

Hussein B. Marhoon Al-Husseini



Address

Office: Nassiriya Nanotechnology Research Laboratory (NNRL),
Physics Department, Science College, Thi-Qar University,
Nassiriya, Iraq.

E-mail: alhusseini_2007@yahoo.com
alhusseini2007@gmail.com
DrHussain@sci.utq.edu.iq

Career Objective

Be a good contributor in the field of semiconductor quantum dot, optics and nonlinear optoelectronics devices dynamics, particularly in the area of encrypted optical communications, QD- laser dynamics, QD- LED dynamics and quantum optics. Such issues like chaos control and synchronization and its applications in secure communications are considered. In addition to be a successful university educator in applied nonlinear dynamics, optical communications and nanomaterials properties.

Personal

Born May 03, 1973 in Thi-Qar-Iraq, married, five children.

Education

- PhD. In Physics (Laser and Electro-Optics Physics). Baghdad University, College of Science, 2015, average 87.
- M. Sc. In Physics (laser and optics). Baghdad University, College of Science for Women, 2009, average 89.52.
- B. Sc. In Physics, Basrah University, College of Education, 1996, average 65.15.

Professional Experience

- April 2012- April 2016 Lecturer, Department of Physics, Science College, Thi-Qar University (Nassiriya Nanotechnology Research Laboratory (NNRL)).
- April 2009- April 2012 Assistance lecturer, Department of Physics, Science College, Thi-Qar University (Nassiriya Nanotechnology Research Laboratory (NNRL)).
- August 2002- sptember 2006: Graduate teaching assistance, Department of Physics, Science College, Thi-Qar University.

Awards and Honors

- 2002-2016 Many thanks and awards are directed from Ministry of higher education and Thi-Qar University, Iraq.

Research Interests

Applied research in semiconductors quantum dots, nonlinear dynamics and its applications in telecommunications, and nonlinear optics and optoelectronic devices.

Detail of courses I have taught.

1. Nanotechnology
2. Laser physics and applications
3. Laser communications.
4. Optics.
5. Laser nonlinear dynamics.
6. Laser spectroscopy.

Publications

A. Journal Papers

- [1] A paper titled "*III-Nitride QD Lasers*", published in Journal. **Open Nanosciences**. V. 3, pp. 1-11, 2009.
- [2] A paper titled "*Relative Intensity Noise for Self-Assembled III-Nitrides Quantum-Dot Lasers*", published in Journal. **Recent Patents on Electrical Engineering** 2010, 3, 211-217.
- [3] A paper titled "*Optical Gain and Threshold Current Density of a P-Doped ZnO/MgZnO Quantum Dot Lasers* ", **Physics Express Journal**, Volume 1, Issue 4, 2011.
- [4] K. Al Naimee, H. Al Hussein, S.F. Abdalah, A. Al Khursan, A.H. Khedir, R. Meucci, F.T. Arcchi, "*Mixed mode oscillations and chaotic spiking in Quantum Dot Light Emitting Diodes*," Proceedings of the **IEEE** 06/2014;78, DOI;10, 1016/j. chaos, 2015, 07, 033.
- [5] H. Al Hussein, A. Al Khursan, K. Al Naimee, S.F. Abdalah, A.H. Khedir, R. Meucci, F.T. Arcchi, "*Modulation Response, Mixed mode oscillations and chaotic spiking in Quantum Dot Light Emitting Diodes*," **ELSEVIER**, Chaos, Solitons & Fractals, Nonlinear Science, and Nonequilibrium and Complex Phenomena, 78, 229–237, 2015.
- [6] K. Al Naimee, H. Al Hussein, S.F. Abdalah, A. Al Khursan, A.H. Khedir, R. Meucci, F.T. Arcchi, "*Complex dynamics in Quantum Dot Light Emitting Diodes*," **Eur. Phys. J. D**, 69: 257, 1-5, 2015.
- [7] Hussein B. Al Hussein, Kais A. Al Naimee, Amin H. Al-Khursan, and Ali. H. Khedir," *External modes in quantum dot light emitting diode with filtered optical feedback*." **Journal of Applied Physics** 119, 224301 (2016); doi: 10.1063/1.4953651. View online: <http://dx.doi.org/10.1063/1.4953651>

- [8] Hussein B. Al Hussein, Kais A. Al Naimee, Ali. H. Khedir, and Amin H. Al-Khursan," *Dynamics of Quantum Dot Light Emitting Diode with Filtered Optical Feedback.*" Accepted for Publication in **Nanomaterials and Nanotechnology journal**
- [9] Hussein B. Al Hussein," *Control of Nonlinear Dynamics of Quantum Dot Laser with External Optical Feedback.*" **Journal of Nanotechnology in Diagnosis and Treatment**, 2016, Vol. 3, No. 2

B- Chapters in books

- [1] A chapter titled "*Factors Affecting the Relative Intensity Noise of GaN Quantum Dot Lasers*", publication in the book "**Quantum Dots / Book 2**", ISBN 979-953-307-857-0. **InTech**. Open Access Publisher. December 29, 2011.
- [2] A book titled "Nonlinear dynamics in quantum dot light emitting diode", ISBN 978-3-659-83712-8. **Scholar's press**. OmniScriptum GmbH & Co. KG. 2016

C- Conference and Workshop Papers

- [1] K. Al Naimee, H. Al Hussein, S.F. Abdalah, A. Al Khursan, A.H. Khedir, R. Meucci, F.T. Arecchi, "*Mixed mode oscillations and chaotic spiking in Quantum Dot Light Emitting Diodes,*" in Proceedings **Complexity in Engineering Conference (COMPENG)**, Barcelona, Spain, 2014. (<http://www.compeng2014.org/program>)
- [2] Kais A. Al Naimee, Hussein Al Hussein, Sora F. Abdalah, Amin Al Khursan, Ali H. Khider, Riccardo Meucci, F. Tito Arecchi,"*Complex dynamics of QD light emitting diode with optoelectronic feedback,*" **SPIE Optics + Optoelectronics 2015**. Prague, Czech Republic. Conf. 9503 nonlinear Optics and its applications, p. 13. (www.spie.org/oo15programme.)
- [3] S.F. Abdalah, H. Al Hussein, K. Al Naimee, A. Al Khursan, A.H. Khedir, R. Meucci, F.T. Arecchi, "*Chaos Control and Synchronization in Quantum Dot Light Emitting Diodes,*" **PhysCon 2015**, 7th international scientific conference on physics and control 19-22 august, 2015, Istanbul, turkey. (<http://www.physcon2015.itu.edu.tr>)
- [4] S.F. Abdalah, H. Al Hussein, K. Al Naimee, A. Al Khursan, A.H. Khedir, R. Meucci, F.T. Arecchi, " *Complex Dynamics in Quantum Dot Light Emitting Diodes,*" **PhysCon 2015**, 7th international scientific conference on physics and control 19-22 august, 2015, Istanbul, turkey. (<http://www.physcon2015.itu.edu.tr>)
- [5] S. F. Abdalah, H. Al Hussein, K. Al Naimee, A. Al Khursan, A. H. Khedir, R. Meucci, F. T. Arecchi, "*Chaos Control and Synchronization in Quantum Dot Light Emitting Diodes,*" **WSEAS Conference**. Budapest, Hungary December 12-14, 2015. (<http://www.wseas.org/main/conferences/2015/Budapest/Program.pdf>)
- [6] H. Al Hussein, K. Al Naimee, A. Al Khursan, A. H. Khidhir, "*Quantum Dot Light Emitting Diodes with optically filtered feedback,*" **Photonics 2016 Conference**. USA Feb. 25, 2016. (<http://www.photonics.conferenceseries.com>)