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Professor of Physics
Faculty of Physics,
Head of Photonics Devices Research Group
Research Institute for Applied Physics & Astronomy,
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Microelectronics Research Group
School of Electrical, Electronic & Computer Engineering,
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Educational Background

Academic Positions

Awards, Honorary Degrees…

Teaching Experiences

Administrative Responsibilities

MSc & PhD Thesis Supervision

Publications

Research Projects

Membership to Scientific Assoc...

Educational Background:

Back

Ph.D. of Solid State Physics & Electronics, The University of Tabriz, Iran, **2003**
MSc of Solid State Physics, The University of Tabriz, Iran, **1998**
BSc of Applied Physics, The University of Tabriz, Iran, **1996**

Title of Master Thesis (Supervisor): Study of Optical Bistability in GaSe Monocrystals
(**Prof. M. Kalafi**)
Title of Doctorate Thesis (Supervisor): Study of Transport Properties of AlGaN/GaN Heterostructure
(**Prof. M. Kalafi & Prof. L. Faraone** from **UWA**)

Academic Positions:

Back

- **Research Fellow,** Microelectronics, **2002-2004**, University of Western Australia
- **Assistant Professor,** Solid-state Physics & electronics, **2004-2008**, University of Tabriz
- **Adjunct Senior Research Fellow,** Microelectronics, **2004-2013**, University of Western Australia
- **Associate Professor,** Nanoelectronic & Photonics, **2008-2012**, University of Tabriz
- **Sabbatical,** Nanoelectronic, **2010-2011**, University of Western Australia
- **Professor,** Photonics (Optoelectronics), **2012- Present**, University of Tabriz
- **Adjunct Professor,** Microelectronics, **2013-2025**, University of Western Australia

Awards, Honorary Degrees, Medals and Positions:

Back

- **Distinguished Researcher (award),** University of Tabriz, Iran, 2006
- **Distinguished Researcher (award),** University of Tabriz, Iran, 2009
- **Distinguished Researcher (award),** University of Tabriz, Iran, 2011
- **Distinguished Researcher (award),** University of Tabriz, Iran, 2013
- **Adjunct Professor,** University of Western Australia, Australia, 2013-2025
- **Distinguished Researcher (award),** University of Tabriz, Iran, 2017
- **Distinguished Researcher (award),** University of Tabriz, Iran, 2024
- **Head of** Photonics Center of Excellence-Iran**,** University of Tabriz, Iran, 2019-2024

Teaching Experiences:

Back

- **Quantum Theory of Optical Properties of Solids, PhD**, from 2016-Present, University of Tabriz
- **Semiconductor laser**, **PhD**, 2016 and 2017, University of Tabriz
- **Photonic Crystals**, **Ph.D**, from 2011-Present, University of Tabriz
- **Quantum theory of Solids, Ph.D**, 2010-2012, University of Tabriz
- **Optics of Low-Dimensional Semiconductors**, **MSc**., from 2010-Present, University of Tabriz
- **Advanced Quantum Mechanic**, **MSc**, from 2007-Present, University of Tabriz
- **Advanced Condensed Matter, MSc**, from 2007-Present, University of Tabriz
- **Optoelectronic Devices**, **MSc**, from 2007 to Present, University of Tabriz
- **Semiconductor: Theory and Technology**, **BSc**, 2022-Present, University of Tabriz
- **Quantum Mechanic (1,2), BSc,** from 2003-Present, University of Tabriz

Administrative Responsibilities

Back

- **Head of Department,** Photonics, Research Institute for Applied Physics, 2007-2009, University of Tabriz
- **Director,** University of Tabriz planning and education development office, 2009-2010, University of Tabriz
- **Director,** Research Institute for Applied Physics & Astronomy, 2013-2017, University of Tabriz
- **Secretary,** East-Azarbaijan Nanotechnology Initiative Council, 2014-2018, Province of East-Azarbaijan
- **Director,** Research Center for Fundamental Science, 2016-2017, University of Tabriz
- **Vice-chancellor of Research, and Technology,** University of Tabriz, 2017-2021, University of Tabriz
- **Head of Group,** Photonics Devises Research Group, Research Institute for Applied Physics Astronomy, 2021 – Pressent, University of Tabriz

Master and Doctorate Thesis Supervision (The last is first):

Back

- **Ali Hamrah, PhD,** Investigating the structural parameters of perovskite quantum dots as single-photon sources, 2024
- **Nasim Samadi, PhD,** High-Performance Semi-Transparent Perovskite Solar Cells with MXene Interface Engineering, 2024
- **Omid Sabbagh, MSc**, Designing and fabrication of P3HT:PCBM felixible solar cells in the presence of PbS quantum dots, 2024
- **Negin Mirzazadeh, MSc**, The Effect of UV spectrum reflections' Layer On the Performance of Organic Semi-Transparent Solar Cells, 2024
- **Zahra Shokati, MSc**, Simultaneous effects of confinement and polyethylene oxide (PEO) on the efficiency of perovskite light-emitting diodes, 2024
- **Omid Sabbagh, MSc**, Engineering of Trap Level Distribution in Wide-Bandgap Perovskite-Organic Tandem Solar Cells, 2023
- **Farshad ZamhaririNejad, MSc**, Investigation of the performance of formamidinium tin-based perovskite solar cell using SCAPS device simulation, 2023
- **Amir Arkani, PhD,** Modeling of self-powered photodetector based on Quantum Dots-Perovskite Hybrid, 2023
- **Roya Salamat Bakhsh, MSc**, Study the Effects of Doped and Un-Doped Nanoparticles in Active Layers of Semi-transparent Solar Cell Based on Organic Materials, 2023
- **Parya Paridani, MSc**, Investigation of the effect of structural parameters on the performance of CsPbl3 quantum dot solar cells, 2021
- **Saman Shirmohammadi, MSc**, Investigation of Colloidal QDs Properties to Use on Highly Sensitive IR Photodetector, 2020
- **Zeinab Shokrollahi, MSc**, Modeling of multi-junction polymer and hybrid solar cells with infrared absorption, 2020
- **Mina Mohammad Zaheri, MSc**, Synthesis and characterization of Carbon Quantum dots using cold atmospheric plasma, 2020

- **Spideh Alipour Sudmand,** MSc, Fabrication and characterization of quantum dot light-emitting diodes with core-shell structure, 2019
- **Parinaz Pirziaee,** MSc, Designing and optimization of periodic metal nanostructures to increase the efficiency of nonfullerene organic solar cell, 2019
- **M. Kodaverdizadeh,** PhD, Investigation and Optimization of the performance of IR Photodetectors Based on Colloidal Quantum Dots, 2020
- **Davood Raeiani,** PhD, Investigation and Modification of Organic Solar Cells Based on Non-Fullerene Acceptors, 2020
- **Hossein Movla,** MSc, Investigating the Charge Transport Mechanisms and Their Effects on the Performance of Organic Semiconductor Devices, 2019
- **Elmira Annabi Milani,** PhD, Design and Study of Transparent Solar Cells with Photonic Crystal Resonators, 2019
- **Zeinab Khaghani,** PhD, Investigation graphene-based magnetoplasmonic properties of metal-ferromagnetic-metal continuous films, 2020
- **Nasrin Vahedi,** PhD, Study and Design of NanoBiosensors Based on Graphene Field Effect Transistors for DNA Mutation, 2020
- **Zahra Khoshravan,** MSc, Investigation of the effect of structural parameters on the performance of GaN / AlGaN disk light-emitting diodes, 2019
- **Farshid Solymani,** MSc, Nitride-based FETs as Dosimetric Radiation Sensor, 2018
- **Moghgan Mahdizadeh,** PhD, The investigation of the structural effects in superluminescent diodes based on Nitride quantum dots, 2018
- **Faezeh Zolghadriha,** MSc, Study of Graphene BioFETs to measure pH, 2018
- **A. Sharifi,** MSc, The Carrier Lifetime Measurement using Photoluminescence, 2017
- **A. Arkani,** MSc, Investigation of the electron-hole recombination effects in quantum-wire-based detectors, 2017
- **P. NikJoo,** MSc, The effects of temperature on the performance of colloidal quantum dot sensitized solar cells, 2017
- **G. Alivand,** PhD, Study of the effects of temperature in InGaN/GaN quantum wires LED, 2015
- **J. Mokhtarzad,** PhD, Modeling high-efficiency quantum dot-sensitized solar cells, 2015
- **H. Fazalipour ,** PhD, Designing and analyzing of Nitride-QD based photodetectors with inhomogeneous distribution, 2015
- **N. Fathalizadeh,** MSc, Investigation of graphene-based gas sensor performance using metal nanoparticle, 2015
- **N. Khajeh Gholi,** MSc, Investigation and fabrication of solar cells based on type II quantum dots, 2015
- **M. Lazemi,** MSc, Efficiency enhancing of solar cells using colloidal quantum dots, 2015
- **M. Bahramnejad,** MSc, Analysis of stresses in composite by shearography method using laser light, 2014
- **S. Mohammadi,** MSc, Synthesis and characterization of CdS/ZnS quantum dot for the white light spectrum, 2014
- **N. Navai Baghban,** MSc, Investigation of Spp in Graphene-based cylindrical waveguides, 2014
- **F. Eskandarzadeh,** MSc, Modeling of ultra-broadband Graphene photodetector, 2014
- **A. Faizipour,** MSc, Investigation of the effects of different Nano metallic Particle surface plasmon on solar cells efficiency, 2013
- **E. Solymanzad,** MSc, Investigation of the effects of internal reflection in III-nitride-based solar cells, 2013
- **Z. Fadaei,** MSc, Investigation fundamental losses in nitride-based nanostructure solar cells, 2013
- **M. Helali,** MSc, An Analytical Model of Dark Saturation Current of III-nitride based Solar Cell, 2013
- **N. Hosseini,** MSc, Investigation of Excitons in quantum dot molecules, 2013

- **S. HaghKish,** MSc, The effects of capping and barrier layers on the performance of nanostructures III-nitride based LEDs, 2013
- **F. Mohammadzadeh,** MSc, Investigation of gate-source and gate-drain length on performance of Graphene FET, 2013
- **S. KhubAfarin,** MSc, The effect of optical properties of graphene on surface plasmon polaritons, 2013
- **M. Piralaei,** PhD, Investigation of the random distribution of nanoparticles in performance of plasmonic solar cells, 2013
- **V. Mohaddesi,** Ph.D, Investigation of Graphene plasmonic for THz applications, 2013
- **M. Kashiri,** Ph.D, Investigation of carrier dynamics in quantum dot laser, 2012
- **T. Nemati,** PhD, Theory of photovoltaic cells: new quantum formalism and application to nanostructured systems, 2012
- **N. Milani,** Ph.D, Modeling of Superluminescent Light-Emitting Diodes in Semiconductor Nanostructures, 2012
- **Z. Arefnia,** Ph.D, Modeling of the Graphene Solar Cells and Optimizing its Conversion Efficiency, 2012
- **M. Ashkani,** MSc, Investigation of Minority Carrier Lifetimes in Superlattice Photodetectors, 2012
- **N. PourAbbasAli,** MSc, The effects of structural parameters on the performance of III-nitride-based LEDs, 2012
- **E. Annabi Milani,** MSc, The effects of capping layer on performance of III-nitride based nanostructures lasers, 2012
- **S. Safa,** Ph.D, Investigation of transport properties of type II superlattices, 2011
- **M. PirAlaei,** MSc, Investigation of the diffusion length and relaxation time of the minority carries in GaN solar cells, 2011
- **F. Shiri,** MSc, Investigation of the dark current in graphene-based IR detectors, 2011
- **I. AskarAbadi,** MSc, Investigation of the optical nonlinearity in graphene nanoribbons, 2011
- **S. Jabbarpour,** MSc, Investigation of the electron scattering mechanisms in III-nitride-based Solar cells, 2011
- **B. Bagheri,** MSc, Study of polaritonic LED in semiconductor microcavity, 2011
- **M. Emdadi,** MSc, Study of photonic crystals nano-cavity with semiconductor nano-structure active, 2010
- **L. Mohammadzade,** MSc, Investigation of Exciton states in Graphene, 2010
- **P. Navaei,** MSc, Modeling of Nitride based quantum dot laser-the effects of relaxation time and cavity length, 2010
- **F. SolymanNejad,** MSc, Modeling of Gas Sensor based on nitride field effect Nanostructures, 2010
- **M. Bahrami,** MSc, Study of Exciton state lifetime in III-nitride quantum dots, 2010
- **S. Saeid Nahaei,** MSc, Investigation of Phonon-Exciton interaction in Semiconductor quantum dots, 2010
- **M. Alavi,** MSc, Investigation of polaritonic states in Semiconductor Nano-structures, 2010
- **N. Fazli,** MSc, Study of III-nitride-based QD field effect transistors, 2010
- **E. Ahmadi,** Ph.D, Modeling of the Infrared Graphene Photodetector and optimizing the detector parameters, 2010
- **R. Ghahramani,** MSc, Investigation of THz waves Generation in Gunn diodes of nitride materials, 2009
- **M. Ghahramani,** MSc, Modeling of the Heterojunction Bipolar Transistor Lasers Based on Nitride nano-structure, 2009
- **Kh. Khalili,** MSc, Modeling of III-Nitride based solar cell with high efficiency, 2009
- **S. Dashti,** MSc, Optimization of Gain in nitride quantum well laser, 2009
- **H. Azari,** MSc, Study of Microbolometer Infrared Detector parameters, 2009

- **A. Khorrami,** MSc, Investigation of the generation and detection of Terahertz waves in nitride-based nanostructures, 2009
- **F. Ghasemi,** MSc, Investigation of transverse structures in semiconductor microresonators above lasing threshold with nonlinear fitting of polarization, 2008
- **H. Mohammadpour,** Ph.D, Investigation of transport properties and characterization of Graphene nano-ribbon FET, 2009
- **H. Solymani,** MSc, Modeling of tunneling gate currents in nanoscale MOSFETs, 2008
- **Z. Arse,** MSc, The study of optical absorption nonlinearity in AlGaN/GaN heterostructures, 2008
- **S. Taheri,** MSc, Modeling of heat sensor in semiconductor nanostructures , 2008
- **S. Razi,** MSc, The study of detector parameters in nitride-based quantum dot IR detectors, 2008
- **S. Sheshechi,** MSc, The study of temperature effects on optical properties of Nitride nano structural based LEDs, 2008
- **S. Nikipar,** MSc, The effects of gate miniaturizing on AlGaN/GaN high electron mobility transistors transport parameters, 2007
- **S. Mohammadi,** MSc, The effects of gate-source and gate-drain distance on AlGaN/GaN high electron mobility transistors transport parameters, 2007
- **N. Sarani Azar,** MSc, Capacitance in Nanostructure Nitride Semiconductors Quantum, 2007
- **S. Asadzadeh,** MSc, Study of the excitonic state in semiconductor quantum dot nanostructures, 2007
- **H. Kavyani,** MSc, Study of the quantum dot nanostructural shape effects on the electronic structure, 2007
- **F. Kakojoubari,** MSc, Study of the electronic structure of quantum dots by density functional method, 2007
- **S. Shojaei,** Ph.D, Study of optical properties of nitride quantum dots and their application, 2006
- **L. Rajabi,** BSc, Theoretical Study of transport properties of the electrolyte gated Nitride based Nano-transistors, 2006
- **H. Babanejad,** MSc, Study of Energy relaxation rate in AlGaN/GaN heterostructure, 2006
- **H. Einollahzade Samadi,** MSc, Study of electric field effects on the electronic structure of Nitride Quantum Dots, 2006
- **S. Tahmasebizadeh,** MSc, Modeling of AlGaN/GaN multi-Quantum Well for Fiber Optics telecommunications, 2006
- **S. Safa,** MSc, Study of indirect excitons in electrostatic traps of GaN based Nano Structures, 2006
- **H. Hatami,** MSc, Modeling of the Quantum Well Infrared Photodetector in range of 2-6 micrometers, 2005
- **E. Ahmadi,** MSc, Investigation of solar-blind p-i-n ultraviolet photodetector based on AlGaN, 2005
- **S. Rahimi,** MSc, Investigation of the thermal resistance in AlGaN/GaN heterostructure and related transistors, 2004
- **M. Karamad,** MSc, The effect of traps on transport property of AlGaN/GaN high electron mobility transistors(HEMTs) , 2004
- **E. Nourghasemi,** MSc, Investigation of the effect of hot phonons on two-dimensional electron gas in AlGaN/GaN heterostructures, 2004

Publications:

Back

Journal Papers:

- B. Abasht, Sh. Khameneh Asl, H. Aghajani, **A. Asgari**, "Enhanced performance of ambient-air processed CsPbBr3 perovskite light-emitting electrochemical cells via synergistic incorporation of dual additives", ***Journal of Alloys and Compounds,*** 1005, 176113, 2024
- M. Piralaee, E. A. Milani, **A. Asgari**, "Improving current-matching in textured perovskite/silicon tandem solar cells via a thickness control strategy", ***Applied Optics,*** 63 (30), 7940-7946, 2024
- D. Raeyani, P. Khakpour, S. Emami, **A. Asgari,** "Exploring the Potential of Graded-Ternary/Binary Structures Enriched with Colloidal Quantum Dots in Organic Solar Cells: A Theoretical Study" Submitted to, ***Solid State Electronics***, 2024
- E. A. Milani, M. Piralaee, D. Raeyani, **A. Asgari**, "High-Performance Semi-Transparent Organic Solar Cells for Window Applications Using MoO3/Ag/MoO3 Transparent Anodes", ***Solar Energy Materials &Solar Cells***, 276, 113066, 2024
- J. Mostafaei, A. Çoruh, **A. Asgari**, E. Asghari, A. Niaei, "Supercapacitor application of Sr-doped LaCo0. 2Fe0. 8O3 perovskite oxide: Investigation of structural and electrochemical properties", ***Journal of Energy Storage,*** 93, 112394, 2024
- Z. Shokrollahi, M. Piralaee, **A. Asgari,** "Performance and optimization study of selected 4-terminal tandem solar cells", ***Scientific Reports***, 14:11515, 2024
- R. Salamatbakhsh, D. Raeyani, **A. Asgari** "Enhancing Charge Generation in Interdigitated Heterojunction Organic Solar Cells", ***Physica Status Solidi (a)***, 2400364, 2024
- H. M. Matrood, S. Ahmadi-K, **A. Asgari,** "Enhancing Efficiency of Luminescent Solar Concentrators through Laser Grooving Techniques", ***International Journal of Energy Research***, 5021299, 2024
- B. Abasht, Sh. Khameneh Asl, H. Aghajani, **A. Asgari**, "A Straightforward and Ambient Processing of Bright Full-Coverage CsPbBr3 Thin Films" ***Ceramics International***, 50, 15, 22050-22059, 2024
- F. Ahmadi, Z. Ebrahimpour, **A. Asgari**, Bao Vana, "Down-conversion emission of Er3+ doped sulfophosphate glass: The role of TiO2 and Ag nanoparticles co-embedment", ***Optical Materials***, 147, 114616, 2024
- A. Hassanpour, D. Raeyania, S. A. Sudmand, H. Naghshara, **A. Asgari**, "Developing Flexible QLEDs Using Metal Oxide and Polymer Combination" ***Optical Materials***, 149, 11504, 2024
- M. Khodaverdizadeh, **A. Asgari**, "Enhancing Detectivity in Mid-IR Photodetectors through Structural Parameter Engineering in HgSe-HgTe CQDs", ***J. of NanoPhotonics***, 18(1), 016002, 2024
- M. Piralaee, **A. Asgari**,"The role of domain size and the weight ratio of fullerene and non-fullerene acceptors on the performance of PM6: Y6: PCBM ternary solar cell", ***Optical and Quantum Electronics***, 55, 9, 802, 2023
- N. Vahedi. G, **A. Asgari**, G . Dehghan, "Detection of the O6-Carboxymethylguanine DNA Adduct in Colorectal Cancer Using a Graphene Field-Effect Transistor-based Biosensors", ***International Journal of Optics and Photonics***, 16, 201, 2023
- D. Raeyani, **A. Asgari**, "Enhancing the Efficiency of Inverted Organic Solar Cells with Treatment Techniques: Numerical and Experimental Study", ***International Journal of Energy Research***, 2023/6612574, 2023
- S. Shirmohammadi, D. Raeyani, **A. Asgari**, "Improving the performance of Phototransistors with Polymer-Quantum Dot Hybrid Technology", ***Infrared Physics & Technology***, 134, 104880, 2023

- E. A. Milani, M. Piralaee, **A. Asgari**, "Improving Efficiency of Semitransparent Organic Solar Cells by Constructing Semitransparent Microcavity", ***Scientific Reports***, 13 (1), 9508, 2023
- M. Piralaee, **A. Asgari**, "Nitride/perovskite tandem solar cell with high stability: Analytical study of adjusting current-matching condition", ***International Journal of Energy Research***, 20323/2925434, 2023
- H. Movla, A. Shahalizad, **A. Asgari**, "A numerical study on the relationship between the doping and performance in P3HT: PCBM organic bulk heterojunction solar cells", ***Scientific Reports*** 13 (1), 2031, 2023
- E. A. Milani, M. Piralaee, S. Ahmadi, **A. Asgari**, "The role of structural parameters on efficiency and transparency of semi-transparent non-fullerene organic solar cell", ***Scientific Reports*** 12 (1), 1-11, 2022
- Z. Khaghani, M. Hosseini Farzad, **A. Asgari**, "Enhanced magneto-optical effect in three layer based magnetoplasmonic structures", ***Optical and Quantum Electronics*** 54 (10), 1-20, 2022
- M.Mohammadzaheri, V. Siahpoush, **A. Asgari**, "Characterization of N-doped carbon quantum dots synthesized by DBD-based cold atmospheric pressure plasma jet", ***Plasma Processes and Polymers***, e2200089, 2022
- M. Mahdizadeh, **A. Asgari**, "Investigation of the Effect of Recombination on Superluminescent Light-Emitting Diode Output Power Based on Nitride Pyramid Quantum Dots", ***International Journal of Optics and Photonics*** 16 (1), 3-8, 2022
- V. Mohadesi, **A. Asgari**, V. Siahpoush, S. S. Taheri, "Analysis and optimization of graphene based reconfigurable electro-optical switches", ***Micro and Nanostructures***, 207193, 2022
- M. Piralaee, **A. Asgari**, "Investigation of the Performance parameters of P3HT: PCBM solar cell: the role of temperature", ***Optik*** 251, 168453, 2022
- K. Hasanirokh, **A. Asgari**, S. Mohammadi, "Fabrication of a light-emitting device based on the CdS/ZnS spherical quantum dots", ***Journal of the European Optical Society-Rapid Publications*** 17 (1), 1-10, 2021
- M. M. Rokhi, **A Asgari**, "Power improvement in ridge bent waveguide superluminescent light-emitting diodes based on GaN quantum dots", ***Physica Scripta*** 96 (12), 125520, 2021
- M. Piralaee, **A. Asgari**, "Bimetallic core–shell nanoparticles to improve the absorption of P3HT: PCBM organic solar cell", ***Applied Optics*** 60 (29), 9087-9094, 2021
- H. Fazlalipour, **A. Asgari**, G. Darvish, "Modeling of the non-uniform distributed GaN QDs based Infrared Photodetector", ***Tabriz journal of electrical engineering*** 51 (2), 205-211, 2021
- Z. Ebrahimpour, H. Cabrera, F. Ahmadi, **A. Asgari**, J. Niemela, "Sulfophosphate Glass Doped with Er3+ and TiO2 Nanoparticles: Thermo-Optical Characterization by Photothermal Spectroscopy", ***Photonics***, 8/4, 115, 2021
- Z. Pourali, B. Olyaeefar, S. Ahmadi, **A. Asgari**, "Perovskite-coated window glasses as semi-transparent luminescent solar concentrators: an evaluation of different coating methods", ***Journal of Photonics for Energy***, 11/2, 027501, 2021
- F. Ahmadi, Z. Ebrahimpour, **A. Asgari**, SK. Ghoshal, "Insights into spectroscopic aspects of Er3+ doped sulfophosphate glass embedded with titania nanoparticles", ***Optical Materials***, 110650, 2021
- F. Ahmadi, **A. Asgari**, SK. Ghoshal, "Calcium oxide modifier stimulated intense luminescence from Dy3+ doped in sulfophosphate glasses", ***Optik*** 224, 165665, 2020
- F. Ahmadi, Z. Ebrahimpour, **A. Asgari**, "Titania nanoparticles embedded Er3+-Sm3+ co-doped sulfophosphate glass: Judd-Ofelt parameters and spectroscopic properties enhancement", ***Journal of Alloys and Compounds*** 843, 155982, 2020
- M. Piralaee, Z. Ebrahimpour, **A. Asgari**, "The improved performance of BHJ organic solar cells by random dispersed metal nanoparticles through the active layer", ***Current Applied Physics*** 20 (4), 531-537, 2020
- B. Olyaeefar, **A. Asgari,** S. Ahmadi-k, "Effective thickness method for modelling absorption enhancement of forward-scattering nanoparticles in photovoltaic devices", ***Solar Energy Materials and Solar Cells***, 215, 110688, 2020

- M. Piralaee, **A Asgari**, "The role of Silver nanoparticles in performance of p-i-n double heterojunction InGaN/GaN solar cells, ***Chemical Physics Letters***, 754, 137500, 2020
- F. Ahmadi; Z. Ebrahimpour; **A. Asgari**, R. El-Mallawany, "Role of silver/titania nanoparticles on optical features of Sm3+ doped sulfophosphate glass", ***Optical Materials***, 105, 109922, 2020
- T. Nemati Aram, **A. Asgari,** Didier Mayou, "Impact of electron-phonon coupling on the quantum yield of photovoltaic devices", ***The Journal of Chemical Physics***, 152 (4), 044109, 2020
- M. Rashidi, **A. Asgari**, "he structural effects on performance of a lateral AlGaAs/GaAs quantum well solar cell", ***Photonics and Nanostructures-Fundamentals and Applications*** 41, 100799, 2020
- M. Rashidi, **A. Asgari**, "Investigating the impact of metallic nanoparticles on performance of nanowire-based plasmonic photodetectors", ***IET Optoelectronics*** 14 (6), 406-410, 2020
- Javad Mokhtarzad, **A. Asgari**, Sara S Parhizgar, Yousef Seyed Jalili, "Modeling of high-efficiency colloidal quantum dot solar cells", ***J. Nanophotonics*** , 3(4), 046001, 2019
- Z. Arefinia, **A. Asgari**, "Quantum engineering of intrinsic losses in the diluted nitride InAsN quantum dot intermediate band solar cell", ***Journal of Photonics for Energy***, 9, 4, 045501, 2019
- F. Ahmadi, **A. Asgari**, "Spectroscopic investigation of Sm3+ doped sulfophosphate glasses for visible photonic applications", ***Journal of Non-Crystalline Solids***, 505: 406-413, 2019
- K. Hasanirokha, **A. Asgari**, M. Mahdizadeh Rokhia, "Theoretical study on nonlinear optical properties of CdS/ZnS spherical quantum dots", ***Optik***, 188, 99-103, 2019
- K. Hasanirokh, **A. Asgari**, "Modeling and studying of white light emitting diodes based on CdS/ZnS spherical quantum dots", ***Optical Materials***, 81, 129-133 , 2018
- B .Olyaeefar, S. Ahmadi-K, **A. Asgari**, "Classical modelling of grain size and boundary effects in polycrystalline perovskite solar cells", ***Solar Energy Materials and Solar Cells*** 180, 76-82, 2018
- V Mohadesi, **A. Asgari**, V. Siahpoush, "Radiation characteristics of Leaky Surface Plasmon polaritons of Graphene", ***Superlattices and Microstructures***, 119, 40-45, 2018
- H. Fazlalipour, **A. Asgari**, G. Darvish, "Modeling of pyramidal shape quantum dot infrared photodetector: the effects of temperature and quantum dot size", ***Journal of Nanophotonics*** 12 (2), 026006, 2018
- Z. Arefinia, **A. Asgari**, "Optimization Study of a Novel Few-Layer Graphene/Silicon Quantum Dots/Silicon Heterojunction Solar Cell Through Opto-Electrical Modeling", ***IEEE Journal of Quantum Electronics*** 54 (1), 1-6, 2018
- Z. Arefinia, **A. Asgari**, "Scaling issues of Schottky junction solar cells based on graphene and silicon quantum wires in the sub-10-nm regime", ***Optik***, 153, 65, 2018
- Z. Arefinia, **A. Asgari**, "Optimization Study of a Novel Few-Layer Graphene/Silicon Quantum Dots/Silicon Heterojunction Solar Cell Through Opto-Electrical Modeling", ***IEEE Journal of Quantum Electronics***, 5, 1, 4800106, 2017
- E. Namvari, S. Shojaei, **A. Asgari**, "Luminescence emission from nonpolar $Al_{0.3}Ga_{0.7}N$/GaN core-shell and core-multi-shell nanowires", ***Superlattices and Microstructures*** 112, 118, 2017
- V. Mohadesi, V. Siahpoush, **A. Asgari**, "Investigation of leaky and bound modes of graphene surface plasmons", ***Journal of Applied Physics*** 122 (13), 133113, 2017
- S. Asgharizadeh, M. Javidnassab, **A. Asgari,** M. R.Keramaty, "Variable width quantum well-based high-efficiency solar cells: an investigation in $Al_{0.56}Ga_{0.44}As$ solar cell", ***J. Photon. Energy*** 7(1), 015502, 2017
- E. Namvari, S. Shojaei, **A. Asgari**, "Luminescence emission from $Al_{0.3}Ga_{0.7}N$/GaN multi quantum disc core/shell nanowire: Numerical approach", ***Physica E*** 93,132–142, 2017
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2023

1. **Performance improvement of PM6:Y6 non-fullerene solar cell with UV-Ozone surface treatment**, 16th Iranian condensed Matter Conference, Tehran, **Iran.**
2. **Investigating the Performance of Semi-Transparent Organic Solar Cells Based on Photonic Crystal**, 16th Iranian condensed Matter Conference, Tehran, **Iran.**
3. **Luminescent Solar Concentrators for greenhouses,** AgriVoltaics World Conference 2023, Daegu, **Korea.**

2022

1. **Comparison of magnetic properties of nanoparticles, thin film, and Bulk sample of CoFe2O4,** The 7th National Conference on Progress of Superconductivity and Magnetism, Isfahan, **Iran**.
2. **The role of active layer thickness on performance parameters of P3HT: PCBM organic solar cell**, 28th ICOP, Ahwaz, **Iran**

2021

1. **Synthesis of Carrier Transport Layers for Inorganic Light Emitting Diode Applications Based on Metal Oxide Materials,** The International Advanced School on Optoelectronic Devices, Tabriz, **Iran.**
2. **Grating-induced efficiency enhancement in non-fullerene organic solar cells,** The International Advanced School on Optoelectronic Devices, Tabriz, **Iran.**
3. **Investigation of the effect of cavity length on nitride QDs superluminescent light-emitting diodes performance,** The International Advanced School on Optoelectronic Devices, Tabriz, **Iran**.
4. **The role of the interface defect density on the suppressing efficiency of organic solar cells: a simulation study,** The International Advanced School on Optoelectronic Devices, Tabriz, **Iran.**

2020

1. **Effect of the applied bias voltage on exciton profile and efficiency roll-off in organic light emitting diode,** The Iran-Nano-Photonics Conference, **Iran**.
2. **Relation between Spatial Distribution of Plasmonic Nanoparticles and Photovoltaic Parameters in Organic Bulk Heterojunction Solar Cells,** The Iran-Nano-Photonics Conference, **Iran**.
3. **Rigorous parameterization of P3HT: PCBM dispersion using modified Tauc-lorentz dispersion model,** The International workshop on quantum computing and quantum optics, Tabriz, **Iran.**
4. **Superluminescent Light Emitting Diodes Based On GaN Quantum Dots,** The 27th Iranian Conference on Optics and Photonics, Zahedan, **Iran**.

2019

1. A**nalytical Investigation of Morphologically Optimizing the Performance of BHJ Organic Solar Cells,** The IEEE Conference on Photovoltaic Specialists, **USA**.
2. **Detectivity of InGaAs Quantum Wire infrared Photodetectors: The role of temperature, radius, and capture probability,** The Annual Physics Conference of **Iran.**
3. **Synthesis of N-Doped Carbon Quantum Dots Using Cold Atmospheric Argon Plasma Jet and Their Characterization,** The Annual Physics Conference of Iran, **Iran**.
4. **The role of capture probability in InGaAs quantum wire infrared photodetectors,** The 26th IPM Physics Spring Conference, **Iran**.

2017

5. **Effect of nitrogen concentration on the intrinsic losses of InAsxN(1-x) quantum dot solar cells,** The Annual International Meeting on Low Dimensional Systems: RIAPA-LDS 2017, **Iran**.
4. **The intrinsic losses of quantum dot intermediate band solar cells,** The International Conference on Numerical Simulation of Optoelectronic Devices, NUSOD, **Denmark**.
5. **The effect of wire diameter on the performance of solar cells based on graphene and silicon quantum wires,** The International Conference on Numerical Simulation of Optoelectronic Devices, NUSOD, **Denmark**.
6. **The leaky and bound modes of graphene surface plasmons for plasmonic Devices,** The 2017 International Conference on Photonics Solutions, Thailand.
7. **Tuning of defect mode in dielectric-graphene photonic crystals,** The Annual Physics Conference of **Iran**.
8. **Simultaneously creation and control of Bragg and graphene photonic band gaps in one-dimensional dielectric-graphene photonic crystal,** The Annual Physics Conference of **Iran**.
9. **CdSe Colloidal Quantum Dots: Synthesis and Characterization,** The 5TH RIAPA Meeting On Low Dimensional Systems, Tabriz, **Iran**.
10. **Effect of nitrogen concentration on the intrinsic losses of InAsxN(1-x) quantum dot solar cells,** The 5TH RIAPA Meeting On Low Dimensional Systems, Tabriz, **Iran.**
11. **The Numerical Investigation of The Luminescence Emission from Nitrid Multi Quantum Disc core/shell Nano wire,** The 5TH RIAPA Meeting On Low Dimensional Systems, Tabriz, **Iran**.
12. **Yield of charge separation in organic photovoltaic cells,** The 5TH RIAPA Meeting On Low Dimensional Systems, Tabriz, **Iran.**
13. **Effects of physical parameters on the reflection minimum in graphene-based Otto configuration,** The 5TH RIAPA Meeting On Low Dimensional Systems, Tabriz, **Iran**.
14. **Plasmonic properties of prolate and oblate shaped ellipsoids,** The 5TH RIAPA Meeting On Low Dimensional Systems, Tabriz, **Iran**.
15. **Control of Propagation Length and Penetration Depth of Surface Plasmon Polaritons in Graphene Waveguide Structure,** The Proceeding of Iranian condensed Matter Conference, Tehran, **Iran**.
16. **The Effects of Structural Parameters of GaN-Based Asymmetric Multiple Quantum Wells on Optical Gain in Laser Diodes,** The Proceeding of Iranian condensed Matter Conference, Tehran, **Iran.**
17. **Investigation effect of CdSe/ZnS core/shell quantum dots on the characteristics of a silicon solar cell,** The Proceeding of Iranian condensed Matter Conference, Tehran, **Iran**.

2016

1. **Quantum Modeling of Molecular Photocells: the effects of Coulomb interaction and electron-hole recombination**, Conference on Nanostructured Solar Cells (NSSC95), Tehran, **Iran**
2. **Investigation of the Si-based solar cells sensitized by CdSe and CdSe/ZnS colloidal quantum dots,** Conference on Nanostructured Solar Cells (NSSC95), Tehran, **Iran**
3. **Investigation of the size and distribution effects on the efficiency of plasmonics solar cells,** Conference on Nanostructured Solar Cells (NSSC95), Tehran, **Iran**

4. **Plasmonic solar cell with randomly distributed Ag nanoparticles,** International Conference on Nanophotonics and Micro/Nano Optics, Paris, **France**
5. **The investigation of responsivity photodetectors based on double graphene with ultra-broadband,** ICOP-1393, Yazd**, Iran**
6. **Graphene/Nanostructure semiconductor heterojunction solar cells - 6th International Conference on Nanostructures** - ICNS6, Kish Island, **Iran** (Invited)
7. **Investigation of the Effects of Capping Layer on Optical Gain of Nitride-Based Nanostructure Lasers** - 6th International Conference on Nanostructures - ICNS6, Kish Island, **Iran**
8. **Graphene-based Solar Cells - Recent Advances in Photovoltaics: Novel materials and device concepts for flexible and thin-film solar cells,** Bukhara, **Uzbekistan** (Invited)
9. **Effective dielectric function of randomly distributed silver nanoparticles in Maxwell-Garnett and Bruggeman Theories** - ANNUAL ADVANCED INTERNATİONAL SCHOOL ON LOW DİMENSİONAL SYSTEMS 2017, Tabriz, **Iran**
10. **The effects of oxidation functional groups on Graphene properties** - ANNUAL ADVANCED INTERNATİONAL SCHOOL ON LOW DİMENSİONAL SYSTEMS 2017, Tabriz, **Iran**
11. **Optimization of the short current density of Ag-Si random plasmonic solar cells using EMT and FDTD methods,** ANNUAL ADVANCED INTERNATİONAL SCHOOL ON LOW DİMENSİONAL SYSTEMS 2017, Tabriz, **Iran**
12. **Investigation of the effect of CdSe core and CdSe/ZnS core/shell colloidal quantum dots on power-conversion-efficiency for a silicon solar cell by means of FDTD method,** ANNUAL ADVANCED INTERNATİONAL SCHOOL ON LOW DİMENSİONAL SYSTEMS 2017, Tabriz, **Iran**
13. **Sensing of gas molecules Adsorption on Graphene oxide,** 6th International conference on Nanoscience and Nanotechnology, Karaj, **Iran**

2015

1. **Investigation of Spp in Graphene based cylindrical waveguide** - ICOLE-1394, Shahin Sahr, **Iran**
2. **Synthesis and characterization of CdS/ZnS quantum dot for the white light spectrum** - RIAPA-LDS 2015, Tabriz, **Iran**
3. **The effects of sell thickness on plasmon resonance frequency of Si/Ag core/shell nanoparticles** - RIAPA-LDS 2015, Tabriz, **Iran**
4. **Optoelectronic Devices Based on III-Nitride Nanostructures** - Second National Conference on Nanoscience and Nanotechnology, Karaj, **Iran** (Invited)
5. **Graphene Based Solar Cell** - National conference on Nanostructures and Graphene, Tehran, **Iran** (Invited)
6. **Armchair Graphene Nanoribbons Infrared Detectors** - ICMAT2015, **Singapore** (Invited)
7. **Modeling of the Graphene-Based Schottky Barrier Solar Cells on InGaN Substrate** - The 23rd Iranian Conference on Electrical Engineering (ICEE2015), Tehran, **Iran**

2014

1. **The Effects of Structural Parameters of GaN-Based Asymmetric Doubled Quantum Wells on Optical Gain in Laser Diodes** - ICOP-1393, Tehran I**ran**
2. **The Effect of Electron-Phonon Scattering on Propagation of SPP in Double Graphene Layers Structure** - ICOP-1393, Tehran **Iran**
3. **Modeling of the Graphene-Based Schottky Barrier Solar Cells on InGaN Substrate** - The 22nd Iranian Conference on Electrical Engineering (ICEE2014), Tehran, **Iran**
4. **The effects of capping and barrier layers on the performance of nanostructures III-nitride based LEDs** - Nanostructured Solar Cells, Tehran, I**ran**
5. **Simulation Study of Graphene-Based Silicon p-i-n Core-Shell-Shell Nanorods Solar Cell** - The 5th International Congress on Nanoscience & Nanotechnology, Tehran, **Iran**
8. **Scaling Issue of the Optical Absorption of Cylindrical Silicon Nanowires Array** - The 5th International Congress on Nanoscience & Nanotechnology, Tehran, **Iran**

6. **New graphene-based III-Nitride Schottky barrier solar cells** - Frontiers in Optics & Photonics (FoP 2014), Ashtarak, **Armenia** (Invited)
7. **Graphene-based Semiconductor nanowire Schottky junction solar cells** - International Conference on Sustainable Energy & Environmental Protection, (SEEP 2014), Dubai, **UAE**

2013

1. **Simulation and optimization study of Graphene/silicon Schottky Barrier Solar Cells,** ICOLE-1392, Shahin Sahr, **Iran**
2. **The electron transport in III-nitride based Nano-Optoelectronic Devices**, ASEPE-2012, 4-6 Dec., Tabriz, **Iran** (Invited)
3. **Numerical analysis of the performance of AlGaAs/GaAs multi-quantum well Superluminescent diodes**, 6th International Conference on Advanced optoelectronics and lasers, Sudak, Crimea, **Ukraine**
4. **Performance considerations of a photonic crystal based on graphene multilayer system,** Proceeding of 21st Iranian Conference on Electrical Engineering, **Iran** (IEEE)
5. **The study of relaxation time and diffusion length of minority carriers in GaN solar cells**, Proceeding of 11th Condensed Matter Conference, Shahrood **Iran,** P. 343
6. **Investigation of the Effect Of Temperature on Sensing Performance of Pd/β - Ga2O3/GaN Hydrogen Sensor Schottky Diode**, Proceeding of 11th Condensed Matter Conference, Shahrood **Iran,** P. 39

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1. **Temperature-based Investigation of Graphene Refractive Index in Far-Infrared Region**, Proceeding of Iranian Annual Physics Conference, Yazd **Iran**, P. 1417
2. **Comparison of Sensing Performance of Metal-Semiconductor-Metal (MSM) Hydrogen Sensors Pd/GaN and Pt/GaN**, Proceeding of Iranian Annual Physics Conference, Yazd **Iran,** P. 1048
3. **Graphene-based Optoelectronic Devices**, ASEPE-2012, 4-6 Dec., Tabriz, **Iran** (Invited)
4. **Modeling of the performance of III-nitride based quantum dot laser**, The 3rd international conference on the physics of optical materials and devices, Belgrade, **Serbia**
5. **Graphene-based Photonics**, Frontiers in Optics & Photonics, Yerevan State University, **Armenia** (Invited)
6. **Fully Numerical Modelling of AlGaN/GaN Quantum Dot Laser**, Conference Proceedings APMC 10 / ICONN 2012 / ACMM 22, 6-9, 2012, Perth, Western **Australia,** p.1026-1
7. **3D-Analysis of the Small Signal parameters of the Double-Gate Graphene Nanoribbon Field Effect Transistors**, Conference Proceedings APMC 10 / ICONN 2012 / ACMM 22, 6-9 Feb. 2012, Perth, Western **Australia**, p.1025-1 (Invited)
8. **Investigation of the performance of Pt/GaN metal-semiconductor-metal based hydrogen sensor,** Proceeding of 18th Iranian Conference on Optics and Photonics, Tabriz, **Iran**, P. 539
9. **Investigation of electron-LO-phonon interaction in semiconductor QDs**, Proceeding of 18th Iranian Conference on Optics and Photonics, Tabriz, **Iran**, P. 367
10. **The investigation of exciton-photon coupling in photonic crystal microcavity system consists of quantum dot**, Proceeding of 18th Iranian Conference on Optics and Photonics, Tabriz, **Iran,** P. 184
11. **Effect of polarization on photon lifetime in a semiconductor microcavity**, Proceeding of 18th Iranian Conference on Optics and Photonics, Tabriz, **Iran**, P. 252

2011

1. **Exciton-phonon interaction in a semiconductor quantum dots**, Proceeding of 5th Physics Conference, University of Payam Noor, Tabriz, **Iran,** P. 509
2. **Calculation of binding energy of exciton in the graphene nanoribbons**, Proceeding of Iranian Conference on Physics, Ormiea, **Iran,** P. 2329

3. **The study of normal modes coupling linewidth in a GaAs microcavity**, Proceeding of Iranian Conference on Physics, Ormiea, **Iran,** P. 1963
4. **Optimization of InGaN Multi Quantum Well Based Solar Cell**, Proceeding of 17th Iranian Conference on Optics and Photonics, Kerman, **Iran,** P. 297
5. **Influence of the built-in electric field on electronic states and third-order Nonlinear Optical Susceptibility in wurtzite InGaN/GaN cubic quantum dots with different sizes**, Proceeding of 17th Iranian Conference on Optics and Photonics, Kerman, **Iran**, P. 881
6. **An Approach for Thermal Modelling of Uncooled Infrared Bolometer Detector Arrays Including Noise Equivalent Temperature Difference (NETD) Prediction**, Proceeding of 17th Iranian Conference on Optics and Photonics, Kerman, **Iran,** P. 740
7. **The study of Optical losses in the Quantum Dot Laser (QDL) and their effects on the lasing Threshold current density**, Proceeding of 17th Iranian Conference on Optics and Photonics, Kerman, **Iran,** P. 37
8. **The study of the border, for the structure parameters in the GaInAsP/GaInAs Quantum Dot Lasers (QDLs) at the lasing condition, by considering the internal optical loss**, Proceeding of 17th Iranian Conference on Optics and Photonics, Kerman, **Iran**, P. 33
9. **The Effect of temperature on the lifetime of laser levels in quantum cascade lasers in nitride-based materials,** Proceeding of 17th Iranian Conference on Optics and Photonics, Kerman, **Iran**, P. 21

2010

1. **Optimization of analytical model for bolometer detector performance prediction including radiative conductance and introduction of thermal feedback parameter,** Proceeding of Iranian Annual Physics Conference, Hamadan, **Iran**, P. 608
2. **Investigation of gate displacement on transport properties of Nitride HEMT (High Electron Mobility Transistor)**, Proceeding of Iranian Annual Physics Conference, Hamadan, **Iran**, P.553
3. **Investigation of THz waves Generation in Gunn diodes of nitride materials,** Proceeding of Iranian Annual Physics Conference, Hamadan, **Iran**, P.54
4. **Temperature Dependence of the Threshold Current Density of a GaN based Quantum Dot Laser,** Abstract Book, ICOOPMA, **Iran**, P. 197
5. **High-Efficiency III-Nitride Based p-i-n Solar Cell**, Proceeding of 2nd International Conference on Nuclear and Renewable Energy Resources, **Turkey**, P. 334
6. **Calculation of Quantum Capacitance in AlGaN/GaN quantum wells**, Proceeding of 16th condensed Matter Conference, IASBS, **Iran**, P. 164
7. **The study of the effect of dephasing and population decay rates on the third order nonlinear susceptibility in a disk-shaped Gallium Nitride quantum dot**, Proceeding of ICOP, Yazd, **Iran** N.1218
8. **The comparison of linear and quadratic order fitting effect of gain in transverse field structures in semiconductor microresonators**, Proceeding of ICOP, Yazd, **Iran** N.1093
9. **Charge Transport Model of gate solution AlGaN/GaN High Electron Mobility Transistors**, Proceeding of IEEE- INEC, **Hong Kong**, P. EP 213
10. **Modeling of Temperature Sensor Built on GaN Nanostructures**, Proceeding of IEEE- INEC, **Hong Kong**, P. EC 209

2009

1. **The effect of temperature on the recombination rate of AlGaN/GaN light-emitting diodes**, Proceeding of 9th IEEE- NUSOD, Gwangju, **Republic of Korea**, P. 31
2. **The role of exciton-exciton interaction on nonlinearities in GaN microdisks**, Proc. **SPIE** 7354, 73541
3. **Study of dark current in AlGaN/GaN quantum dot infrared photodetectors**, Proceeding of Iranian Annual Physics Conference, Mashhad, **Iran**, P.1365

4. **The calculation of third-order nonlinearity susceptibility in truncated pyramidal quantum dots with different sizes**, Proceeding of Iranian Annual Physics Conference, Mashhad, **Iran**, P.839
5. **Simulation and calculation for InAs/GaAs quantum dot infrared photodetector**, Proceeding of 1st National Conference on Optics and Laser Engineering, Isfahan, **Iran**, P. 804
6. **Electronic structure of InAs/GaAs self-assembled quantum dots with different shapes and sizes**, Proceeding of 9th condensed Matter Conference, Ahwaz, **Iran,** P. 461
7. **Study of the effects of geometric symmetries on the electronic structure of quantum dots by density functional theory**, Proceeding of 9th condensed Matter Conference, Ahwaz, Iran, P. 457
8. **Analytical performance of AlGaN/GaN high electron mobility transistors (HEMT) with the new gradual channel approximation model**, Proceeding of 9th condensed Matter Conference, Ahwaz, **Iran**, P. 973
9. **The study of the gate miniaturizing and Schottky cap layer effects on the performance of AlGaN/GaN HEMT transistor,** Proceeding of 9th condensed Matter Conference, Ahwaz, **Iran**, P. 890
10. **Investigation of the effects of temperature and number of quantum dots on the quantum capacitance of nitride structures**, Proceeding of 9th condensed Matter Conference, Ahwaz, **Iran**, P. 838
11. **Influence of Different Radius and Height on Exciton Binding Energy in GaN Cylindrical Quantum Dots,** Proceeding of 9th condensed Matter Conference, Ahwaz, **Iran,** P. 319
12. **Influence of Surrounding Potential on Exciton Binding Energy in Cylindrical Quantum Dots of GaN,** Proceeding of 15th Iranian Conference on Optics and Photonics, Isfahan, **Iran**, P. 723
13. **Calculation of Optical Absorption and Oscillator Strength for Different Sizes of Cubic InAs/GaAs Quantum Dots**, Proceeding of 15th Iranian Conference on Optics and Photonics, Isfahan, **Iran**, P. 594

2008

1. **Indirect excitons in III-Nitride semiconductor nanostructures,** 2nd International Conference on Nanosicence and Nanotechnology, Tabriz, **Iran** (Invited)
2. **Energy Relaxation Rate of Hot Electrons by Acoustics and Optical Phonons in AlGaN/GaN Quantum Wells,** Proceeding of 2nd International Conference on Nanoscience and Nanotechnology, Tabriz, I**ran**, P.139
3. **Energy levels of GaN Quantum Dots in Finite spin-orbit coupling,** Proceeding of 2nd International Conference on Nanoscience and Nanotechnology, Tabriz, **Iran**, P.137
4. **AlGaN/GaN-based electroabsorption modulator operating at fiber-optics telecommunication wavelengths,** Proceeding of 8th IEEE- NUSOD, Nottingham **UK**, P. 7
5. **Electrostatic traps of indirect excitons in coupled GaN quantum wells,** Proceeding of 6th International Conference on Photonics, Devices and Systems, PHOTONICS **PRAGUE** '2008, P. 33
6. **Investigation of the influence of doping density in electroabsorption modulator in GaNAlGaN-**
7. **AlN quantum wells structures for working in optical communication wavelength,** Proceeding of Iranian Annual Physics Conference, University of Kashan, **Iran**, P. 226
8. **Analytical performance of AlxGa1-xN/GaN metal-insulator-semiconductor heterostructure field effect transistor (MISHFET) for high power microwave application,** Proceeding of Iranian Annual Physics Conference, University of Kashan, **Iran,** P.359
9. **Study of the effects of electric field on energy levels of spherical zinc-blende GaN quantum dot,** Proceeding of Iranian Annual Physics Conference, University of Kashan, **Iran**, P.239
10. **Energy Relaxation Rate by Hot Electrons via Acoustic Phonons in AlGaN/GaN Quantum Wells,** Proceeding of Iranian Annual Physics Conference, University of Kashan**, Iran**, P.41
11. **The effects of electric field on exciton binding energy of AlGaN/GaN double quantum well,** Proceeding of 14th condensed Matter Conference, IASBS, **Iran**, P. 234
12. **Calculation of GaN quantum dot energy levels by K.P theory with corresponding numerical matrix elements,** Proceeding of 14th condensed Matter Conference, IASBS, **Iran**, P. 204

13. **The effects of electric field on energy levels of zinc-blende GaN quantum dot,** 2008 E-MRS Spring Meeting, Symposium G, Strasburg, **France**, A37
14. **The Study of electrical properties of AlGaN/GaN Heterostructure Field effect transistors in the presence of InN quantum dots,** ICONN 2008, Melbourne **Australia**, P.48

2007

1. **Negative differential capacitance of AlGaN/GaN Heterostructure in the presence of InN quantum dots,** Proc. **SPIE** 6793, 679304
2. **Binding Energy of Direct and Indirect Excitons in Single and Coupled Double AlGaN/GaN Quantum Wells in a Uniform Electric Field,** International Conference on Semiconductor Materials and Optics, Warsaw, **Poland**
3. **The Effect of Gate Length on the Cut off Frequency and noise of AlGaN/GaN High Electron**
4. **Mobility Transistor (HEMTs),** Proceeding of Iranian Annual Physics Conference, University of Yasooj, **Iran**, P.396
5. **Study of Excitons in AlxGa1-xBN/GaN double quantum wells,** Proceeding of Iranian Annual Physics Conference, University of Yasooj, **Iran,** P.318
6. **Theoretical calculation of Responsivity in GaN/InGaN quantum well detector in UVA and visible range,** Proceeding of second Physics Conference, University of Payam Noor, **Iran,** P.197
7. **The study of IR-quantum well detectors detectivity as a function of structural parameters,** Proceeding of 13th condensed Matter Conference, IASBS, **Iran,** P. 91
8. **The study of piezoelectric polarization effects on AlGaN/GaN quantum well UV detectors,** Proceeding of 13th condensed Matter Conference, IASBS, **Iran**, P. 5
9. **Optoelectronic Devices based on III-Nitride Heterostructures,** Proceeding of 13th condensed Matter Conference, IASBS, **Iran,** P. 14 (Invited)
10. **III-Nitride-Based ultra-high bit–rate optoelectronic semiconductor nano-devices for operating at fiber-optics telecommunication wavelengths,** Proceeding of Nano and Giga Challenges in Electronics and Photonics, Phoenix, Arizona**, USA**, P. 35
11. **Study of the oscillator strength of Al0.3Ga0.7As/GaAs quantum well under the effect of the electric field,** Proceeding of 8th Iranian condensed Matter Conference, Ferdowsi University, Mashhad-**Iran**, P. 270
12. **Theoretical calculation of spectral response for Al0.3Ga0.7As/GaAs Quantum Well Solar Cell,** Proceeding of 8th Iranian condensed Matter Conference, Ferdowsi University, Mashhad-**Iran**, P.55-58

2006

1. **Electron transport in AlGaN/GaN heterostructures transistor with Quantum dots** First International Congress on Nanoscience and Nanotechnology, Tehran, **Iran**
2. **The Control of absorption coefficient by cap layer thickness in AlxGa1-xN/GaN heterostructure Quantum wells,** 6th International Conference on Physics of Light-Matter Coupling in Nanostructures Magdeburg, **Germany**
3. **Thermal Resistance Calculation of AlGaN-GaN Devices,** Proceeding of Iranian Annual Physics Conference, University of Shahrood, **Iran**, P.461
4. **Theoretical analysis of subband states controlled by cap layer thickness in an AlxGa1-xN/GaN heterostructure,** Proceeding of Iranian Annual Physics Conference, University of Shahrood, **Iran**, P.542
5. **Investigation of effects of traps on gate current in AlGaN/GaN high electron mobility transistors,** Proceeding of Iranian Annual Physics Conference, University of Shahrood, **Iran**, P.126
6. **Physics of carrier-transport mechanisms for theoretical modeling of nanometer AlGaN/GaN Heterostructure field effect transistors,** College on Physics of Nano-Devices, ICTP Trieste, **Italy**, P. 8
7. **Modeling of trap-assisted tunneling in AlGaN/GaN heterostructure field-effect transistors with different Al mole fraction,** 2006 E-MRS Spring Meeting, Symposium S, Nice, **France**, SA37

8. **Study of the electron energy distribution function in AlGaN/GaN heterostructure field effect transistors,** 2006 E-MRS Spring Meeting, Symposium A, Nice, **France**, A1A37

2005

1. **Analytical Model for Negative Differential Conductivity of AlGaN/GaN High Electron Mobility Transistor,** Thirteenth International Workshop on the Physics of Semiconductor Devices, New Delhi, **India**, December, P. 83
2. **Exact Numerical Analysis of an Extracted IR-Photodiodes,** Thirteenth International Workshop on The Physics of Semiconductor Devices, New Delhi, **India**, P. 1090
3. **Schottky gate effects on transport properties of AlGaN/GaN Heterostructures,** The Sixth International Conference on Nitride Semiconductors, Bremen **Germany**, P. Tu-P-010
4. **Investigation of Hot-Phonon Effect on a Two-Dimensional Electron Gas of AlGaN/GaN,** Proceeding of Iranian Annual Physics Conference, University of Khorram Abad, **Iran**, P.126
5. **The Control of Two-Dimensional-Electron-Gas density and Mobility in AlGaN/GaN Heterostructures with Schottky gate,** 2005 E-MRS Spring Meeting, Strasbourg, **France**, P. 21
6. **Nano-transistors and their application,** Iran International Hi-Tech Fair, Tabriz, **Iran**, P. 17 (Invited)
7. **Modeling of the crystal growth furnace for GaSe by the Vertical Bridgman Method,** ISCG-2005, Pueblo, **Mexico**, P. 60
8. **The control of Two-Dimensional-Electron-Gas density in AlGaN/GaN Heterostructures with Schottky gate,** Proceeding of 7th Iranian condensed Matter Conference, Tehran, **Iran**, P. 23.

2004

1. **Theoretical model of transport characteristics of AlGaN/GaN High electron mobility transistors,** 2004 E-MRS Fall Meeting, Warsaw University of Technology, **Poland**, P. 95
2. **The effects of GaN capping layer thickness on electrical properties of the two-dimensional electron gas in GaN/AlGaN/GaN heterostructures,** A&NZIP 28th Condensed Matter and Materials Meeting, Charles Stuart University, Wagga Wagga, NSW, **Australia**, P. TM4

2003

1. **Mobility of two-dimensional electron gas in AlGaN/GaN heterostructures with different Al mole fraction,** Proceeding of Iranian Condensed Matter Physics Conference, Yazd University, **Iran**, P. 11

2002

1. **Theoretical study of Two-dimensional electron gas in GaN/AlN/GaN heterostructures with very thin AlN barriers,** PLCMN2, **Greece**, P. W5

Research Projects (Place of granted):

Back

As Principal Investigator:

- Designenig, Fabrication, and Optimization of Semitransparent Solar Cells, **Iran National Innovation Fund-INIF**, 2022 – 2024.
- Developing the technologies for high-performance organic solar cells, **Iran National Science Foundation- Chinese Academy of Sciences** (**Iran-China**), 2018-2021.
- Modeling, designing, and fabrication of Superluminescent Light-Emitting Diodes, **RIAPA**, 2017-2021.
- Investigation of the effects of metallic nanoparticles on the performance of nanowire-based photodetectors, **University of Tabriz**, 2016-2017.
- Graphene organic-inorganic-based Solar Cells, **Center for International Studies and Scientific Cooperation** (**Iran-France**), 2016-2017.

- Investigation of fundamental losses in nitride-based Quantum dot solar cells, **Iran National Science Foundation**, 2016-2018.
- Modeling of mid-infrared wavelength switches using graphene nanoribbons, **Photonics Center of Excellence-Iran**, 2015-2016
- Investigation of fundamental losses in nitride-based solar cells, **University of Tabriz**, 2015-2016
- Investigation of the exciton in nitride-based quantum dot molecule, **University of Tabriz**, 2014-2015
- Optimization of the performance of Nitride based Super Luminescent Diodes, **Photonics Center of Excellence-Iran**, 2013-2014
- Study of the Vertical electron mobility in nitride optoelectronics Devices, **University of Tabriz**, 2013-2014
- Study of the broadening of electron mobility in nitride optoelectronics Devices, **University of Tabriz**, 2012-2013
- Investigation of gate displacement on transport properties of Nitride HEMT, **Azad University**, 2010-2010
- The lifetime of indirect excitons in coupled AlGaN/GaN quantum wells in an electrostatic trap, **Research Institute for Fundamental Science**, 2010-2010
- Study of Static charactirization of nitride Quantum dot lasers, **University of Tabriz**, 2008-2010
- Study of Electron transport in AlGaN/GaN heterostructures Nano-transistor with InN Quantum dots, **University of Tabriz**, 2007-2008
- Quantum well IR detectors, **RIAPA,** 2006-2008
- Modeling of AlGaN/GaN Nano field effect transistors and study of those transport properties, **Iranian Nanotechnology Initiative**, 2005-2007
- Study of the electron energy distribution function in AlGaN/GaN heterostructure field effect transistors, **University of Tabriz**, 2005-2006
- The study of Gate current in AlGaN/GaN heterostructure field effect transistors, **University of Tabriz**, 2004-2005

As Investigator:

- The study of electromagnetic (EM) wave propagations in photonic crystals, **University of Tabriz**, 2005-2006
- Offset energies at molecular photocells and their influence on the charge separation yield, **University of Tabriz**, 2017-2019
- The effects of symmetry reduction on the photonic band gap of the anisotropic Circular photonic crystals, **University of Tabriz**, 2010-2011
- The study of electromagnetic (EM) wave out of page propagations in two-dimensional photoniccrystals, **University of Tabriz**, 2009-2010
- Investigation of experimental parameters on self-assembled pattern in Azo-Polymers, **University of Tabriz**, 2008-2010
- Band gap Engineering of in anisotropic Photonic Crystals, **University of Tabriz**, 2006-2007
- Band structure Engineering of Tunable Photonic Crystals, **University of Tabriz**, 2006-2007

Membership to Scientific Associations:

- Member of (Board Membr) ***Physics Society of Iran***, Iran, 1998-Present (2021- Present)
- Member of ***Australian Nanotechnology Network*** (ANN), Australia, 2003- Present
- Member of ***Iranian Nanotechnology Society,*** Iran, 2004-Present
- Member of ***Optics and Photonics Society of Iran***, Iran, 2019-Present
- Member of ***SPIE***, USA, 2007-2017
- Member of ***Editoral Board*** of Journal of Research on Many-body Systems, Iran, 2020-Present

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