

Educational Background:

Academic Positions:

Publications

Research Projects

Awards, Honorary Degrees.

Administrative Responsibilities

Teaching Experiences:

MSc & PhD Thesis Supervision:

Reviewer of Journals:

Membership to Scientific Assoc...



# Asghar Asgari

## Vice-chancellor of Research and technology

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## Professor of Photonics-Electronics

Research Institute for Applied Physics & Astronomy,

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## Adjunct Professor

Microelectronics Research Group

School of Electrical, Electronic & Computer Engineering,

[University of Western Australia](#)

35 Stirling Highway, Crawley WA 6009, Australia

## Educational Background:

[Back](#)

Certificate Degree	Field of Specialization	Name of Institution Attended	Date Received
<b>Ph.D</b>	Solid State Physics & Electronics	The University of Tabriz, Iran	<b>2003</b>
<b>MSc</b>	Solid State Physics	The University of Tabriz, Iran	<b>1998</b>
<b>Bsc</b>	Physics	The University of Tabriz, Iran	<b>1996</b>

### **Title of Post-Graduate Thesis (Supervisor):**

Study of Optical Bistability in GaSe Monocrystals (**Prof. M. Kalafi**)

### **Title of Doctorate Thesis (Supervisor):**

Study of Transport Properties of AlGaIn/GaN Heterostructure  
(**Prof. M. Kalafi & Prof. L. Faraone**)

## Academic Positions:

[Back](#)

Title of Position	Field of Specialization	Date		Name of Institution
		From	To	
<b>Research Fellow</b>	Microelectronics	2002	2004	University of Western Australia
<b>Assistan Professor</b>	Solid state Physics & electronics (Nanoelectronic)	2004	2008	University of Tabriz
<b>Adjunct Senior Research Fellow</b>	Microelectronics & Nanoelectronic	2004	2013	University of Western Australia
<b>Associate Professor</b>	Nanoelectronic & Photonics	2008	2012	University of Tabriz
<b>Sabbatical</b>	Nanoelectronic & Photonics	2010	2011	University of Western Australia
<b>Professor</b>	Nanoelectronic & Photonics	2012	-	University of Tabriz
<b>Adjunct Professor</b>	Microelectronics & Nanoelectronic	2013	2017	University of Western Australia
<b>Adjunct Professor</b>	Microelectronics & Nanoelectronic	2017	2020	University of Western Australia

[Back](#)

## **Awards, Honorary Degrees, Medals and Positions:**

[Back](#)

Title of Award, Medal, Position	Issuing Authority	Country	Year
<b>Distinguished Researcher (award)</b>	University of Tabriz	Iran	2006
<b>Distinguished Researcher (award)</b>	University of Tabriz	Iran	2009
<b>Distinguished Researcher (award)</b>	University of Tabriz	Iran	2011
<b>Distinguished Researcher (award)</b>	University of Tabriz	Iran	2013
<b>Adjunct Professor</b>	University of Western Australia	Australia	2013-
<b>Distinguished Researcher (award)</b>	University of Tabriz	Iran	2017
<b>Head of Centre for Photonics Excellence of Iran</b>	University of Tabriz	Iran	2019

## **Teaching Experiences:**

[Back](#)

Title of Course	Level	Dates		Name of Institution
		From	To	
Optical properties of Solids	PhD	2016	-	University of Tabriz
Semiconductor laser	PhD	2016	-	University of Tabriz
Photonic Crystals	Ph.D,	2011	-	University of Tabriz
Quantum theory of Solids	Ph.D,	2010	2012	University of Tabriz
Optics of Low-Dimensional Semiconductors	Ph.D,	2010	-	University of Tabriz
Photodetectors	MSc.	2009	2012	University of Tabriz
Advanced Quantum Mechanic	MSc	2007	-	University of Tabriz
Optoelectronic Devices	MSc	2007	-	University of Tabriz
Nano-electronics 1, 2	MSc	2008	2009	University of Tabriz
Nano-Physics	MSc	2007	2009	Sahand University of Technology
Semiconductor: Theory and Technology	MSc	2008	2011	University of Tabriz
Classical Physics	BSc	2005	2006	University of Tabriz
Quantum Mechanic (1,2)	BSc	2003	2007	University of Tabriz
Semiconductors Physics	BSc	2005	2007	University of Tabriz

## Administrative Responsibilities

[Back](#)

Job Title	Place of Work	Date		Name of Institution
		From	To	
<b>Head of Department</b>	Photonics, Research Institute for Applied Physics,	2007	2009	University of Tabriz
<b>Director</b>	University of Tabriz planning and education development office	2009	2010	University of Tabriz
<b>Director</b>	Research Institute for Applied Physics & Astronomy	2014	2018	University of Tabriz
<b>Secretary</b>	East-Azarbaijan Nanotechnology Initiative Council	2014	2018	Province of East-Azarbaijan
<b>Director</b>	Research Center for Fundamental Science	2017	2018	University of Tabriz
<b>Vice-chancellor of Research and Technology</b>	University of Tabriz	2018	<b>Now</b>	University of Tabriz

## Master and Doctorate Thesis Supervision:

[Back](#)

No	Full Name of Student	Level	Title of Thesis
90	<b>Zeinab Shokrollahi</b>	MSc	
89	<b>Spedeh Alipour Sudmand</b>	MSc	
88	<b>Parinaz Pirziaee</b>	MSc	
87	<b>Samira Gasemi</b>	MSc	
86	<b>Kodaverdizadeh</b>	<b>PhD</b>	
85	<b>Davood Raeiani</b>	<b>PhD</b>	
84	<b>Hossein Movla</b>	MSc	
83	<b>Habib Kazemi</b>	<b>PhD</b>	

82	<b>Elmira Annabi Milani</b>	<b>PhD</b>	
81	<b>Zeinab Khagani</b>	<b>PhD</b>	
80	<b>Nasrin Vahedi</b>	<b>PhD</b>	
79	<b>Zahra Khoshnavan</b>	MSc	
78	<b>Farshid Solymani</b>	MSc	
77	<b>Moghgan Mahdizadeh</b>	<b>PhD</b>	
76	<b>Faezeh Zolghadriha</b>	MSc	Study of Graphene BioFETs to measure pH
75	<b>A. Sharifi</b>	MSc	The Carrier Lifetime Measurement using Photoluminescence
74	<b>A. Arkani</b>	MSc	Investigation of the electron - hole recombination effects in quantum-wire based detectors
73	<b>P. NikJoo</b>	MSc	The effects of temperature on the performance of colloidal quantum dot sensitized solar cells
72	<b>G. Alivand</b>	<b>PhD</b>	Study of the effects of temperature in InGaN/GaN quantum wires LED
71	<b>J. Mokhtarzad</b>	<b>PhD</b>	Modeling high-efficiency quantum dot sensitized solar cells
70	<b>H. Fazalipour</b>	<b>PhD</b>	Designing and analysing of Nitride-QD based photodetectors with inhomogeneous distribution
69	<b>N. Fathalizadeh</b>	MSc	Investigation of graphene based gas sensor performance using metal nanoparticle
68	<b>N. Khajeh Gholi</b>	MSc	Investigation and fabrication of solar cells based on type II quantum dots
67	<b>M. Lazemi</b>	MSc	Efficiency enhancing of solar cells using colloidal quantum dots
66	<b>M. Bahramnejad</b>	MSc	Analysis of stresses in composite by shearography method using laser light
65	<b>S. Mohammadi</b>	MSc	Synthesis and characterization of CdS/ZnS quantum dot for the white light spectrum

64	<b>N. Navai Baghban</b>	MSc	Investigation of Spp in Graphene based cylindrical waveguides
63	<b>F. Eskandarzadeh</b>	MSc	Modeling of ultra broadband Graphene photodetector
62	<b>A. Faizipour</b>	MSc	Investigation of the effects of different Nano metallic Particle surface plasmon on solar cells efficiency
61	<b>E. Solymanzad</b>	MSc	Investigation of the effects of internal reflection in III nitride based solar cells
60	<b>Z. Fadaei</b>	MSc	Investigation fundamental losses in nitride based nanostructure solar cells
59	<b>M. Helali</b>	MSc	An Analytical Model of Dark Saturation Current of III-nitride based Solar Cell
58	<b>N. Hosseini</b>	MSc	Investigation of Excitons in quantum dot molecules
57	<b>S. HaghKish</b>	MSc	The effects of capping and barrier layers on performance of nanostructures III-nitride based LEDs
56	<b>F. Mohammadzadeh</b>	MSc	Investigation of gate-source and gate-drain length on performance of Graphene FET
55	<b>S. KhubAfarin</b>	MSc	The effect of optical properties of graphene on surface plasmon polaritons
54	<b>M. Piralaei</b>	PhD	Investigation of the random distribution of nanoparticles in performance of plasmonic solar cells
53	<b>V. Mohaddesi</b>	Ph.D	Investigation of Graphene plasmonic for THz applications
52	<b>M. Kashiri</b>	Ph.D	Investigation of carrier dynamics in quantum dot laser
51	<b>T. Nemati</b>	PhD	Theory of photovoltaic cells : new quantum formalism and application to nanostructured systems
50	<b>N. Milani</b>	Ph.D	Modeling of Superluminescent Light-Emitting Diodes in Semiconductor Nanostructures
49	<b>Z. Arefnia</b>	Ph.D	Modeling of the Graphene Solar Cells and optimizing its Conversion Efficiency
48	<b>M. Ashkani</b>	MSc	Investigation of Minority Carrier Lifetimes in Superlattice Photodetectors
47	<b>N. PourAbbasAli</b>	MSc	The effects of structural parameteres on performance of III-nitride based LEDs
46	<b>E. Annabi Milani</b>	MSc	The effects of capping layer on performance of III-nitride based nanostructures lasers
45	<b>S. Safa</b>	Ph.D	Investigation of transport properties of type II superlattices
44	<b>M. PirAlaei</b>	MSc	Investigation of the diffusion length and relaxation time of the mionerity carries in GaN basd solar cells

43	<b>F. Shiri</b>	MSc	Investigation of the dark current in graphene based IR detectors
42	<b>I. AskarAbadi</b>	MSc	Investigation of the optical nonlinearity in graphene nano ribbons
41	<b>S. Jabbarpour</b>	MSc	Investigation of the electron scattering mechanisms in III-nitride based Solar cells
40	<b>B. Bagheri</b>	MSc	Study of polaritonic LED in semiconductor microcavity
39	<b>M. Emdadi</b>	MSc	Study of photonic crystals nano-cavity with semiconductor nano-structure active region
38	<b>L. Mohammadzade</b>	MSc	Investigation of Exciton states in Graphene
37	<b>P. Navaei</b>	MSc	Modeling of Nitride based quantum dot laser-the effects of relaxation time and cavity length
36	<b>F. SolymanNejad</b>	MSc	Modeling of Gas Sensor based on nitride field effect Nanostructures
35	<b>M. Bahrami</b>	MSc	Study of Exciton state life time in III-nitride quantum dots
34	<b>S. Saeid Nahaei</b>	MSc	Investigation of Phonon-Exciton interaction in Semiconductor quantum dots
33	<b>M. Alavi</b>	MSc	Investigation of polaritonic states in Semiconductor Nano-structures
32	<b>N. Fazli</b>	MSc	Study of III-nitride based QD field effect transistors
31	<b>E. Ahmadi</b>	<b>Ph.D</b>	Modeling of the Infrared Graphene Photodetector and optimizing the detector parameters
30	<b>R. Ghahramani</b>	MSc	Investigation of THz waves Generation in Gunn diodes of nitride materials
29	<b>M. Ghahramani</b>	MSc	Modeling of the Heterojunction Bipolar Transistor Lasers Based on Nitride nano-structure
28	<b>Kh. Khalili</b>	MSc	Modeling of III-Nitride based solar cell with high efficiency
27	<b>S. Dashti</b>	MSc	Optimization of Gain in nitride quantum well laser
26	<b>H. azari</b>	MSc	Study of Microbolometer Infrared detector parameters
25	<b>A. Khorrami</b>	MSc	Investigation of the generation and detection of Terahertz waves in nitride based nanostructures
24	<b>F. Ghasemi</b>	MSc	Investigation of transverse structures in semiconductor microresonators above lasing threshold with nonlinear fitting of polarization
23	<b>H. Mohammadpour</b>	<b>Ph.D</b>	Investigation of transport properties and characterization of Graphene nano-ribbon FET

22	<b>H. Solymani</b>	MSc	Modeling of tunneling gate currents in nanoscale MOSFETs
21	<b>Z. Arse</b>	MSc	The study of optical absorption nonlinearity in AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructures
20	<b>S. Taheri</b>	MSc	Modeling of heat sensor in semiconductor nanostructures
19	<b>S. Razi</b>	MSc	The study of detectors parameters in nitride based quantum dot IR detectors
18	<b>S. Sheshechi</b>	MSc	The study of temperature effects on optical properties of Nitride nano structural based LEDs
17	<b>S. Nikipar</b>	MSc	The effects of gate miniaturizing on AlGa <sub>N</sub> /Ga <sub>N</sub> high electron mobility transistors transport parameters
16	<b>S. Mohammadi</b>	MSc	The effects of gate-source and gate-drain distance on AlGa <sub>N</sub> /Ga <sub>N</sub> high electron mobility transistors transport parameters
15	<b>N. Sarani Azar</b>	MSc	Capacitance in Nanostructure Nitride Semiconductors Quantum
14	<b>S. Asadzadeh</b>	MSc	Study of the excitonic state in semiconductor quantum dot nanostructures
13	<b>H. Kavyani</b>	MSc	Study of the quantum dot nanostructural shape effects on the electronic structure
12	<b>F. Kakojobari</b>	MSc	Study of electronic structure of quantum dots by density functional method
11	<b>S. Shojaei</b>	<b>Ph.D</b>	Study of optical properties of nitride quantum dots and their application
10	<b>L. Rajabi</b>	BSc	Theoretical Study of transport properties of the electrolyte gated Nitride based Nano-transistors
9	<b>H. Babanejad</b>	MSc	Study of Energy relaxation rate in AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructure
8	<b>H. Einollahzade Samadi</b>	MSc	Study of electric field effects on electronic structure of Nitride Quantum Dots.
7	<b>S. Tahmasebizadeh</b>	MSc	Modeling of AlGa <sub>N</sub> /Ga <sub>N</sub> multi-Quantum Well for Fiber Optics telecommunications
6	<b>S. Safa</b>	MSc	Study of indirect excitons in electrostatic traps of Ga <sub>N</sub> based Nano Structures.
5	<b>S. Rahimi</b>	MSc	Investigation of the thermal resistance in AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructure and related transistors
4	<b>H. Hatami</b>	MSc	Modeling of the Quantum Well Infrared Photodetector in range of 2-6 micrometer.
3	<b>E. Ahmadi</b>	MSc	Investigation of solar-blind p-i-n ultraviolet photodetector based on AlGa <sub>N</sub>
2	<b>M. Karamad</b>	MSc	The effect of traps on transport property of AlGa <sub>N</sub> /Ga <sub>N</sub> high electron mobility transistors (HEMTs)
1	<b>E. Nourghasemi</b>	MSc	Investigation the effect of hot phonons on two-dimensional electron gas in AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructures



## Publications:

### *A: Books*

[Back](#)

Title	Type of Work		Publisher	Date of Publication
	Translation	Compilation		

### *B: Papers*

Authors	Title of Paper	Place of Publication	Date of Publication
M. Piralaee, Z. Ebrahimpour, <b><u>A. Asgari</u></b>	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, <b><u>A. Asgari</u></b> S. Ahmadi-k	Effective thickness method for modelling absorption enhancement of forward-scattering nanoparticles in photovoltaic devices	Solar Energy Materials and Solar Cells	2020
M. Piralaee, <b><u>A. Asgari</u></b>	The role of Silver nanoparticles in performance of p-i-n double heterojunction InGaN/GaN solar cells	Chemical Physics Letters	2020
F. Ahmadi; Z. Ebrahimpour; <b><u>A. Asgari</u></b> ; R. El-Mallawany	Role of silver/titania nanoparticles on optical features of Sm <sup>3+</sup> doped sulfophosphate glass	Optical Materials	2020
T. Nemati Aram, <b><u>A. Asgari</u></b> , Didier Mayou	Impact of electron-phonon coupling on the quantum yield of photovoltaic devices	The Journal of Chemical Physics, 152 (4), 044109	2020
Javad Mokhtarzad, <b><u>A. Asgari</u></b> , Sara S Parhizgar, Yousef Seyed Jalili	Modeling of high-efficiency colloidal quantum dot solar cells	J. Nanophotonics 13(4), 046001	2019
Z. Arefinia, <b><u>A. Asgari</u></b>	Quantum engineering of intrinsic losses in the diluted nitride InAsN quantum dot intermediate band solar cell	Journal of Photonics for Energy	2019
F. Ahmadi, <b><u>A. Asgari</u></b>	Spectroscopic investigation of Sm <sup>3+</sup> doped sulfophosphate glasses for visible photonic applications	Journal of Non-Crystalline Solids 505: 406-413	2019
K. Hasanirokha, <b><u>A. Asgari</u></b> , M. Mahdizadeh Rokhia	Theoretical study on nonlinear optical properties of CdS/ZnS spherical quantum dots	Optik 188, 99-103	2019

K. Hasanirokh <b><u>A. Asgari</u></b>	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, <b><u>A. Asgari</u></b>	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, <b><u>A. Asgari</u></b> , V Siahpoush	Radiation characteristics of Leaky Surface Plasmon polaritons of Graphene	Superlattices and Microstructures	2018
H Fazlalipour, <b><u>A. Asgari</u></b> , 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, <b><u>A. Asgari</u></b>	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, <b><u>A. Asgari</u></b>	Scaling issues of Schottky junction solar cells based on graphene and silicon quantum wires in the sub-10-nm regime	Optik-International Journal for Light and Electron Optics, 153, 65	2018
Z. Arefinia, <b><u>A. Asgari</u></b>	Optimization Study of a Novel Few-Layer Graphene/Silicon Quantum Dots/Silicon Heterojunction Solar Cell Through Opto-Electrical Modeling	IEEE Journal of Quantum Electronics	2017
E. Namvari, S. Shojaei, <b><u>A. Asgari</u></b>	Luminescence emission from nonpolar Al <sub>0.3</sub> Ga <sub>0.7</sub> N/GaN core-shell and core-multi-shell nanowires	Superlattices and Microstructures 112, 118	2017
V. Mohadesi, V. Siahpoush, <b><u>A. Asgari</u></b>	Investigation of leaky and bound modes of graphene surface plasmons	Journal of Applied Physics 122 (13), 133113	2017
S. Asgharizadeh, M. Javidnassab, <b><u>A. Asgari</u></b> , M. R.Keramaty	Variable width quantum well-based high-efficiency solar cells: an investigation in Al <sub>0.56</sub> Ga <sub>0.44</sub> As solar cell	J. Photon. Energy 7(1), 015502	2017
E. Namvari, S. Shojaei, <b><u>A. Asgari</u></b>	Luminescence emission from Al <sub>0.3</sub> Ga <sub>0.7</sub> N/GaN multi quantum disc core/shell nanowire: Numerical approach	Physica E 93,132–142	2017
B. Olyaeefar, S. Ahmadi-Kandjani, <b><u>A. Asgari</u></b>	Bulk and interface recombination in planar lead halide perovskite solar cells: A Drift-Diffusion study	Physica E 94, 118–122	2017

M. Abbaspour, B. Pourabbas, M. Azimi, G. Abdeali, <b><u>A. Asgari</u></b>	Solid-state supercapacitor based on breath figured polymethyl methacrylate deposited by graphene: the effect of electrode surface	J Mater Sci: Mater Electron, 28, 14121	2017
T. Nemati Aram, <b><u>A. Asgari</u></b> , M. Ernzerhof, P. Qu'emerai, D. Mayou	Quantum modeling of two-level photovoltaic systems	EPJ Photovoltaics 8, 85503	2017
E. Annabi Milani, V. Mohadesi, <b><u>A. Asgari</u></b>	Investigating the Effects of Capping Layer on Optical Gain of Nitride Based Semiconductor Nanostructure Lasers	Optical Materials 66, 236–240	2017
TN. Aram, M. Ernzerhof, <b><u>A. Asgari</u></b> , D. Mayou	The impact of long-range electron-hole interaction on the charge separation yield of molecular photocells	The Journal of Chemical Physics 146	2017
M. Piralaee, <b><u>A. Asgari</u></b> , V. Siahpoush	Modeling and optimizing the performance of plasmonic solar cells using effective medium theory	Physics Letters A 381, 489–493	2017
S. K. Doust, V. Siahpoush, <b><u>A. Asgari</u></b>	The Tunability of Surface Plasmon Polaritons in Graphene Waveguide Structures	Plasmonics, 12, 1633	2017
M. Lazemi, <b><u>A. Asgari</u></b>	Study of the characteristics of Si based solar cells sensitized by CdSe QDs by FDTD method	NanoScale, 4, 243 (in Persian)	2017
S. Safa, <b><u>A. Asgari</u></b>	Effects of ionized impurity and interface roughness scatterings on the electron mobility in InAs/GaSb type II superlattices at low temperatures	Modern Physics Letters B 30, 1650384	2016
M. Piralaee, <b><u>A. Asgari</u></b>	Modeling of Optimum light absorption in random plasmonic solar cell using effective medium theory	Optical Materials, 62 399-402	2016
TN Aram, P Anghel-Vasilescu, <b><u>A. Asgari</u></b> , M Ernzerhof, D Mayou	Modeling of molecular photocells: Application to two-level photovoltaic system with electron-hole interaction	The Journal of Chemical Physics 145 (12), 124116	2016
S Haghkish, <b><u>A. Asgari</u></b>	The effects of cap layer thickness on the performance of InGaN/GaN MQW solar cell	arXiv preprint arXiv:1605.06816	2016
TN Aram, <b><u>A. Asgari</u></b> , Didier Mayou	Charge separation in organic solar cells: Effects of Coulomb interaction, recombination and hole propagation	Europhysics Letters (EPL), 115, 18003	2016

M. Kashiri, <b><u>A. Asgari</u></b>	Modeling of carrier dynamics in InGaAs/GaAs self-assembled quantum dot lasers	Applied Optics Vol. 55, Issue 8, pp. 2042-2048	2016
M. Kashiri, <b><u>A. Asgari</u></b>	Evaluating the effects of nonlinear optical gain and thermal carrier escape on the performance of InGaAs/GaAs self-assembled quantum dot lasers	International Journal of Modern Physics B, July Vol. 30, No. 19, 1650121	2016
H. Mohammadpour, <b><u>A. Asgari</u></b>	Enhanced nonlocal Andreev reflection in $F S F$ graphene spin-valve	Physica C: Superconductivity and its applications 519, 124-129	2015
S. Safa , <b><u>A. Asgari</u></b>	Vertical Transport in InAs/GaSb Superlattice at Low Temperatures	Journal of Low Temperature Physics, 181, 223-233	2015
A. Golestani, A. Khaledi-Nasab & <b><u>A. Asgari</u></b>	Phase-dependent intersubband optical properties of asymmetric AlGaAs/GaAs coupled quantum wells	Journal of Modern Optics, 63, 566-574	2015
M. Tahmasebpoura, M. Bahramia, <b><u>A. Asgari</u></b>	Design of a high figure of merit subwavelength grating based plasmonic sensor for detection of DNA hybridization	Optik 126, 2747-2751	2015
Z. Arefinia, <b><u>A. Asgari</u></b>	Performance optimization of Schottky junction solar cells based on Graphene and Semiconductor nanowires	Submitted to Energy	2015
R. Jafari, <b><u>A. Asgari</u></b>	The effects of temperature on I-V characteristics of quantum dot based optoelectronic devices	NanoScale, 4, 217-222 (in Persian)	2015
N. Moslehi Milani, V. Mohadesi, <b><u>A. Asgari</u></b>	The effects of temperature dependent recombination rates on performance of InGaN/GaN blue superluminescent light emitting diodes	Physica E 71, 64-69	2015
Z. Arefinia, <b><u>A. Asgari</u></b>	An analytical model for optimizing the performance of graphene based silicon Schottky barrier solar cells	Materials Science in Semiconductor Processing 35, 181-188	2015
T. Nemati Aram, <b><u>A. Asgari</u></b>	Influence of Fermi velocity engineering on electronic and optical properties of graphene superlattices	Physics Letters A 379, 974	2015
N. Moslehi Milani, <b><u>A. Asgari</u></b>	The effects of carrier transport phenomena on the spectral and power Characteristics of blue superluminescent light emitting diodes	Physica E 69, 165	2015

Z. Arefinia, <b><u>A. Asgari</u></b>	Optical and electrical modeling of solar cells based on graphene/Si nanowires with radial p-i-n junctions	Solar Energy Materials & Solar Cells, 137, 146	2015
Ali Golestania, Elmira A. Milania, <b><u>A. Asgari</u></b>	Large Kerr coefficient induced by THz driven to intersubband of a GaN/AlGaIn asymmetric quantum well nanostructure	Journal of Modern Optics, 62, Issue 7, 569-575	2015
Mina Piralaee, <b><u>A. Asgari</u></b>	Investigation of the temperature dependence of Quantum Efficiency of Multijunction GaN solar cells	Iran. J. Sci. Technol. Trans. Sci. DOI: 10.1007/s40995-016-0029-4	2015
N. Moslehi Milani, V. Mohadesi, <b><u>A. Asgari</u></b>	A novel theoretical model for broadband blue InGaIn/GaN superluminescent light emitting diodes	J. Appl. Phys. 117, 054502	2015
P. Navaeipour, <b><u>A. Asgari</u></b>	Fully numerical analysis of III-nitride based quantum dot lasers considering the quantum dots size distribution	Optik, 126, 119	2015
M. Tahmasebpour, M. Bahrami, <b><u>A. Asgari</u></b>	Investigation of subwavelength grating structure for enhanced surface plasmon resonance detection	APPLIED OPTICS, Vol. 53, No. 27, 6307	2014
Z. Arefinia, <b><u>A. Asgari</u></b>	A new modeling approach for graphene based silicon nanowire Schottky junction solar cells	J. Renewable Sustainable Energy. 6, 043132	2014
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[Back](#)

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Energy levels of GaN Quantum Dots in Finite spin orbit coupling	Proceeding of 2nd International Conference on Nanoscience and Nanotechnology, Tabriz, Iran, P.137	2008
AlGaIn/GaN based electroabsorption modulator operating at fiber-optics telecommunication wavelengths	Proceeding of 8 <sup>th</sup> IEEE-NUSOD,, Nottingham UK, P. 7	2008
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	2008

Investigation of influence of doping density in electroabsorption modulator in GaNAlGaN-AlN quantum wells structures for working in optical communication wavelength.	Proceeding of Iranian Annual Physics Conference, University of Kashan, Iran, P. 226	2008
Analytical performance of Al <sub>x</sub> Ga <sub>1-x</sub> N/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	2008
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	2008
Energy Relaxation Rate by Hot Electrons via Acoustic Phonons in AlGa <sub>N</sub> /Ga <sub>N</sub> Quantum Wells	Proceeding of Iranian Annual Physics Conference, University of Kashan, Iran, P.41	2008
The effects of electric field on exciton binding energy of AlGa <sub>N</sub> /Ga <sub>N</sub> double quantum well	Proceeding of 14 <sup>th</sup> condensed Matter Conference, , IASBS, Iran, P. 234	2008
Calculation of Ga <sub>N</sub> quantum dot energy levels by K.P theory with corresponding numerical matrix elements	Proceeding of 14 <sup>th</sup> condensed Matter Conference, , IASBS, Iran, P. 204	2008
The effects of electric field on energy levels of zinc-blende Ga <sub>N</sub> quantum dot	2008 E-MRS Spring Meeting, Symposium G, Strasburg, France, A37	2008
The Study of electrical properties of AlGa <sub>N</sub> /Ga <sub>N</sub> Heterostructure Field effect transistors in presence of In <sub>N</sub> quantum dots	ICONN 2008, Melbotne Australia, P.48	2008
Negative differential capacitance of AlGa <sub>N</sub> /Ga <sub>N</sub> Heterostructure in presence of In <sub>N</sub> quantum dots	Proc. SPIE 6793, 679304	2007
Binding Energy of Direct and Indirect Excitons in Single and Coupled Double AlGa <sub>N</sub> /Ga <sub>N</sub> Quantum Wells in a Uniform Electric Field	International Conference on Semiconductor Materials and Optics, Warsaw, Poland	2007
The Effect of Gate Length on the Cut off Frequency and noise of AlGa <sub>N</sub> /Ga <sub>N</sub> High Electron Mobility Transistor (HEMTs)	Proceeding of Iranian Annual Physics Conference, University of Yasooj, Iran, P.396	2007
Study of Excitons in Al <sub>x</sub> Ga <sub>1-x</sub> BN/GaN double quantum wells	Proceeding of Iranian Annual Physics Conference, University of Yasooj, Iran, P.318	2007
Theoretical calculation of Responsivity in Ga <sub>N</sub> /InGa <sub>N</sub> quantum well detector in UVA and visible rane	Proceeding of second Physics Conference, University of Payam Noor, Iran, P.197	2007

The study of IR-quantum well detectors detectivity as function of structural parameters	Proceeding of 13 <sup>th</sup> condensed Matter Conference, , IASBS, Iran, P. 91	2007
The study of piezoelectric polarization effects on AlGa <sub>0.3</sub> N/GaN quantum well UV detectors	Proceeding of 13 <sup>th</sup> condensed Matter Conference, , IASBS, Iran, P. 5	2007
Optoelectronic Devices based on III-Nitride Heterostructures	Proceeding of 13 <sup>th</sup> condensed Matter Conference, , IASBS, Iran, P. 14 (Invited)	2007
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	2007
Study of the oscillator strength of Al <sub>0.3</sub> Ga <sub>0.7</sub> As/GaAs quantum well under the effect of the electric field	Proceeding of 8 <sup>th</sup> Iranian condensed Matter Conference, Ferdowsi University, Mashhad-Iran, P. 270	2007
Theoretical calculation of spectral response for Al <sub>0.3</sub> Ga <sub>0.7</sub> As/GaAs Quantum Well Solar Cell	Proceeding of 8 <sup>th</sup> Iranian condensed Matter Conference, Ferdowsi University, Mashhad-Iran, P.55-58	2007
Electron transport in AlGa <sub>0.3</sub> N/GaN heterostructures transistor with Quantum dots	First International Congress on Nanoscience and Nanotechnology, Tehran, Iran	2006
The Control of absorption coefficient by cap layer thickness in Al <sub>x</sub> Ga <sub>1-x</sub> N/GaN heterostructure Quantum wells	6th International Conference on Physics of Light-Matter Coupling in Nanostructures Magdeburg, Germany	2006
Thermal Resistance Calculation of AlGa <sub>0.3</sub> N-GaN Devices	Proceeding of Iranian Annual Physics Conference, University of Shahrood, Iran, P.461	2006
Theoretical analysis of subband states controlled by cap layer thickness in an Al <sub>x</sub> Ga <sub>1-x</sub> N/GaN heterostructure	Proceeding of Iranian Annual Physics Conference, University of Shahrood, Iran, P.542	2006
Investigation of effects of traps on gate current in AlGa <sub>0.3</sub> N/GaN high electron mobility transistors	Proceeding of Iranian Annual Physics Conference, University of Shahrood, Iran, P.126	2006
Physics of carrier-transport mechanisms for theoretical modeling of nanometer AlGa <sub>0.3</sub> N/GaN Heterostructure field effect transistors	College on Physics of Nano-Devices, ICTP Trieste, Italy, P. 8	2006

Modeling of trap-assisted tunneling in AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructure field effect transistors with different Al mole fraction	2006 E-MRS Spring Meeting, Symposium S, Nice, France, SA37	2006
Study of the electron energy distribution function in AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructure field effect transistors	2006 E-MRS Spring Meeting, Symposium A, Nice, France, A1A37	2006
Analytical Model for Negative Differential Conductivity of AlGa <sub>N</sub> /Ga <sub>N</sub> High Electron Mobility Transistor	Thirteenth International Workshop on the Physics of Semiconductor Devices, New Delhi, India, December, P. 830	2005
Exact Numerical Analysis of an Extracted IR-Photodiodes	Thirteenth International Workshop on The Physics of Semiconductor Devices, New Delhi, India, P. 1090	2005
Schottky gate effects on transport properties of AlGa <sub>N</sub> /Ga <sub>N</sub> Heterostructures	The Sixth International Conference on Nitride Semiconductors, Bremen Germany, P. Tu-P-010	2005
Investigation of Hot-Phonon Effect on a Two-Dimensional Electron Gas of AlGa <sub>N</sub> /Ga <sub>N</sub>	Proceeding of Iranian Annual Physics Conference, University of Khorram Abad, Iran, P.126	2005
The Control of Two-Dimensional-Electron-Gas density and Mobility in AlGa <sub>N</sub> /Ga <sub>N</sub> Heterostructures with Schottky gate	2005 E-MRS Spring Meeting, Strasbourg, France, P. 21	2005
Nano-transistors and their application	Iran International Hi-Tech Fair, Tabriz, Iran, P. 17 (Inviteid)	2005
Modeling of the crystal growth furnace for GaSe by the Vertical Bridgman Method	ISCG-2005, Pueblo, Mexico, P. 60	2005
The control of Two-Dimensional-Electron-Gas density in AlGa <sub>N</sub> /Ga <sub>N</sub> Heterostructures with Schottky gate	Proceeding of 7th Iranian condensed Matter Conference, Tehran, Iran, P. 23,	2005
Theoretical model of transport characteristics of AlGa <sub>N</sub> /Ga <sub>N</sub> High electron mobility transistors	2004 E-MRS Fall Meeting, Warsaw University of Technology, Poland, P. 95	2004
The effects of Ga <sub>N</sub> capping layer thickness on electrical properties of two-dimensional electron gas in Ga <sub>N</sub> /AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructures	A&NZIP 28th Condensed Matter and Materials Meeting, Charles Stuart University, Wagga	2004
Mobility of two dimensional electron gas in AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructures with different Al mole fraction	Proceeding of Iranian Condensed Matter Physics Conference, Yazd University, Iran, P. 11	2003

Theoretical study of Two-dimensional electron gas in GaN/AlN/GaN heterostructures with very thin AlN barriers	PLCMN2, Greece, P. W5	2002
Calculation of band structure in Wurtzite semiconductors by K.P method	Proceeding of Iranian Condensed Matter Physics Conference, IASBS, Iran, P. 42	2000
Optical Study of electromagnetic surface modes in SiO & MgO micro-crystals	Proceeding of Iranian Annual Physics Conference, University of Mazandaran, Iran, P. 157, 28-31	1999
Study of Optical Bistability in GaSe Monocrystals	Proceeding of Iranian Annual Physics Conference, University of Kerman, Iran, P.126, 28-31.	1998

### Research Projects:

[Back](#)

Title of Project	Place of Work	Dates	
		From	To
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	2019
Offset energies at molecular photocells and their influence on the charge separation yield	University of Tabriz	2017	2019
Investigation of the effects of metallic nanoparticles on 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	Photonic Excellency of the University of Tabriz	2015	2016
Investigation 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	Photonic Excellency of the University of Tabriz	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
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 photonic crystals	University of Tabriz	2009	2010
Investigation of experimental parameters on self-assembled pattern in Azo-Polymers	University of Tabriz	2008	2010
Investigation of gate displacement on transport properties of Nitride HEMT	Azad University	2010	2010
The lifetime of indirect excitons in coupled AlGaIn/GaN quantum wells in an electrostatic trap	Research Institute for Fundamental Science	2010	2010
Study of Static characterization of nitride Quantum dot lasers	University of Tabriz	2008	2010
Study of Electron transport in AlGaIn/GaN heterostructures Nano-transistor with InN Quantum dots	University of Tabriz	2007	2008
Quantum well IR detectors	RIAPA	2006	2008
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
Modeling of AlGaIn/GaN Nano field effect transistors and study of those transport properties.	Iranian Nanotechnology Initiative	2005	2007
Study of the electron energy distribution function in AlGaIn/GaN heterostructure field effect transistors	University of Tabriz	2005	2006

The study of electromagnetic (EM) wave propagations in photonic crystals	University of Tabriz	2005	2006
The study of Gate current in AlGa <sub>N</sub> /Ga <sub>N</sub> heterostructure field effect transistors.	University of Tabriz	2004	2005

### Research Interests:

- Theoretical study of optical & electrical properties of bulk and low-dimensional Semiconductors (Nitride Material, and Graphene).
- Modeling, Fabrication, and characterization of Semiconductor optoelectronic devices.
- Modeling of Nano-electronic, Nano-photonics devices.

[Back](#)

### Reviwer of Journals:

[Back](#)

Optics Express  
 Materials Science and Engineering B  
 Journal of Applied Physics  
 Applied Physics Letters  
 Chinese Optics Letters  
 Journal of Electromagnetic Waves and Applications (JEMWA) -PIER  
 Nano-Micro Letters  
 Optical Engineering  
 IEEE Transactions on Nanotechnology  
 Central European Journal of Physics  
 Optics and Photonics Letters  
 Physica E  
 Physica B  
 International Journal of Numerical Modelling  
 Journal of Defense Modeling and Simulation  
 Journal of Photovoltaics  
 Superlattices and Microstructures  
 Sensors  
 Chinese Optics Letters  
 International Journal of Optics and Photonics  
 Iranian Journal of Physics Research

[Back](#)

### Membership to Scientific Associations:

[Back](#)

Name of Institution/Association	Position Held	Country	Year
Physics Society of Iran.	Member	Iran	1998-Now
Australian Nanotechnology Network (ANN)	Member	Australia	2003- Now
Iranian Nanotechnology Society	Member	Iran	2004-Now
SPIE	Member	USA	2007-Now

[Back](#)