation of anti-phase chaotic-synchronization dynamics of the polarization modes in VCSELs," 2018 1st International Scientific Conference of Engineering Sciences - 3rd Scientific Conference of Engineering Science (ISCES), Diyala, 2018, pp. 104-107.
2. **S. Nazhan**, Z. Ghassemlooy, K. Busawon, A. Gholami and N. A. Cholan, "Chaotic signal dynamics of VCSEL for secure optical communication," 2016 10th International Symposium on Communication Systems, Networks and Digital Signal Processing (CSNDSP), Prague, Czech Republic, 2016, pp. 1-6. doi: 0.1109/CSNDSP.2016.7574012
3. **Nazhan, S**., Ghassemlooy, Z., Busawon, K., and Perez, J.: “Polarization RIN of VCSEL subject to modulation signal with variable polarization angle of optical feedback,” 4th Intern. Workshop on Optical Wireless Communications, 7-8 Sep. 2105, Ozyegin University, Istanbul, Turkey, pp. 65-88, 2015
4. **Nazhan, S.**, Ghassemlooy, Z., Busawon, K., and Gholami, K.: “Variable-polarization optical feedback induced high-quality polarization-resolved chaos synchronization in VCSEL,” Science and Information Conf., (SAI), 2015, pp. 1052-1055, DOI: 10.1109/SAI.2015.7237272
5. **Nazhan, S.**, Ghassemlooy, Z., and Busawon, K.: “Chaotic regime modulation in VCSEL based on Rotated Polarization-Preserved Optical Feedback,”Photonics global conference 2015, (PGC), 28 June to 03 July, Singapore
6. **Nazhan, S.**, Ghassemlooy, Z., and Busawon, K.: “Polarization properties of Vertical-Cavity Surface-Emitting Lasers subject to variable polarization angle of optical feedback” Second Scientific Conference, Diyala, Iraq, 16 – 17 December 2015
7. **Nazhan, S.**, Ghassemlooy, Z., and Busawon, K. “High-quality Chaos Synchronization in VCSEL polarization modes under Optical Feedback,” Proceeding of the Northumbria Research Conference, Newcastle, UK, 21-22 May 2015
8. **Nazhan, S.**, Ghassemlooy, Z., and Busawon, K. “Investigation of current modulation effects on threshold current of an 850nm single-mode VCSEL,” Proceeding of the Northumbria Research Conference, Newcastle, UK, 21-22 May 2014.http://soe.northumbria.ac.uk/ocr/publications.html
9. **Nazhan, S.**, Ghassemlooy, Z., and Busawon, K. “Relative Intensity Noise of Vertical-Cavity Surface-Emitting Lasers Subject to Variable Polarization-Optical Feedback” 3rd International Workshop in Optical Wireless Communications (IWOW),978-1-4799-6676-2014 IEEE DOI:10.1109/IWOW.2014.6950769.
10. **Nazhan, S.**, Ghassemlooy, Z., Busawon, K., and Perez, J.: “Hysteresis properties induced by variable polarization angle in the polarization switching of VCSELs,” 9th IEEE/IET International Symposium on Communication Systems, Networks and Digital Signal Processing (CSNDSP), 23-25 July 2014, Manchester, UK, pp. 325 - 329
11. **S.Nazhan,** H. Shalal CDoping Profile Extraction of P-N Junction Diod using New Method” International Engineering Conference (IntEC2009) 11-18 May 2009. Damascus, Syria
12. **S.Nazhan** “[Inverse Modeling of p-n Junction Using C-V Measurement](javascript:void(0))” Diyala Journal of Applied Researches, 2,pp. 77-83, Diyala University, (2006).
13. **Salam Nazhan**, Hassan K. Al-Musawi, Khalid A. Humood“Experimental Demonstration of an Ultra-low Power Vertical-cavity Surface-emitting Laser for Optical Power Generation” ICOEC 2020 :22th Int. Conf. on OptoElectronics and Communications, Amsterdam The Netherlands Sep 17-18, (2020)

Conferences and Workshops Attendance

1. Science and Information Conference 2015, London UK; 07/2015
2. Northumbria University Research Conference; Newcastle upon Tyne, UK, 05/2015
3. 4th International Workshop on Optical Wireless Communication, 07-08 September 2015, Istanbul, Turkey; 09/2015
4. 9th IEEE, IET International Symposium on COMMUNICATION SYSTEMS, NETWORKS, AND DIGITAL SIGNAL PROCESSING – 23-25 July 2014, Manchester, UK; 07/2014
5. 7th Opticwise MC/WG Meeting & 3rd International Workshop on Optical Wireless Communications 2014, Funchal, Madeira Island, Portugal; 09/2014
6. Northumbria University Research Conference; Newcastle upon Tyne, UK, 20/05/2014
7. 4th Edition of Hybrid conference Lasers, Optics & Photonics to be held during October 06-07, 2022.

**Website:**

[**https://scholar.google.co.uk/salam**](https://scholar.google.co.uk/salam) **Nazhan**

[**https://www.researchgate.net/profile/Salam\_Al\_Zaidi**](https://www.researchgate.net/profile/Salam_Al_Zaidi)

[**http://ieeexplore.ieee.org/Salam**](http://ieeexplore.ieee.org/Salam) **Nazhan (AL Zaidi)**

[**https://www.linkedin.com/in/salam-nazhan-ahmed**](https://www.linkedin.com/in/salam-nazhan-ahmed)

[**https://www.academia.edu/Salam**](https://www.academia.edu/Salam) **N AL Zaidi**

**سلام نزهان / السيرةالذاتية**

سلام نزهان ولد في بعقوبة 1971 , اكمل دراسة البكالوريوس في قسم ألفيزياء كلية العلوم \ الجامعة المستنصرية في عام

1998 والماجستير في اختصاص الفيزياء الالكترونية وأشباه الموصلات في كلية العلوم \ الجامعة المستنصرية في عام

2005 . حصل على شهادة الدكتوراه في اختصاص الكهروبصريات / ليزراشباه الموصلات من كلية الهندسة في جامعة

نورثمبريا نيوكاسل/ المملكة المتحدة في - 2016 .

اصبح عضو في جمعية الفيزيائيين العراقية في عام 2005 وعضو في الجمعية العالمية لمهندسي الكهرباء و الالكترونيك

IEEE في عام 2013 .

التحق في مجموعة البحث العلمي في قسم الاتصالات وخصائص الليزر في كل من جامعتي بنك ر في ويلزوكذلك جامعة

نورثمبريا في انكلترا في اللمملكة المتحدة اثناء فترة دراسته الدكتوراه من 2011 الى 2016 .

تم اختياره كمقوم علمي في الكثير من المجلات العالمية الرصينة المعروفة , كذلك العمل في العديد من اللجان العلمية في عدة

مؤتمرات عالمية خارج العراق ,

و لديه اكثر من 25 بحث علمي منشور في مجلات عالمية رصينة مثل IEEE ,IOP, J.Phys.D AIP , OSA ومؤتمرات

عالمية. لديه الكثير من المشاركات في مؤتمرات عالمية عديدة في لندن , البرتغال, االجيك, تركيا, هولندا. شارك في عدة

دورات خارج العراق في بريطانيا و البرتغال وتركيا,

حصل على براءة اختراع في عام 2019

مجال بحثه يتركز في دراسة خصائص ليزر اشباه الموصلات واستخداماتها في انظمة الاتصالات الضوئية وحماية نقل

المعلومات