

## Curriculum Vitae

### EDUCATION:

**B.Sc.:** 1986, Electrical Eng., Sharif University of Technology, Tehran, Iran

**M.Sc.:** 1990, Electrical Eng. Modares University, Tehran, Iran.

**Ph.D.:** 1994, Electrical Engineering, Kyoto University, Kyoto, Japan.

### FIELDS OF INTEREST:

- Design, fabrication and simulation of optoelectronic devices, lasers and detectors
- Nanophotonic devices
- Optical quantum devices: quantum dot laser and amplifiers, optical modulators, all optical switches, micro-ring based devices, photonic crystal based devices, quantum cascade lasers and detectors, plasmonic devices, CNT/GNR based photonic devices
- Optoelectronic integrated devices and circuits
- Optoelectronic Micro/Nano-Electro-Mechanical Systems (OMEMS/ONEMS) and nanostructures

### COURSES TAUGHT:

- Power Electronics (B.Sc)
- Electrical Measurement (B.Sc)
- Pulse Techniques (B.Sc)
- Physics and Technology of Semiconductor Devices (M.Sc)
- Advanced Physics and Technology of Optoelectronic Devices (Ph.D)
- Optoelectronics (M.Sc)
- Advanced Optoelectronic Semiconductor Devices (Ph.D)
- Quantum Optoelectronic Integrated Devices and Circuits (Ph.D)
- Physics of Quantum Devices (Ph.D)
- Experimental Methods in Physics (Ph.D)
- MEMS and NEMS

### Research and Scientific Activities:

1994, He joined Tarbiat Modares University as an Assistant Professor and was promoted to Professor in 2006.

1994-2006, He was the head of the Semiconductor Department of Laser Research Centre, Tehran, Iran.

1996-1997, He became the Research Vice President of the Iran National Scientific Research Centre.

1998-2005, He was a member of the Energy Commission of the National Scientific Research Council.

1994-now, He had long term collaboration with Iran Telecommunication Research Center (ITRC) as scientific research advisor.

1997-1998, He was the member of the Committee for Technical Plans and Research Projects at the Ministry of Science, Research and Technology.

2006-2008, He has been the head of the Electrical Engineering Department of Tarbiat Modares University.

2008-now, He has been a member of editorial board of International Journal of Communication and Information Technology.

2000-2005, He was the Editor-in-Chief for the Journal of Science and Technology.

1998-2005, He was a member of the Energy Commission of the Iran National Scientific Research Council.

2005-2009, He was a member of the Board of Trustees for National Microelectronics Research Center.

2007, He was the technical and scientific Chair of 13<sup>th</sup> Iranian Conference on Optics and Photonics.

2008, He was the General Chair of the 16<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE2008).

He is the member of the Founders-Board of Iranian Society for University-Industry Relations Development.

He is the member of the Founders-Board of Optics and Photonics Society of Iran.

### Conference Papers:

1. **V. Ahmadi**, S. Noda, and A. Sasaki, "Two-Dimensional Static Simulation of HPT/LD Optoelectronic Integrated Device," Japan Optics 92, paO2, 1992.
2. **V. Ahmadi**, S. Noda, and A. Sasaki, "Simulation of OEID's (I): Analysis and Optimum Design of

HPT by 2-D Simulation,” the Japan Society of Applied Physics (JSAP), the 54<sup>th</sup> Autumn Meeting, P-E-10, 1993.

3. **V. Ahmadi**, S. Noda, and A. Sasaki, "Design of Very Sensitive HPT for OEID's by 2-D Simulation,” Tech. Report IEICE, ED93-131, CPM 93-102, PP. 67-70, 1993.
4. S. Noda, K. Shibata, **V. Ahmadi**, and A. Sasaki, "Functional Photonic Switching Device by Vertical and Direct Integration of Six HPT's and Two LD's,” OSA Proc. on Photonic in Switching, Vol. 16, USA, 1993.
5. **V. Ahmadi**, S. Noda, and A. Sasaki, "Two-Dimensional Simulation and New Structures of Heterojunction Phototransistor for OEIDs,” Topical Meeting of Int. Commission for Optics, 4p-31, 1994.
6. **V. Ahmadi**, S. Noda, and A. Sasaki, "Modeling and Analysis for Current-Voltage Characteristics of Integrated Devices of HPT and LD,” the Japan Society of Applied Physics (JSAP), the 41<sup>st</sup> Spring Meeting, a-G-2, 1994.
7. **V. Ahmadi**, S. Noda, and A. Sasaki, "Relative Intensity Noise (RIN) Analysis of OEID (II): Effect of Internal Feedback on RIN Characteristics,” the Japan Society of Applied Physics (JSAP), the 41<sup>st</sup> Spring Meeting, a-G-3, 1994.
8. **V. Ahmadi**, S. Noda, and A. Sasaki, "Fabrication and Analysis of an Optoelectronic Gate with Flip-Flop Function,” Iranian Annual Physics Conf., Abstract 289, 1996.
9. **V. Ahmadi**, S. Noda, and A. Sasaki, "Noise Characteristics of an Optoelectronic Integrated Light Amplifier,” Proc. 14<sup>th</sup> Iranian Conf. on Elect. Eng., Electronics, 52, 1996.
10. **V. Ahmadi**, "Computational Analysis of an Optical Amplifier Switch Integrated by HPT/LD,” Proc. 5<sup>th</sup> Iranian Conf. on Elect Eng. Electronics, 1997.
11. M. H. Sheikhi, **V. Ahmadi**, et al, “Modeling and Analysis of Dynamic Operation of an Integrated Optoelectronic Integrated Device Composed of HPT/LD,” 5<sup>th</sup> Conf. on Elect. Eng., Iran, Electronics Proceedings, 1997, (Persian).
12. M. Mohammadi, **V. Ahmadi**, “Fabrication and Characterization of a GaAs Solar Cell,” 4<sup>th</sup> Conf. on Condensed Matter, Iran, Proceedings, 1997 (Persian).
13. **V. Ahmadi**, M. H. Sheikhi, "Numerical Analysis for the Dynamic Response of an HPT/LD Optoelectronic Integrated Device,” Proc. 5<sup>th</sup> International Symp. On Advanced Material PP. 639-644, 1997.
14. **V. Ahmadi**, M. H. Sheikhi, "Numerical Analysis for Characteristics of a QW Structure Optoelectronic Integrated Device,” Proc. of IEEE Int. On Semiconductor for Electronics, ICSE98, 1998.
15. M. Oskoei, **V. Ahmadi**, “Optical Output Characteristics of a GaAs Laser Diode,” 5<sup>th</sup> Meeting of Optic Professionals,” 1998 (in Persian).

16. G. Abaiani, **V. Ahmadi**, et al, "Fabrication and Analysis of 1.3  $\mu\text{m}$  Heterojunction LED and LD," 6<sup>th</sup> Conf. on Elect. Eng., Iran, Electronics Proceedings, 1998 (Persian).
17. M. H. Sheikhi, **V. Ahmadi**, "Optimum Design of VCSEL for Very Short Optical Pulses," 6<sup>th</sup> Conf. on Elect. Eng., Iran, Electronics Proceedings, 1998 (Persian).
18. H. S. Abedi, **V. Ahmadi**, et al, "Simulation of Index Guided Semiconductor Laser," 7<sup>th</sup> Conf. on Elect. Eng., Iran, Electronics Proceedings, 1999 (Persian).
19. M. H. Sheikhi, **V. Ahmadi**, M. K. Moravvej-Farshi, "Optimum design of a Gain Switch Vertical Cavity Surface emitting Semiconductor Laser", 7th Iranian Conference on Electrical Engineering 1999, Tehran-Iran. (in Persian).
20. **V. Ahmadi**, Quantum Optoelectronic Devices," 1<sup>st</sup> Meeting of Optical Communication Devices Technology," ITRC, Tehran, Iran, 1999 (in Persian).
21. N. Hatefi, **V. Ahmadi**, et al, "Simulation of Index Guided Semiconductor Laser," 7<sup>th</sup> Conf. on Elect. Eng., Iran, Electronics Proceedings, 1999 (Persian).
22. F. Shahshahani, **V. Ahmadi**, et al, "Analysis for the Effects of Grating Structure on the Output Characteristics of DFB LD," 1<sup>st</sup> Conf. on Applications of Physics and Nuclear Science in Medicine, Iran, Proceedings, 1999 (Persian).
23. A. Banoushi, **V. Ahmadi**, et al, "Analysis of a PIN-APD Characteristics," 1<sup>st</sup> Conf. on Applications of Physics and Nuclear Science in Medicine, Iran, Proceedings, 1999 (Persian).
24. A. Banoushi, **V. Ahmadi**, "Modeling and Analysis for the Operation and Characteristics of a PIN Avalanche Photodiode," 8<sup>th</sup> Conf. on Elect. Eng., Iran, Electronics Proceedings, 2000 (Persian).
25. M. H. Sheikhi, **V. Ahmadi**, "Analysis for Static and Dynamic Operation of a Quantum Well Optoelectronic Integrated Device with HPT/QW-LD Structure," 8<sup>th</sup> Conf. on Elect. Eng., Iran, Electronics Proceedings, 2000 (Persian).
26. M. K. Moravvej, A. Zarifkar, **V. Ahmadi**, "Analysis of the Noise Intensity in Single Mode Laser Diode," 8<sup>th</sup> Conf. on Elect. Eng., Iran, Electronics Proceedings, 2000 (Persian).
27. F. Shahshahani, **V. Ahmadi**, et al, "Analysis of the Line Width in DFB Laser Diode," Iran Annual Physics Conf., Iran, Abstracts, 2000 (Persian).
28. F. Emami, **V. Ahmadi**, and M. K. Moravvej-Farshi, "Effects of Coupling Coefficient Variations on Threshold Parameters of DFB Laser," The 8<sup>th</sup> Iranian Conf. on Elect. Eng., 2000.
29. M. K. Moravvej-Farshi, F. Emami, **V. Ahmadi**, "Coupling Coefficients for TE and TM modes for Coherent Fields in a Corrugated Five - Layer Waveguide," The 8<sup>th</sup> Iranian Conf. on Elect. Eng., 2000.
30. **V. Ahmadi**, M. H. Sheikhi, M. K. Moravvej-Farshi, "Numerical Analysis for Static and Dynamic Characteristics of an Optical Amplifier - Switch Integrated Device." International Conf. on Nanostructure Materials (Nano 2000), Japan, August 2000.

31. **V. Ahmadi**, M. H. Sheikhi, M. K. Moravvej-Farshi, " Analysis of Optical Gain and Rise-time of a QW-Structure Optoelectronic Integrated Device, 8<sup>th</sup> IEEE International Sym. on Electron Devices for Microwave and Optoelectronic Applications, DMO 2000, Scotland, 13-14 Nov. 2000.
32. **V. Ahmadi**, M. H. Sheikhi, M. K. Moravvej-Farshi, " Numerical Analysis for the Static and Dynamic Responses of an HPT/QW-LD Optoelectronic Integrated Device, the 12<sup>th</sup> International Conf. on Microelectronics, ICM 2000, Tehran, 2000.
33. M. H. Sheikhi ,**V. Ahmadi** ,M.K. Moravvej-Farshi, "A Physical Model for Characteristics of PIN/QW-LD Optoelectronic Integrated Device," 2001 IEEE Canadian Conference on Electrical and Computer Engineering, Canada, May 2001.
34. **V. Ahmadi**, M. H. Sheikhi, M. K. Moravvej-Farshi, "A Physical Model for Characteristics of," 9<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE2001), Power and Water Institute of Technology, Tehran, Iran, May 2001.
35. M. Joodaki, G. Kompa, SMG Arshad, G. Kamucha, **V. Ahmadi**, and M. K. Moravvej-Farshi, "Application of Neural Networks for Distance Measurement in Pulsed Laser Radar (PLR),"3<sup>rd</sup> Topical Meeting on Optoelectronic Distance Displacement Measurement an Application (ODIMAP III), University of Pavia, Italy, Sept.2001.
36. M. Joodaki, G. Kompa, SMG Arshad, G. Kamucha, **V. Ahmadi**, and M. K. Moravvej-Farshi, "Neural Method for Near Distance Measurements with Overlapping of Reference and Reflected Pulses in Pulsed Laser Radar, "1<sup>st</sup> Conf Exhibit. on Microwaves, Radio Communication and Electromagnetic Compatibility, Messe Stuttgart, Germany, 8-10 May 2001.
37. K. Bayat, M. K. Moravvej-Farshi, **V. Ahmadi**, M. Zolfaghari, and M. F. Baroughi, "Design and Analysis of a Broadband Wavelength Polarization Independent Ti: LiNbO3 Directional Coupler," ST2001, Tehran, Iran, September 2001.
38. M. Joodaki, G. Kompa, SMG. Arshad, **V. Ahmadi**, M. K. Moravvej, "Neural Method for 2D High Contrast Imaging in PLR," Proc. Of 31st European Microwave Conf., London, England, 2001.
39. A. Zarifkar, **V. Ahmadi**, and M. K. Moravvej-Farshi, "Analysis of Intensity Noise in Two-Mode Semiconductor Laser Diodes," 10<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2001), 2001.
40. F. Shahshahani, **V. Ahmadi**, K. Mirabbaszadeh, "New Structure of QWS-DFB Laser Diode for Reduction of SHB Effect," 10<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2002), University of Tabriz, Tabriz,
41. E. Mortazy, **V. Ahmadi**, and M. K. Moravvej-Farshi, "Circuit Modeling and Measurement of Noise for a Semiconductor Laser Diode," 10<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2002), University of Tabriz, Tabriz, Iran, May 2002.
42. M. H. Sheikhi, **V. Ahmadi**, M. K. Moravvej, T. Yao," A physical Modeling for Transient Response of Voltage-Tunable Optoelectronic Integrated functional Device", 6th International Workshop on Expert Evaluation & Control of Compound Semiconductor Materials & Technology 2002, Budapest-Hungary.

43. M. H. Sheikhi, **V. Ahmadi**, M.K. Moravvej-Farshi, "Numerical Analysis for Characteristics of QW HPT/QW-LD Functional Optoelectronic Integrated Device," 11<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2003), Shiraz, 2003.
44. M. H. Sheikhi, **V. Ahmadi**, M.K. Moravvej-Farshi, T. Yao, "Fabrication and Characterization of a New Graded Structure GaAs/Al<sub>x</sub>Ga<sub>1-x</sub>As Metal-Semiconductor-Metal Photo detector," Int'l Symposium on Telecom. (IST2003), August, Isfahan, Iran, 2003.
45. G. Abaiyani, **V. Ahmadi**, "Computation and Analysis of Threshold Current for CW-Operation of Stripe Laser Diode Considering the Thermal Resistance of the Laser," Int'l Symposium on Telecom. (IST2003), August, Isfahan-Iran, 2003.
46. **V. Ahmadi**, F. Shahshahani, and E. Mortazy, "Analysis of RIN in DFB Semiconductor Laser Diodes Using Three Rate Equations Model," Int'l Symposium on Telecom. (IST2003), Isfahan, Iran, August, 2003.
47. E. Mortazy, **V. Ahmadi**, M. K. Moravvej, and A. Zarifkar, "Mode Partition, Mode Hopping and Phase Noise in a Two-Mode Semiconductor Laser," International Conf. on Advanced Optoelectronics & Lasers, Alushta, Ukraine, September, 2003.
48. E. Mortazy, F. Shahshahani, **V. Ahmadi**, A. H. Tehranchi, M. K. Moravvej, "The Effect of Spatial Hole Burning on Relative Intensity Noise in DFB Laser Diodes," Australians Conf. on Optics, Lasers and Spectroscopy, ACOLS 03, the Univ. of Melbourne 1-4 Dec. 2003.
49. M. Razzaghi, **V. Ahmadi**, A. Zarifkar, "Numerical Method for Dynamic Gain Analysis in Semiconductor Laser Amplifier," Australians Conf. on Optics, Lasers and Spectroscopy, ACOLS 03, the Univ. of Melbourne 1-4 Dec. 2003.
50. B. Eftekhari, **V. Ahmadi**, "2-Dimensional Simulation and Analysis for Liquid Phase Epitaxy of III-V semiconductor Binary Compound Layers: InP and GaAs," Int. Conf. on Physics, Proceedings, Tehran, Iran, 6-9 Jan. 2004.
51. M. Razzaghi, A. Zarifkar, M. Soroosh, **V. Ahmadi**, "Steady State Distributed Equivalent Circuit Model for Semiconductor Laser Amplifier," Int. Conf. Optics & Photonics in Technology Frontier, ICO'04, Tokyo, Japan, 13-16 July, 2004.
52. M. Najafi, **V. Ahmadi**, G. Abaeiyani, "Experimental Study of Spontaneous Emission in Double Heterostructure InGaAsP/InP," Iran Physics Conf., 23-26 Aug. 2004.
53. M. Soroosh, **V. Ahmadi**, "Calculation of Excess Noise in SAM-APD using MLP Neural Network," 12<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2004) Proc. Vol1, Mashhad, Iran, May 11-13, 2004 (in Persian).
54. E. Rahimian, **V. Ahmadi**, M. Noushiravani, "Gain Analysis of GaAs-Al<sub>x</sub>Ga<sub>1-x</sub>As Quantum Well Lasers with and without Valence Band Mixing for Different Quantum Well Thickness and Depths" 7<sup>th</sup> Condensed Matter Conf. Iran Tech. and Science University, Tehran, Iran, 25-26 Jan. 2004.
55. K. Abedi, M. H. Sheikhi, S. Golmohammadi, **V. Ahmadi**, "SPICE Model for Microwave Properties of Traveling-Wave Electro absorption Modulators," IEEE International Conference on

56. S. Golmohammadi, K. Abedi, **V. Ahmadi**, "Evanescent Optical Field Calculation with FDTD Method," IEEE International Conference on Semiconductor Electronics, ICSE2004, Kuala Lumpur, Malaysia, Dec. 7-9, 2004.
57. M. Razzaghi, A. Zarifkar, **V. Ahmadi**, "Calculation of Dynamic Gain and Carrier Density in Semiconductor Laser Amplifier Using Transfer Matrix Method," 13<sup>th</sup> ICEE2005, Proceeding Vol. 1, Zanjan, Iran, May 10-12, 2005 (in Persian).
58. S. Seifollahpoor, H. Rasooli-Baghaei, **V. Ahmadi**, "Circuit Model for Analysis of Static Operation of VCSEL," 13<sup>th</sup> ICEE2005, Proceeding Vol. 1, Zanjan, Iran, May 10-12, 2005 (in Persian).
59. M. H. Yavari, **V. Ahmadi**, A. Zarifkar, "Analysis of Optoelectronic Integrated 3-Segment DBR Tunable Semiconductor Laser Using Coupled Mode Method," 13<sup>th</sup> ICEE2005, Proceeding Vol. 1, Zanjan, Iran, May 10-12, 2005 (in Persian).
60. M. H. Yavari, **V. Ahmadi**, A. Zarifkar, K. Abedi, "Simulation of Photon Density Distribution in Three Section DBR Tunable Laser Diode Based on the Transfer Matrix Method," 2<sup>nd</sup> Int. Conf. on Advanced Optoelectronics and Lasers, CAOL 2005, Proceeding Vol.1, Yalta, Ukraine, 12-17 Sept. 2005.
61. E. Darabi, **V. Ahmadi**, K. Mirabbaszadeh, "Analysis for the Characteristics of a Voltage Tunable Functional Quantum Structure Optoelectronic Integrated Device," 2<sup>nd</sup> Int. Conf. on Advanced Optoelectronics and Lasers, CAOL 2005, Proceeding Vol.2, Yalta, Ukraine, 12-17 Sept. 2005.
62. K. Abedi, **V. Ahmadi**, S. Golmohammadi, E. Darabi, M. H. Yavari, "Soliton Solution of Nonlinear Application to Bose-Einstein Condensation Using the FD Method," CAOL 2005, Proceeding Vol.2, Yalta, Ukraine, 12-17 Sept. 2005.
63. M. Razzaghi, A. Zarifkar, B. Hadian, **V. Ahmadi**, "Calculation of the Spontaneous Emission Spatial Dependency in Semiconductor Laser Using Transmission Line Model," 7<sup>th</sup> Int. Conf. on Laser and Fiber-Optic Networks Modeling, LFNM 2005, Yalta, Ukraine, 12-17 Sept. 2005.
64. M. H. Yavari, **V. Ahmadi**, F. Shahshahani, M. Razaghi, "Numerical analysis of three section distributed Bragg reflector tunable laser diode with modified oscillation condition based on the transfer matrix method," Wireless and Optical Communications Networks, WOCN 2005, Second IFIP International Conference, UAE, Dubai, Page(s):187 – 191, 6-8 March 2005.
65. M. Razaghi, **V. Ahmadi**, K. Farahani, A. Zarifkar, M. Soroosh, M. K. Moravvej-Farshi, "Investigation of transient amplified spontaneous emission in semiconductor laser amplifier," Wireless and Optical Communications Networks, WOCN 2005, Second IFIP International Conference, UAE, Dubai, Page(s):178 – 181, 6-8 March 2005.
66. **V. Ahmadi**, "Quantum Structure Semiconductor Optoelectronic Devices," Proc. of the 12<sup>th</sup> Conf. on Optics and Photonics, Shiraz, P. 33, 2005.
67. M. H. Yavari, **V. Ahmadi**, A. Zarifkar, "Analysis of Three-Section Distributed Bragg Reflector

Tunable Laser Using Coupled Mode Theory ,” ICEE2005, Zanjan, 59-64, May, 2005 (in Persian).

68. M. Razzaghi, A. Zarifkar and **V. Ahmadi**, “Dynamic Analysis of Gain and Carrier Concentration in Laser Diode Using Transfer Matrix Method,” ICEE2005, Zanjan, 97-102, May, 2005 (in Persian).
69. S. Seifollah Poor, H. Rasooli, **V. Ahmadi**, “ A Circuit Model for Static Analysis of VCSEL,” ICEE2005, Zanjan, 7-11, May, 2005 (in Persian).
70. F. Shahshahani, **V. Ahmadi**, "Analysis of the External Optical Feedback On the Stability of QWS-DFB Semiconductor Laser," Proc. Of the 12<sup>th</sup> Conf. on Optics and Photonics, Shiraz, PP. 239-243, 2005 (in Persian).
71. N. Bajdanzadeh, F. Shahshahani, H. Ghafoorifard, **V. Ahmadi**, " Analysis of the Non-uniform Grating Structure on the Frequency Response of QWS-DFB Semiconductor Laser," Proc. Of the 12<sup>th</sup> Conf. on Optics and Photonics, Shiraz, PP. 245-249, 2005 (in Persian).
72. K. Abedi, **V. Ahmadi**, M. K. Moravvej, M. H. Sheikhi, F. Gity, M. H. Yavari, "Circuit Simulation of Segmented Traveling Wave Electroabsorption Modulator Using HSPICE," ICOCN2005, Bangkok, 2005.
73. F. Gity, **V. Ahmadi**, M. Noushiravani, K. Abedi, A. Noorafkan, " Modeling and Numerical Analysis of Static and Dynamic Characteristics of GaAs/AlGaAs SQW High Power Diode Lasers Considering Thermal Effects," ICOCN2005, Bangkok, 2005.
74. A. Seyyed Faraji, **V. Ahmadi**, M. Noushravani, F. Gity, “Numerical Analysis of Filamentation in Conventional Double Heterostructure and Quantum Well High -Power Broad Area Laser DiodeArea Laser Diod, “ ICSE-2006, Malaysia, Kuala Lumpur, Dec. 2006.
75. E. Soudi, **V. Ahmadi**, “A Versatile HSPICE Electro-Opto-Thermal Circuit Model for Vertical-Cavity Surface-Emitting Lasers, “ ICSE-2006, Malaysia, Kuala Lumpur, Dec. 2006.
76. E. Soudi, **V. Ahmadi**, “Static Quasi 3D Thermal Simulation of Ion-Implanted Vertical-Cavity Surface-Emitting Lasers, “ ICSE-2006, Malaysia, Kuala Lumpur, Dec. 2006.
77. M. Gandomkar, **V. Ahmadi**, “Modeling and Analysis of a Piezo-Optic Microstructure, “International Conf. on Bio-Nanotechnology, ICBN2006, 2006.
78. E. Rahimian, **V. Ahmadi**, “Analysis of Gain in Compressive Strained GaAs/AlGaAs Laser Diodes, “Iranian Physics Conference, Shahrood, August 2006.
79. A. Seyyed Faraji, **V. Ahmadi**, M. Noushiravani, “Analysis of Filamentation Effect in High Power Single Quantum Well Laser Diodes, “13<sup>th</sup> Conf. on Optics and Photonics,” Tehran, Iran, Feb. 2006.
80. G. Abaeiani, **V. Ahmadi**, “Structural Design of Silicon Resonant Cavity Enhanced Waveguide Photodetectors, “ 13<sup>th</sup> Conf. on Optics and Photonics,” Tehran, Iran, Feb. 2006.
81. **V. Ahmadi**, F. Shahshahani, “Effects of Nonuniform Gratings on RIN of DFB Semiconductor Lasers, “ 13<sup>th</sup> Conf. on Optics and Photonics,” Tehran, Iran, Feb. 2006.
82. **V. Ahmadi**, E. Darabi, "Analysis for Dynamic Characteristics and Relative Intensity Noise of a



New Polarization -Insensitive Quantum Well Optoelectronic Integrated Device," Proc. of 8th International Conf. on Transparent Optical Networks ICTON2006, PP. 151-156, 2006.

83. S. Seifolah Poor, **V. Ahmadi**, M. K. Moravvej, "Circuit Model for Analysis of Gain Spectrum and Power Saturation in Asymmetric MQW-SOA", 15<sup>Th</sup> ICEE2006, Proceeding, 109-114, 2006 (Persian).
84. A. Pishini, M. K. Moravvej-Farshi, Ebnali-Heidari and **V. Ahmadi**, "Femtosecond Soliton Generation and Comparison in Various Nonlinear Optical Loop Mirror (NOLM) Structures", ICOCN 2007, Islamabad, Pakistan, 2007.
85. S. Masudy Panah, **V. Ahmadi**, "Effect of Scattering Loss on Gain and Noise of Double Carrier Multiplication APD", ICOCN 2007, Islamabad, Pakistan, 2007.
86. **V. Ahmadi**, K. Abedi, E. Darabi, "New Asymmetric Quantum Well Traveling-Wave Electroabsorption Modulator with Very Low Insertion Loss and High Extinction Ratio", Proc. of 9th International Conf. on Transparent Optical Networks ICTON2007, PP. 251-256, 2007.
87. G. Abaeiani, **V. Ahmadi**, K. Sghafi, "New Asymmetric Quantum Well Traveling-Wave Electroabsorption Modulator with Very Low Insertion Loss and High Extinction Ratio", Proc. of 9th International Conf. on Transparent Optical Networks ICTON2007, PP. 251-256, 2007.
88. D. Ghodsi, **V. Ahmadi**, E. Rajaei, and M. Yavari "Study the Effect of Phonon Bottle-neck and Inhomogeneous Broadening on the Self-assembled InGaAs/GaAs Quantum Dot Laser Operation", 15<sup>th</sup> Spring Physics Conference, IPM, Tehran, Iran, 2008 (Persian).
89. M. Eskandari, **V. Ahmadi**, "Fabrication and Surveying Solvent Effect on the Morphology and Optic Property of ZnO Nanorod", 16<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2008), Tehran, Iran, 2008 (Persian).
90. G. Abaeiani, **V. Ahmadi**, K. Saghafi, "Microring Waveguide Infrared Photodetectors for WDM Optical Interconnection", 16<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2008), Tehran, Iran, 2008.
91. M. Yavari, **V. Ahmadi**, "Circuit Model of Carrier and Photon Dynamics in Semiconductor Self Assembled Quantum Dot Laser", 16<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2008), Tehran, Iran, 2008.
92. E. Sooudi, **V. Ahmadi**, E. Darabi, "Analysis of the Chirp Parameter for Strained Symmetric Coupled Quantum Well Electroabsorption Modulator", 16<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2008), Tehran, Iran, 2008.
93. M. Zavvari, **V. Ahmadi**, A. Zarifkar, "Numerical Analysis of Transverse Modes for a Quantum Well vertical-Cavity Surface-Emitting Laser with Gain-Guided Structure", 16<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2008), Tehran, Iran, 2008.
94. M. Aghaeepour, **V. Ahmadi**, E. Darabi, "Static and Dynamic Transverse-Mode Control of Vertical-Cavity Surface-Emitting Lasers Using an Improved Quantum Gain Model", 16<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2008), Tehran, Iran, 2008.

95. D. Ghodsi, **V. Ahmadi**, et al. "Analysis of Static-Characteristics of Self-Assembled InGaAs/GaAs Quantum Dot Lasers", 14<sup>th</sup> Annual IASBS Meeting on Condensed Matter Physics, Institute for Advanced Studies in Basic Science (IASBS), Zanjan, Iran, 2008 (Persian).
96. D. Ghodsi, **V. Ahmadi**, "Static and Dynamic Characteristics Simulation of Self-Assembled InGaAs/GaAs Quantum Dot Lasers", OSA's 92<sup>RD</sup> ANNUAL MEETING: Frontiers in Optics (FIO)/Laser Science XXIV (LS), New York, USA, 2008 (accepted).
97. D. Ghodsi, **V. Ahmadi**, and E. Rajaei, "Analysis of output characteristics and gain of self-assembled InGaAs/GaAs quantum dot lasers and the effects of carrier relaxation dynamics", 13<sup>th</sup> Annual Physics Conference of Iran, Kashan University, Kashan, Iran, 2008 (accepted).
98. D. Ghodsi, **V. Ahmadi**, and E. Rajaei, "Study of Phonon Bottleneck and Inhomogenous Broadening on InGaAs/GaAs Self Assembled Quantum Dot laser Operation", 15<sup>th</sup> Spring Physics Conference, Physics Institute, IPM, Tehran, Iran, 2008.
99. A. Chaman Motlagh, **V. Ahmadi**, Z. Ghassemlooy and K. Abedi, "The Effect of Atmospheric Turbulence on the Performance of the Free Space Optical Communications", 6<sup>th</sup> International Symposium on Communication Systems, Networks and Digital Systems (CSNDSP08), Graz, Austria, 2008.
100. A. Zadsar, H. Hassanpour, **V. Ahmadi** " Nano-roughness Measurement of Semiconductor Substrates by Using Light Scattering Properties, " 2<sup>nd</sup> International Congress on Nanoscience and Nanotechnology, Tabriz, 2008.
101. K. Abedi, **V. Ahmadi**, M. K. Moravvej-farshi and A. Chaman Motlagh, "Full-vectorial Finite Difference for Optical Analysis of Traveling Wave Electroabsorption Modulators", 6<sup>th</sup> International Symposium on Communication Systems, Networks and Digital Systems (CSNDSP08), Graz, Austria, 2008.
102. M. Razaghi, **V. Ahmadi** and M. J. Connelly, "Investigation of cross-phase modulation effect on picosecond optical pulses in a semiconductor optical amplifier using finite-difference beam propagation method", Photonics Ireland 2007, Salthill, Ireland, 2007.
103. M. Eskandari, **V. Ahmadi**, S. H. Ahmadi and F. Ghorab, "Raman Spectroscopy in Aluminum-Doped Zinc Oxide Nanorods" 2<sup>nd</sup> IEEE Int. Nanoelectronics Conference (INEC 2008), Shanghai, China, 2008.
104. S. Masudy-Panah, **V. Ahmadi**, and F. Ghorab, "Effect of Temperature Variation on the Gain and Noise of Double Carrier Multiplication APDs", 2<sup>nd</sup> IEEE Int. Nanoelectronics Conference (INEC 2008), Shanghai, China, 2008.
105. S. Masudy-Panah, **V. Ahmadi**, "Effect of Multiplication Region Mole Fraction on Characteristics of APDs", 14th Conference on Optics and Photonics, Rafsanjan, January 2008.
106. H. Zare, **V. Ahmadi**, S. H. Ahmadi and M. Naderi, "Analysis of Structural and Optical Characteristics of ZnO/SiO<sub>2</sub> Nanocomposite Prepared by Sol-Gel", 14th Conference on Optics and Photonics, Rafsanjan, January 2008 (Persian).

107. H. Zare, **V. Ahmadi**, S. H. Ahmadi and M. Naderi, "Synthesis of Nanoparticles of ZnO and ZnO:MgO and Analysis of their Structural and Optical Characteristics", 14th Conference on Optics and Photonics, Rafsanjan, January 2008 (Persian).
108. **V. Ahmadi** and S. Masudy-Panah, "Temperature variation effect on dynamic characteristics of GaAs avalanche photodiodes", 10th Anniversary International Conference on Transparent Optical Networks, ICTON 2008, Greece, 2008.
109. **V. Ahmadi** and M. H. Yavari, "Analysis of carrier and photon dynamic effects on the modulation behavior of self assembled quantum dot laser", 10th Anniversary International Conference on Transparent Optical Networks, ICTON 2008, Greece, 2008. H. Zare Bidaki,
110. H. Zare Bidaki, **V. Ahmadi**, S. Ahmadi, "Synthesizing nanoparticles of ZnO:SiO<sub>2</sub> nanocomposite by using sol-gel technique", *The 2<sup>nd</sup> Int. Conf. on Nanotechnology 2008 (ICN08)*, Abu Dhabi, UAE, 2008.
111. H. Zare Bidaki, **V. Ahmadi**, S. Ahmadi, "Characterization and synthesis of ZnO:SiO<sub>2</sub> nanocomposite using ZnO nanoparticles", *The 2<sup>nd</sup> Int. Conf. on Nanotechnology 2008 (ICN08)*, Abu Dhabi, UAE, 2008.
112. M. Fattah, **V. Ahmadi**, S. Ahmadi, "Preparation and Characterization of Nanostructured Tungsten Oxide Electrochromic Layer by Sol-Gel Method", *The 2<sup>nd</sup> Int. Conf. on Nanotechnology 2008 (ICN08)*, Abu Dhabi, UAE, 2008.
113. M. Aghaeepour, **V. Ahmadi**, E. Darabi, "The Effect of Nonlinear Gain on the Quantum Well VCSEL Characteristics", *The 2<sup>nd</sup> Int. Conf. on Nanotechnology 2008 (ICN08)*, Abu Dhabi, UAE, 2008.
114. A. Mirdrikvandi, **V. Ahmadi**, "Analysis and design of near room temperature InAs/GaAs QDIP using FDM for far infrared 8-12  $\mu$ m window", *The 2<sup>nd</sup> Int. Conf. on Nanotechnology 2008 (ICN08)*, Abu Dhabi, UAE, 2008.
115. M. Eskandari, **V. Ahmadi**, S. Ahmadi, "Synthesis and characterization of ZnO nanorods and nanowires using PVP as capping", *The 2<sup>nd</sup> Int. Conf. on Nanotechnology 2008 (ICN08)*, Abu Dhabi, UAE, 2008.
116. G. Tahmasebipour, **V. Ahmadi**, Y. Hojjat and A. Abdullah, "Fabrication of STM W Nanotip by Electrochemical Etching Method", *The 2<sup>nd</sup> Int. Conf. on Nanotechnology 2008 (ICN08)*, Abu Dhabi, UAE, 2008.
117. M. Razaghi, **V. Ahmadi** and M. J. Connelly, G. Madanifar, "Investigation of Bidirectional Femtosecond Pulses in SOAs Using a Modified Nonlinear Schrödinger Equation and Improved Finite Difference Method", *International Conf. on Fiber Optics and Photonics, Photonics 2008*, New Delhi, India, 2008.
118. M. Dehghan, **V. Ahmadi** and E. Darabi, "Investigation and Analysis of Time Response in Geiger Mode Avalanche Photodiode", *ICOP 2009*, Isfahan, Iran, 2009.
119. H. Zare, **V. Ahmadi** and M. Zangi, "Synthesis and Characterization of ZnO-Silica Nanocomposite Using SBA-3 Meso-Porous" *ICOP 2009*, Isfahan, Iran, 2009.

120. A. Chaman Motlagh, **V. Ahmadi** and Z. Ghassemloooy, "Performance of Free Space Optical Communication Using M-Array Receivers at Atmospheric Condition", 17<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2009) Tehran, Iran, 2009.
121. A. Dehgan and **V. Ahmadi**, "Modeling and Analysis of Resonant Cavity Enhanced-Separated Absorption Graded Charge Multiplication Photodetector", 17<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2009) Tehran, Iran, 2009.
122. A. Mir, **V. Ahmadi** and M. Gandomkar, "A New Structure Design for Low Dark Current QDIP", 17<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2009) Tehran, Iran, 2009.
123. M. H. Yavari and **V. Ahmadi**, "Numerical Analysis of Optical Gain and Lasing Spectra of InGaAs-GaAs Self Assembled Quantum Dot Lasers", 17<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2009) Tehran, Iran, 2009.
124. P. Rafiee and **V. Ahmadi**, "Design and Analysis of a High Sensitive 2-Degree of Freedom Piezoresistive Accelerometer", 17<sup>th</sup> Iranian Conf. on Electrical Engineering (ICEE2009) Tehran, Iran, 2009.
125. A. Ghadimi, A. Ahmadpour, and A. Ahadpour and **V. Ahmadi**, "Modeling and Operation Analysis of a Three-terminal Heterojunction Bipolar Phototransistor", 6th International Conference (ECTI\_CON2009), Pattaya, Chonburi, Thailand, May 6th - 9th, 2009.
126. Kambiz Abedi, **Vahid Ahmadi**, Ehsan Sooudi, Mohammad Reza Moeini, "Comprehensive Electro-Opto-Thermal Analysis of Gain-Cavity Offset on The Performance of Gain-Guided VCSELXZS", 8th WSEAS International Conference on Microelectronics, Nanoelectronics, Optoelectronics (MINO '09) Turkey, May 30 - June 1, 2009.
127. Mojtaba Gandomkar and **Vahid Ahmadi**, "Study of Improved Second Harmonic Generation in Double", Proc. of International Conf. on Transparent Optical Networks ICTON2009, PP. 1-4, 2009.
128. Ali Mir-Derikvandi and **Vahid Ahmadi**, "Responsivity Analysis of a Resonant Cavity QDIP at 10  $\mu\text{m}$  Wavelength", Proc. of International Conf. on Transparent Optical Networks ICTON2009, PP. 1-4, 2009.
129. Mohammad Hasan Yavari, **Vahid Ahmadi**, and Peyman Rafiee, "Modulation characteristics of self-assembled InAs-GaAs quantum dot laser considering phonon bottleneck, carrier relaxation and homogeneous broadening", ICTON Mediterranean Winter Conference, 2009. ICTON-MW 2009. 3rd, 2009.
130. Peyman Rafiee, **Vahid Ahmadi** and M. H. Yavari, "Two-dimensional spectral-spatial analysis of ZNO nanoparticles random lasers", ICTON Mediterranean Winter Conference, 2009. ICTON-MW 2009. 3rd, 2009.
131. S. M. Hatamian, **V. Ahmadi**, E. Darabi, "Numerical Analysis of Thermal Properties of Vertical Cavity Surface-Emitting Laser at 1550 nm", Proceeding of the 11<sup>th</sup> International Conf. on Electronic Materials and Packaging (EMAP), Malaysia, Dec. 1-3, 2009.
132. P. Rafiee, **V. Ahmadi** and M. Hayati, "Numerical Analysis of Random Lasers Based on ZnO Nanoparticles by Using Travelling Wave Model", 16<sup>th</sup> Conference on Optics and Photonics, Yazd,

2009 (Persian).

133. Mahdi Kyanzad, **Vahid Ahmadi**, S. Mohammad Afzali, Gholamreza Abaeiani, "Design of All Optical Analog Optical Signal to Digital Converter based on Passive MicroRing Resonators", 16<sup>th</sup> Conference on Optics and Photonics, Yazd, 2009 (Persian).
134. S. Mohammad Afzali, **Vahid Ahmadi**, Gholamreza Abaeiani, Mahdi Kyanzad " Microring resonator based optical amplifiers", 16<sup>th</sup> Conference on Optics and Photonics, Yazd, 2009 (Persian).
135. Hossein Reza Yousefvand, **Vahid Ahmadi**, Kamyar Saghaei, "Modeling And Analysis of Raman Quantum Cascade Laser", 16<sup>th</sup> Conference on Optics and Photonics, Yazd, 2009 (Persian).
136. N. Abootalebi, F. Shahshahani, V. Ahmadi, and M. Aliannezhadi, "Analysis of Relative Intensity Noise in RW-QWS-DFB Semiconductor Lasers with Asymmetric Reflector Facets in the Presence of External Optical Feedback," 16<sup>th</sup> Conference on Optics and Photonics, Yazd, 2009 (Persian).
137. M. Aliannezhadi, F. Shahshahani, V. Ahmadi and N. Abootalebi, "Analysis of Stability in CGC-DFB Semiconductor Laser with Antireflection Facets above Threshold Condition and Critical Coupling Coefficient", 16<sup>th</sup> Conference on Optics and Photonics, Yazd, 2009 (Persian).
138. B. Abdollahi nejand, S. Sanjabi, **V. Ahmadi**, "Nitrogen doped nanostructure titanium dioxide thin film: photocatalytic property and structure", The 3<sup>rd</sup> Conference on Nanostructures (NS2010) Kish Island, Iran, March 10-12, 2010.
139. W.O. Popoola, Z. Ghassemlooy, E. Leitgeb and V. Ahmadi, "Terrestrial Free-Space Optical Links with Temporal Diversity", International Symposium on Communication Systems, Networks and Digital Systems (CSNDSP2010), UK, 2010.
140. W.O. Popoola, Z. Ghassemlooy, S. Rajbhandari, E. Leitgeb and V. Ahmadi, "Free-space Optical Communication Employing Polarization Shift Keying Coherent Modulation in Atmospheric Turbulence Channel ", International Symposium on Communication Systems, Networks and Digital Systems (CSNDSP2010), UK, 2010.
141. A. Seyedfaraji, **V. Ahmadi**, "Raman Amplifier with Hybrid Photonic Crystal Structure", 18<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2010), Isfahan, 2010 (in Persian).
142. N. Abootalebi, F. Shahshahani, **V. Ahmadi**, M. Aliannejadi, "Enhancement of RW\_QWS\_DFB Laser Operation as Compared with Flat Waveguide QWS\_DFB Structure", 18<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2010), Isfahan, 2010 (in Persian).
143. M. Aliannejadi, F. Shahshahani, **V. Ahmadi**, N. Abootalebi, "Numerical Analysis of Operation and Stability in Complex Gain-coupled Distributed Feedback Semiconductor Lasers at Upper Threshold with SHB Effects", 18<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2010), Isfahan, 2010 (in Persian).
144. B. Abdollahi Nejand, S. Sanjabi, **V. Ahmadi**, "Nitrogen doped nanostructure titanium dioxide thin film: photocatalytic property and structure", Proceedings of the 3<sup>rd</sup> Conference on Nanostructures (NS2010) March 10-12, 2010, Kish Island, Iran.

145. M. H. Yavari and **V. Ahmadi**, "Modeling the Effects of Homogeneous Broadening on the Modulation Response and Lasing Spectra of Self-Assembled InAs-GaAs Quantum-Dot Laser", *Proceedings of the 3rd Conference on Nanostructures (NS2010) March 10-12, 2010, Kish Island, Iran.*
146. M. H. Yavari and **V. Ahmadi**, "Effects of Homogeneous Broadening on the Modulation Response and Lasing Spectra of Self-Assembled InAs-GaAs Quantum-Dot Laser", *Proceedings of the 3rd Conference on Nanostructures (NS2010) March 10-12, 2010, Kish Island, Iran.*
147. P. Rafiee and **V. Ahmadi**, "Numerical Two Dimensional Temporal-Spectral Analysis of Random Lasers Based on ZnO Nanoparticles", *Proceedings of the 3rd Conference on Nanostructures (NS2010) March 10-12, 2010, Kish Island, Iran.*
148. M. Hosseinifar, **V. Ahmadi**, Gh. Abaeiani, "Nanostructure Effects in Microring-Based Uni-Travelling-Carrier Photodiode ", *Proceedings of the 3rd Conference on Nanostructures (NS2010) March 10-12, 2010, Kish Island, Iran.*
149. S. M. Hatamian, **V. Ahmadi**, E. Darabi, "Design and Analysis of a High Power Single Mode VCSEL Operating at 1550 nm", *18<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2010), Isfahan, 2010 (in Persian).*
150. Gholamhosein Haghighat, Vahid Ahmadi and Saeed Pahlavan, "Analysis of SHB and thermal characteristics in PC-VCSEL considering photonic crystal parameters", *Proc. SPIE 8308, 83082G (2011).*
151. S. R. Hosseini, M. Razaghi, N. K. Das, and **V. Ahmadi**, "Input pump pulse energy optimisation to maximise four-wave mixing conversion efficiency in semiconductor optical amplifier", *19<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2011), Tehran, 2011.*
152. M. Hosseinifar, **V. Ahmadi**, and Gh. Abaeiani, "Enhanced bandwidth-efficiency product of uni-traveling carrier photodiodes using microring-based structures", *19<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2011), Tehran, 2011.*
153. Ali Mir, **Vahid Ahmadi**, "Analysis of different hot carrier effects on self-assembled InAs/GaAs QDIP dynamic response using circuit model", *19<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2011), Tehran, 2011.*
154. Ali Mir, **Vahid Ahmad**, "Design and analysis of a quantum dot infrared photodetector for low BER free space optical communication", *19th Iranian Conference on Electrical Engineering (ICEE 2011), Tehran, 2011.*
155. V. Qaradaghi, **V. Ahmadi**, Gh. Abaeiani, " Nano structured organic vertical cavity surface emitting laser (OVCSEL) for achieving lasing threshold condition under electrical pumping", *Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, Iran.*
156. M. Eskandaria, **V. Ahmadi**, "The effect of magnesium doping concentration on morphology and optical property of ZnO nanorods", *Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, Iran.*
157. M. Kateb, **V. Ahmadi**, M. Mohseni, "Fast switchable and high contrast electrochromic device based

on ZnO-PEDOT core-shell nanowires", *Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, Iran.*

158. B. Abdollahi Nejand, S. Hamzeh, M. Fattah Hesari, **V. Ahmadi**, " Nanostructured TiO<sub>2</sub> thin film on PTFE by magnetron sputtering at low temperature", *Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, Iran.*
159. Farhad Azadpour, **Vahid Ahmadi**, Hamidrez Mashaieky, "Analysis of dynamic response of microring-based photodetector considering nonlinear effects", *17<sup>th</sup> Iranian Conference on Optics and Photonics, Kerman, February 8-10, 2011.*
160. Mojtaba Arjmand, **Vahid Ahmadi**, Mohammad Karimi and Masoud Kavosh Tehrani, "Modeling and numerical analysis of light propagation in nonlinear optical micro-fibers", *17<sup>th</sup> Iranian Conference on Optics and Photonics, Kerman, February 8-10, 2011.*
161. Yaser Khorrami, **Vahid Ahmadi**, Mohammad Razaghi, "Two photon absorption effect on nonlinear SOA-MZI switching", *17th Iranian Conference on Optics and Photonics, Kerman, February 8-10, 2011.*
162. Mahshid Javadi, **Vahid Ahmadi**, GholamReza Abaeiani, "Analysis of nonlinear effects on MR-UTC-PDs", *18th Iranian Conference on Optics and Photonics, Tabriz, February 7-9, 2012.*
163. Mojtaba Arjmand, **Vahid Ahmadi**, Mohammad Karimi, Ayda Aray, "Analysis of group delay in optical microfiber loop and coil resonators", *18<sup>th</sup> Iranian Conference on Optics and Photonics, Tabriz, February 7-9, 2012.*
164. Fatemeh Keshavarz, **Vahid Ahmadi**, "High Speed Pattern Effect Free Cross Gain Modulation in QD-VCSSOA", *18th Iranian Conference on Optics and Photonics, Tabriz, February 7-9, 2012.*
165. Hamed Pezeshki, **Vahid Ahmadi**, "2-D Nanocavity PHC Slab for All-Optical Flip-Flop Operation Using Nonlinear Kerr Effect", *18th Iranian Conference on Optics and Photonics, Tabriz, February 7-9, 2012.*
166. Hamed Pezeshki, **Vahid Ahmadi**, "In-Plane-Type Multichannel Add/Drop Filter Based on 2-D PHC Slab Using High-Q Nanocavity", *18th Iranian Conference on Optics and Photonics, Tabriz, February 7-9, 2012.*
167. Ebrahim Rashidi Mahmoudi, **Vahid Ahmadi**, "Nonlinear Optical Effects on Microring Resonator Based ADD/Drop Filter", *18th Iranian Conference on Optics and Photonics, Tabriz, February 7-9, 2012.*
168. V. Qaradaghi, **V. Ahmadi**, Gh. Abaeiani, "Nano-structured organic vertical cavity surface emitting laser with electrical pumping", *Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, I.R. Iran.*
169. M. Kateb, **V. Ahmadi**, M. Mohseni, "Fast switchable and high contrast electrochromic device based on ZnO-PEDOT core-shell", *Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, I.R. Iran.*
170. M. Eskandari, **V. Ahmadi**, "The effect of magnesium doping concentration on morphology and

optical property of ZnO nanorods”, *Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, I.R. Iran.*

171. B. Abdollahi Nejand, S. Hamzeh, M. Fattah Hesari, **V. Ahmadi**, “Nanostructured TiO<sub>2</sub> thin film on PTFE by magnetron sputtering at low temperature”, *Proceedings of the 4th International Conference on Nanostructures (ICNS4) 12-14 March, 2012, Kish Island, I.R. Iran.*
172. Hossein Reza Yousefvand, **Vahid Ahmadi**, “Analysis of Optical Gain in Raman Injection Laser”, *Iranian Annual Physics Conf., Abstract 597, 2012.*
173. V. Qaradaghi, **V. Ahmadi**, and Gh. Abaeiani, "Analysis of low threshold organic vertical cavity surface emitting laser under optical excitation", *20<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2012), Tehran, 2012.*
174. Y. Khorrami, **V. Ahmadi**, and M. Razaghi, "Tb/s All-optical nonlinear switching using semiconductor optical amplifier based Mach-Zehnder interferometer", *20<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2012), Tehran, 2012.*
175. A. Seidfaraji and **V. Ahmadi**, "Enhancement of Raman amplification bandwidth using SPM effect", *20<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2012), Tehran, 2012.*
176. S. Afzal, **V. Ahmadi**, and M. E. Heidari, "Investigation of Kerr effect in PhC drop filters with wavelength sensitive reflective feedback", *20<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2012), Tehran, 2012.*
177. M. Zavvari, **V. Ahmadi**, and E. Darabi, "Design and analysis of a new QDIP integrated with avalanche multiplication structure", *20<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2012), Tehran, 2012.*
178. Morteza Jamali, **Vahid Ahmadi**, Mohammad Razaghi, "Simulation and analysis of the effect of semiconductor optical amplifier carrier dynamic's on the performance of interference Sagnac switch", *The Yearly Meeting on Optical Fiber Amplifiers, Kerman, Iran, May 2012.*
179. Baktash Hekmat, **Vahid Ahmadi**, Elham Darabi, "Analysis of pulsed four-wave mixing characteristics in a quantum cascade semiconductor optical amplifier", *The Yearly Meeting on Optical Fiber Amplifiers, Kerman, Iran, May 2012.*
180. Fatemeh Keshavarz, **Vahid Ahmadi**, " The compression of Gaussian pulse with low power in QD-VCSOA", *The Yearly Meeting on Optical Fiber Amplifiers, Kerman, Iran, May 2012.*
181. Mahtab Aghaeepour, **Vahid Ahmadi**, "Investigation of reflectivity characteristic between high contrast grating (HCG) and DBR layers in vertical cavity semiconductor optical amplifiers", *The Yearly Meeting on Optical Fiber Amplifiers, Kerman, Iran, May 2012.*

#### **Journal Papers:**

1. **V. Ahmadi**, S. Noda, and A. Sasaki, "Optical Multi stable Set-Reset Functional Integrated Device Composed of Six Heterojunction Phototransistors and Two Laser Diodes," *Solid State Electronic,*



2. **V. Ahmadi**, S. Noda, and A. Sasaki, "2-D Simulation and New Structure of HPT for Integrated Device in Optoelectronic Integrated Devices," *Optical Review*, Vol. 2, No. 2, PP. 120-122, 1995.
3. **V. Ahmadi**, S. Noda, and A. Sasaki, "Analysis for Relative Intensity Noise of Optoelectronic Integrated Device by Heterojunction Phototransistor and Laser Diode," *Solid State Electronics*, Vol. 41, No. 3, PP. 465-471, 1997.
4. **V. Ahmadi**, H.H. Sheikhi, M.K. Moravvej, "Numerical Analysis for Static and Dynamic characteristics of an Optical Amplifier-Switch," *Scripta Materialia*, Vol. 44, No. 59, PP. 1207-1212, 2001.
5. M. Joodaki, G. Kompa, **V. Ahmadi**, M. K. Moravvej, "Using Neural Network for High Resolution Distance Measurement in PLR." *SPIE Proc.*, Vol. 4471, PP. 180-189, 2001.
6. M. K. Moravvej, A. Zarifkar, **V. Ahmadi**, "Analysis of the Noise in Single Mode Semiconductor Laser Diodes," *Amir-Kabir Scientific and Research J.*, Vol. 48, PP. 449-437, 2001(in Persian).
7. A. Banoushi, **V. Ahmadi**, S. Setayeshi, "An Analytical Approach to Study the Effect of Carrier Velocities on the Gain and Break down Voltage of APD," *IEEE J. of Light Wave Tech.*, Vol. 20, No. 4, PP. 696-699, 2002.
8. F. Shahshahani, **V. Ahmadi**, K. Mirabbaszadeh, "Concave Tapered Grating Design of DFB Laser at High Power Operation for Reduced Spatial Hole-Burning Effect," *Material Science Engineering B*, Vol. B96, PP. 1-7, 2002.
9. M. H. Sheikhi, **V. Ahmadi**, M. K. Moravvej, "A Physical Model for Characteristics of an Optical Amplifier-switch Integrated Device," *Iranian J. of Science & Technology, Trans. B*, Vol. 26, No. B4, 665- 673, 2002.
10. E. Mortazy, **V. Ahmadi**, M. K. Moravvej, "An Integrated Equivalent Circuit Model for Relative Intensity Noise and Frequency Noise Spectrum of a Multimode Semiconductor Laser ," *IEEE J. Quantum Electronics* Vol. 38, No. 10, PP. 1366-1371, 2002.
11. F. Emami, M. K. Moravvej, **V. Ahmadi**, "Analysis of Grating Dimensions on Ridge Waveguide DFB-LD Characteristics," *Int. Journal of Engineering, University of Science & Eng.*, Vol. 13, No. 3, PP. 21-32, 2002 (in Persian).
12. A. Banoushi, **V. Ahmadi**, S. Setayeshi, "Frequency and Temporal Response of an SAM-APD," *Amir-Kabir Scientific and Research J.*, Vol. 53, PP. 122-130, 2002 (in Persian).
13. F. Shahshahani, **V. Ahmadi**, K. Mirabbaszadeh, "The Effects of Grating Phase and Facets Reflections on the Optical Field Inside Semiconductor QWS-DFB Laser Diode," *Modares Technical and Engineering Scientific Research J.*, No. 7, PP. 1-12, 2002 (in Persian).
14. **V. Ahmadi**, E. Mortazy, A. Zarifkar, M. K. Moravvej, "Measurement and Analysis of Intensity and Phase Noise in Telecommunication Multimode Laser Diodes," *Amir-Kabir Scientific and Research J.*, Vol. 53, PP. 249-258, 2002 (in Persian).
15. K. Saghaei, M. K. Moravvej, **V. Ahmadi**, "An Improved Monte Carlo Method for Electron Transport

in Low Electric Field for Degenerate Semiconductors," *Daneshvar, Scientific-Research Journal*, PP. 1-10, March 2003 (in Persian).

16. E. Mortazy, **V. Ahmadi**, M. K. Moravvej, "Circuit Modeling and Measurement of Noise for Semiconductor Laser Diode," *J. of Faculty of Engineering, Tabriz University*, Vol. 29, No. 1, 2003.
17. K. Saghafti, M. K. Moravvej, **V. Ahmadi**, " $\delta$ -Doped LDD MESFET with Heterostructure," *Modares Technical and Engineering Scientific Research J.*, Autumn, 99-103, 2003 (in Persian).
18. A. Zarifkar, M. K. Moravvej, **V. Ahmadi**, "Numerical Analysis for Side Mode Effects on the Noise Characteristics of Semiconductor Laser Diodes," *Int. Journal of Engineering, University of Science & Eng.*, Vol. 14, No. 1, PP. 23-44, 2003 (in Persian).
19. M. H. Sheikhi, **V. Ahmadi**, M. K. Moravvej, "Physical Modeling for Transient Response of Voltage-Tunable Optoelectronic Integrated Functional Device," *Physica Status Solidi (C)*, Vol. 0, No. 3, 961-966, 2003.
20. E. Mortazy, F. Shahshahani, **V. Ahmadi**, A. Tehranchi, M. K. Moravvej, "The Effect of Grating Structure on Relative Intensity Noise in DFB Laser Diode", *SPIE Proc.* Vol. 5468, PP. 154-164, 2004.
21. K. Saghafti, M. K. Moravvej, **V. Ahmadi**, "The Effects of the Semiconductor Properties and MESFET Structure on Electron Transport Characteristics-Monte Carlo Analysis", *Modares Technical and Engineering Scientific Research J.*, No. 22, PP. 11-22, 2005.
22. E. Darabi, **V. Ahmadi**, K. Mirabbaszadeh, "Numerical Analysis of an Optoelectronic Integrated Device Composed of Coupled Periodic MQW Phototransistor and Strained-QW Laser Diode", *Solid State Electronics*, Vol. 50, PP. 473-479, 2006.
23. G. Abaeiani, **V. Ahmadi**, K. Saghafti, "Design and Analysis of Resonant Cavity Enhanced-Waveguide Photodetector Microwave Photonic Applications," *IEEE Photonics Technology Letter*, Vol. 18, No. 15, PP. 1597-1599, 2006.
24. M. Razaghi, **V. Ahmadi**, and A. Zarifkar, "Dynamic Analysis of Semiconductor Laser Amplifier Using Transfer Matrix Method", *Modarres Technical and Engineering*, No. 26, 2007.
25. K. Abedi, **V. Ahmadi**, E. Darabi, M. K. Moravvej, and M. H. Sheikhi, "Design of a Novel Periodic Asymmetric Intra-Step-Barrier Coupled Double Strained Quantum Well Electroabsorption Modulator at 1.55  $\mu\text{m}$ ", *Solid-State Electronics*, Vol. 52, No. 2, pp. 312-322, 2008.
26. K. Abedi, **V. Ahmadi**, E. Darabi, M. K. Moravvej, "Numerical Analysis of Mushroom-type Traveling Wave Electroabsorption Modulators Using Full-Vectorial Finite Difference Method", *International Journal of Optics and Photonics (IJOP)*, Vol. 2, No. 1, Winter 2008.
27. N. Bajdanzadeh, **V. Ahmadi**, F. Shashahani, and H. Ghafoorifard "Dynamic Response of QWS-DFB Lasers with Convex Tapered Grating Structure and Non-Zero Facet Reflection", *Solid-State Electronics*, Vol. 52, No. 2, pp. 221-226, 2008..
28. F. Shashahani and **V. Ahmadi**, "Analysis of Relative Intensity Noise in Tapered Grating QWS-DFB Laser Diodes by using Three Rate Equations Model", *Solid-State Electronics*, Vol. 52, No. 2, pp. 857-862, 2008..

29. M. Dehghan and V. Ahmadi, "Opto-Electro-Thermal Model for MQW Laser Including Self-Heating and Chirping Effects", *IJCSNS International Journal of Computer Science and Network Security*, Vol. 8, No. 3, pp. 88-91, 2008.
30. M. Dehghan and V. Ahmadi, "Investigation and analysis of time response in Geiger mode avalanche photodiode", *Optica Applicata*, Vol. XL, No. 2, pp.471-478, 2010.
31. W.O. Popoola and Z. Ghassemlooy and V. Ahmadi, "Performance of Sub-carrier modulated Free-Space Optical Communication Link in Negative Exponential Atmospheric Turbulence Environment", *Int. J. Autonomous and Adaptive Communications Systems*, Vol. 1, No. 3, pp. 342-355, 2008.
32. S. Masudy-Panah and V. Ahmadi, "A Closed Form Analytic Model to Study the Characteristics of Avalanche Photodiodes", *J. of Modern Optics*, Vol. 56, No. 1, pp. 67-72, 2009.
33. M. H. Yavari and V. Ahmadi, "Analysis of Three Section Distributed Bragg Reflector Tunable Laser Diode Based on the Transfer Matrix Method", *Modares Technical and Engineering*, No. 34, pp. 1-12, 2009 (in Persian).
34. Gh. Tahmasebipour, Y. Hojjat, V. Ahmadi, A. Abdullah, "Optimization of STM/FIM nanotips aspect ratio based on the Taghuchi method", *Int. J. of Advance Manufacturing Technology*, Vol. 44, pp. 80-90, 2009.
35. H. Aghajanpour, V. Ahmadi and M Razaghi, "Ultra-short optical pulse shaping using semiconductor optical amplifier", *Optics & Laser Technology*, Vol. 41, No. 5, pp. 654-658, 2009.
36. M. Razaghi, V. Ahmadi, and M. Connelly, "Improved Finite-Difference Time Dependent Beam Propagation Scheme for Analyzing Counter Picosecond Pulse Propagation in Semiconductor Optical Amplifier", *IEEE J. of Lightwave Technology*, Vol. 27, No. 15, pp. 3162-3174, 2009.
37. M. H. Yavari and V. Ahmadi, "Circuit Level Implementation of Semiconductor Self Assembled Quantum Dot Laser", *IEEE J. of Selected Topics in Quantum Electronics*, Vol. 15, No. 3, pp. 774-779, 2009.
38. Gh. Tahmasebipour, Y. Hojjat, V. Ahmadi, A. Abullah, "Effect of Fabrication Process Parameters on the Apex-radius of STM Tungsten Nanotip", *Scanning*, Vol. 31, pp. 65-74, 2009.
39. E. Darabi, V. Ahmadi, " Design and Numerical Analysis of a Polarization-Insensitive Quantum Well Optoelectronic Integrated Amplifier-Switch", *Solid State Electronics*, Vol. 53, No. 3, pp. 383-388, 2009.
40. M. Eskandari, V. Ahmadi and Sh. Ahmadi, "Low Temperature Synthesis of ZnO Nanorods by Using PVP and Their Characterization", *Physica B: Condensed Matter*, Vol. 404, No. 14-15, pp. 1924-1928, 2009.
41. Gh. Tahmasebipour, V. Ahmadi, Y. Hojjat and A. Abdullah, "Fabrication of STM tungsten nanotip by electrochemical etching method", *International Journal of Nanoscience (IJN)*, Vol. 8, No. 3, pp. 305-310, 2009.
42. M. Eskandari, V. Ahmadi, Sh. Ahmadi, "Synthesis and characterization of ZnO nanorods and nanowires

using PVP as capping", *International Journal of Nanoscience (IJN)*, Vol. 8, No. 3, pp. 285-287, 2009.

43. A. Mir and **V. Ahmadi**, "Design and analysis of a new structure of InAs/GaAs QDIP for 8-12  $\mu$ m infrared windows with low dark current", *Journal of Modern Optics*, Vol. 56, No. 15, pp. 1704–1712, 2009.
44. Kambiz Abedi, **Vahid Ahmadi** and M. K. Moravvej-Farshi, "Optical and microwave analysis of mushroom-type waveguides for traveling wave electroabsorption modulators based on asymmetric intra-step-barrier coupled double strained quantum wells by full-vectorial method", *Optical And Quantum Electronics*, Vol. 41, pp. 719-733, 2009.
45. Mohammad Razaghi, **Vahid Ahmadi** and Michael J. Connelly, "Femtosecond pulse shaping using counter-propagating pulses in a semiconductor optical amplifier", *Optical and Quantum Electronics*, Vol. 41, pp. 513-523, 2009.
46. Gh. Tahmasebipour, Y. Hojjat, V. Ahmadi, A. Abdullah, "Optimization of Electrochemical Etching Parameters in FIM/STM Tungsten nanotip Fabrication", *Journal Sciences, I.R. Iran*, Vol. 21(1), pp. 75-88, 2009.
47. Maryam Aliannezhadi, Fatemeh Shahshahani, and **Vahid Ahmadi**, "Dependence of coupling coefficient and lasing wavelength on injection current in pure gain-coupled distributed feedback semiconductor lasers", *Journal of Modern Optics*, Vol. 57, No. 10, pp. 859-865, 2010.
48. A. Chaman-Motlagh, **V. Ahmadi** and Z. Ghassemloooy, "A modified model of the atmospheric effects on the performance of FSO links employing single and multiple receivers", *Journal of Modern Optics*, Vol. 57, No. 1, pp. 37-42, 2010.
49. M. Eskandari, **V. Ahmadi** and Sh. Ahmadi, "Growth of Al-doped ZnO nanorod arrays on the substrate at low temperature", *Physica E: Low-dimensional Systems and Nanostructures*, Vol. 42, pp. 1683–1686, 2010.
50. B. Abdollahi Nejand, S. Sanjabi, **V. Ahmadi**, "The effect of sputtering gas pressure on structure and photocatalytic properties of nanostructured titanium oxide self-cleaning thin film" *Vacuum*, Vol. 85, pp. 400-405, 2010.
51. B. Abdollahi Nejand, S. Sanjabi, **V. Ahmadi**, "Optical and photocatalytic characteristics of nitrogen doped TiO<sub>2</sub> thin film deposited by magnetron sputtering", *Scientian Iranica, Transaction F*, Vol. 17, No. 2, pp. 102-107, December 2010.
52. Hossein Reza Yousefvand and **Vahid Ahmadi**, and Kamyar Saghaei, "Static and dynamic response analysis of Raman injection quantum cascade laser using circuit level modeling", *J. of Lightwave Technology* Vol. 28, No. 21, pp. 3142-3148, 2010.
53. Mojtaba Gandomkar and **Vahid Ahmadi**, "Design and analysis of enhanced second harmonic generation in AlGaAs/AlOx microring waveguide", *Optics Express*, Vol. 19, No. 10, 9408-9418, 2011.
54. M. Eskandari, N. Haghighi, **V. Ahmadi**, F. Haghighi, S.H. R. Mohammadi, "Growth and investigation of antifungal properties of ZnO nanorod arrays on the glass" *Physica B*, Vol. 406, pp. 112–114, 2011.
55. Mojtaba Gandomkar and **Vahid Ahmadi**, "Thermo-optical switching enhanced with second

*harmonic generation in microring resonators", Optics Letters, Vol. 36, pp. 3825-3827, 2011.*

56. *Mitra Hosseinifar, **Vahid Ahmadi**, and Gholamreza Abaeiani, "Microring-based unitraveling carrier photodiodes for high bandwidth-efficiency product photodetection in optical communication", Journal of Lightwave Technology, Vol. 29, No. 9, pp. 1285-1292, MAY 1, 2011.*
57. *Hadis Abbaspour, **Vahid Ahmadi**, and Mohammad Hasan Yavari, "Aanalysis of QD VCSEL dynamic characteristics considering homogeneous and inhomogeneous broadening" IEEE J. Selected Topics in Quantum Electronics, Vol. 17, No. 5, pp. 1327-1333, SEPTEMBER/OCTOBER 2011.*
58. *Mohammad Hasan Yavari and **Vahid Ahmadi**, "Effects of Carrier Relaxation and Homogeneous Broadening on Dynamic and Modulation Behavior of Self-Assembled Quantum-Dot Laser", IEEE J. Selected Topics in Quantum Electronics, Vol. 17, No. 5, pp. 1153-1157, SEPTEMBER/OCTOBER 2011.*
59. *Mehdi Banihashemi and **Vahid Ahmadi**, "Nonlinear response of high efficient in-plane channel drop filter in Si heterostructure photonic crystal slab", Journal of Modern Optics Vol. 58, No. 7, pp. 587-592, April 2011.*
60. *Yousef Mohammadi Monfared and **Vahid Ahmadi**, "Design and Analysis of New Structure for High-Performance Low-Index Defect-Based Photonic Lattice VCSEL", Journal of Lightwave Technology, Vol. 30, No. 1, pp. 103-109, 2012*
61. *M. R. Aziziyan, V. Ahmadi and N. Moghadam, "A quantum model for light emission performance of carbon nanotube field effect transistor", Applied Physics Letters, Vol. 100, No. 5, pp. 051113 (1-3), 2012.*
62. *Mohammad Reza Aziziyan, Narjes Moghadam, Davood Fathi and **Vahid Ahmadi**, "Analysis of strained double-lightly doped MOSCNT using NEGF", Applied Physics A-Material Science & Processing, Vol. 109, pp. 481-488, 2012.*
63. *Mitra Hosseinifar, **Vahid Ahmadi**, and Gholamreza Abaeiani, "Design and optimization of high-performance microring-based uni-traveling carrier photodiode for WDM optical systems", Optics Communications, Vol. 285, pp. 2081-2084, 2012.*
64. *Fatemeh Keshavarz and **Vahid Ahmadi**, "High-Speed Pattern Effect Free Cross-Gain Modulation in QD-VCSEA", Journal of Lightwave Technology, Vol. 30, No. 18, pp. 3043-3049, 2012.*
65. *Siamak Abaslou and **Vahid Ahmad**, "Compact all-optical switch for WDM networks based on Raman effect in silicon nanowaveguide", Optics Letters, Vol. 37, No. 1, pp. 40-42, January 1, 2012.*
66. *M. Zavvari, V. Ahmadi, A. Mir and E. Darabi, "Quantum dot infrared photodetector enhanced by avalanche multiplication", Electron Letters, Vol. 48, No. 10, pp. 589-591, May10, 2012.*
67. *M. Razaghi , M. Gandomkar, V. Ahmadi, N. K. Das and M. J. Connelly, "Picosecond wavelength*

*conversion using semiconductor optical amplifier integrated with microring resonator notch filter”, Optical and Quantum Electronics, Vol. 44, No. 3-5, pp 255-263, 2012.*

68. *Hamed Pezeshki and Vahid Ahmadi, “Nanoscale effects on multichannel add/drop filter based on 2-D photonic crystal ring-resonator heterostructure”, Journal of Theoretical and Applied Physics, Vol. 6, No. 12, pp. 1-6, 2012.*
69. *M. Zavvari and V. Ahmadi, “Dynamics of avalanche quantum dot infrared photodetectors”, Modern Physics Letters B, Vol. 26, No. 32, pp. 1250216-(1-10), 2012.*
70. *V. Qaradaghi, V. Ahmadi, Gh. Abaeiani, “Design of organic vertical-cavity surface-emitting laser for electrical pumping”, IEEE Electronic Device Letters, Vol. 33, No. 11, pp. 1616 – 1618, Nov. 2012.*
71. *S. Padidar, V. Ahmadi, and M. Ebnali-Heidari, “Design of high sensitive pressure and temperature sensor using photonic crystal fiber for downhole application”, Vo. 4, No. 5, pp. 1590-1599, October 2012.*