



Mostafa Sahrai

Professor of Photonics:
Optical Telecommunications

Academic Positions

Administrative Responsibilities

Teaching Experiences

Journal Articles

Conference Papers

Ph.D. Thesis Supervision

M.Sc. Thesis Supervision

Research Activities

Awards

EDUCATION

Ph.D. Physics (Quantum Optics)

2004

University of Tabriz (Iran) / University of Baptist (Hong Kong)

Title of Thesis: Amplitude and Phase control of absorption spectrum

M.Sc. Physics (Laser Physics)

1994

University of Shahid Beheshti (Iran)

Title of Thesis: The study of nonlinear phenomena in GaSe crystal

B.Sc. Physics (Laser Physics)

1992

University of Tabriz (Iran)

RESEARCH INTERESTS

- 1) Coherent control of group velocity
- 2) Sub-wavelength atom localization
- 3) Atomic ensemble entanglement
- 4) Coherent phenomena in photonic band-gap crystal
- 5) Entanglement via quantum entropy
- 6) Optical properties of negative refractive index materials
- 7) Nonlinear optics phenomena
- 8) Coherent properties of nanostructures
- 9) Quantum information science
- 10) Quantum computing

CONTACT

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Academic Positions

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Title of Position	Field of Specialization	Date		Name of Institution
		From	To	
Assistant Prof.	Physics (Quantum Optics)	2004	2010	University of Tabriz
Associate Prof.	Physics (Quantum Optics)	2010	2014	University of Tabriz
Professor	Physics (Quantum Optics)	2014	Now	University of Tabriz

Administrative Responsibilities

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Job Title	Place of Work	Date		Name of Institution
		From	To	
Head of Department	Department of Physics	1998	2002	At different Universities of Tabriz
Director	Research Institute for Applied Physics and Astronomy	2008	2014	University of Tabriz

Teaching Experiences

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Title of Course	Level	Dates		Name of Institution
		From	To	
Fundamental Physics (I, II, III)	B.Sc.	1995	Now	At different Universities of Tabriz
Optics	B.Sc.	1995	Now	At different Universities of Tabriz
Laser Physics	B.Sc.	1995	Now	University of Tabriz
Mathematical Physics (I, II)	B.Sc.	1995	Now	At different Universities of Tabriz
Classical Mechanics	B.Sc.	1995	Now	At different Universities of Tabriz
Waves	B.Sc.	1997	Now	At different Universities of Tabriz
Electromagnetism (I and II)	B.Sc.	2002	Now	At different Universities of Tabriz
Introduction to Quantum Optics (I)	M.Sc.	2004	Now	University of Tabriz
Quantum electronics	M.Sc.	2004	Now	University of Tabriz
Classical Electrodynamics	M.Sc.	2004	Now	University of Tabriz
Nonlinear Optics	Ph.D.	2004	Now	University of Tabriz
Advanced Quantum Optics (II)	Ph.D.	2004	Now	University of Tabriz

	Title of Paper	Place of Publication	Date of Publication
1	Atom localization via electromagnetically induced transparency	Laser Physics, Vol. 14, No.7, P. 1007	2004
2	Photon Tunneling and light transmission in transparent media	Indian J. Phys. 78 (9), 479	2004
3	Tunable Phase control for subluminal to superluminal light propagation	Phys. Rev. A, 70, 023813	2004
4	Controlling of absorption and dispersion spectrum via EIT	Iranian Journal of science 15 (4): 361	2004
5	Switching from normal to anomalous dispersion via coherent field	J. Opt. B : At. Mol. Opt. Phys. Opt. 7, 168	2005
6	Sub-wavelength atom localization via amplitude and phase of the absorption spectrum	Phys. Rev. A 72, 013820	2005
7	Subluminal and superluminal light propagation via interference of incoherent pump field	Physics Letter A 357, 66	2006
8	The effects of incoherent pump field on the phase control of group velocity	J Phys B: At. Mol. Opt. Phys. 39, 1825	2006
9	Localizing of a four-level atom via absorption spectrum	Iranian Journal of science 17 (3): 273	2006
10	Atom localization of a two-level pumped-probe system via the absorption spectrum	Laser Phys, Vol. 17, No.1, 40-44	2007
11	Atom localization via absorption spectrum	Laser Phys, Vol. 17, No.2, 98	2007
12	The impact of relative phase on the transient optical properties of a four-level EIT medium	Phys. Lett. A 367 408	2007
13	Controlling the spontaneous emission via quantum interference of incoherent pump field	Journa of Modern Optics, 55, 67	2008
14	Group velocity control in ultraviolet domain via interacting dark state resonance	J. Phys. B : At. Mol. Opt. Phys. 41, 025504	2008
15	All optical switching in semiconductor micro resonators based on pattern selection	Eur. Phy. J. D 47, 107	2008
16	The effect of the spontaneously generated coherence on the dynamical behaviors of the dispersion and the absorption	Eur. Phy.J 160, 383	2008
17	Absorption free superluminal light propagation in a three level pump-probe system	Opt. Commun. 281, 4681	2008
18	Group velocity of the transmitted and reflected light from a dispersive dielectric layer	Japenes J. A. Phys. 48, 030210	2009
19	Gain Assisted Superluminal Light Propagation via Incoherent Pumping field	Laser Physics, Vol. 19, No.7, P.1	2009

20	Absorption-free superluminal light propagation in a quantum-dot molecule	Physica E 41, 1772	2009
21	The effect of an incoherent pumping on the dispersive and absorptive properties of a four-level medium	J. Phys. B : At. Mol. Opt. Phys. 42, 185501	2009
22	The effect of decay-induced interference on the phase control of the optical bistability (OB)	JNOPM Vol.18, No. 3, 529	2009
23	The impact of decay-induced interference on transient behaviors of the dispersion and the absorption	J. Phys. B 42 235503	2009
24	Transient dispersion and absorption in a V-shaped atomic system	Eur. Phys.J. D 56, 105	2010
25	Controlling the optical bistability and multistability in a two-level pumped-probe system	Journal of Luminescence 130, 877	2010
26	Controlling the optical bistability via interacting dark-state resonances	Eur. Phys.J. D 57, 241	2010
27	Dispersive and absorptive properties of a Λ -type atomic system with two fold lower-levels	Eur. Phys.J. D 43, 165501	2010
28	Effect of quantum interference on the optical properties of a three-level V-type atomic system beyond the two-photon resonance condition	J. Phys. B 43 165501	2010
29	Amplitude and phase control of absorption and dispersion in a Kobrak-rice 5-level quantum system	PIER B 24, 333	2010
30	30- Enhanced Kerr nonlinearity in a four-level EIT medium	JNOPN 19, 3, 503	2010
31	Subluminal to Superluminal pulse propagation through one-dimensional photonic crystals with a three-level atomic defect layer	Eur. Phys. J. B 78, 51	2010
32	Enhancement of Kerr nonlinearity at long wavelength in a quantum dot nanostructure	Physica E 43, 1759	2011
33	Phase-Controlled Atom-Photon Entanglement in a Three-Level V-Type Atomic System via Spontaneously Generated Coherence	Entropy 13,1541	2011
34	Controlling the optical bistability via quantum interference in a four-level N-type atomic system	Journal of luminescence, 131,1682	2011
35	Optical bistability via quantum interference from incoherent pumping and spontaneous emission	Journal of Luminescence 131 2395	2011
36	Entanglement of an atom and its spontaneous emission fields via spontaneously generated coherence	Iranian Journal of science 22(2) 171	2011
37	Optical Bistability and Multi-Stability via Quantum Interference in a Four-Level N-Type Atomic System	Japanese J. A. Phys. 50, 110201	2011
38	Hartman effect in one-dimensional photonic crystals with a three-level atomic defect layer	Eur. Phys. J. B 83, 337	2011

39	Enhanced Kerr nonlinearity in a tunnel-coupled double quantum wells	Physica E 44, 464	2011
40	Phase control of group velocity in a dielectric slab doped with three-level ladder-type atoms	Phys. Rev. A 84, 063811	2011
41	Controlling the probe-absorption and -dispersion via quantum interference from incoherent pumping field in a four-level lambda-type system	Eur. Phys. J. D 65, 571	2011
42	Voltage-Controlled Entanglement between Quantum-Dot Molecule and its Spontaneous Emission Fields via Quantum Entropy	International Journal of Optics and Photonics, Vol. 5, No. 2, 87	2011
43	Lasing without population inversion in an Er ³⁺ -doped YAG crystal	J. M. Optics 59, 446	2012
44	Enhanced Kerr nonlinearity via quantum interference from spontaneous emission	Phys. Letters A 376, 147	2012
45	Phase control of Kerr nonlinearity due to quantum interference in a four-level N-type atomic system	Journal of Luminescence 132, 2188	2012
46	Kerr nonlinearity and optical multi-stability in a four level Y-type atomic system	Journal of Modern Optics, 1-8, iFirst	2012
47	Excitation of Rayleigh- Benard Convection in Homeotropic Nematic Liquid Crystal by a Gaussian Laser Beam from Above	Molecular Crystals and Liquid Crystals 560, 49	2012
48	Light Induced Thermocapillary Motion in Nematic Liquid Crystals	Molecular Crystals and Liquid Crystals 560, 57	2012
49	Optical bistability and multi-stability via voltage-controlled and the rate of incoherent pump in a quantum dot nanostructure	Journal of Luminescence 132, 2302	2012
50	Optical bistability and multi-stability in a four-level atomic scheme	Opt. Quant. Electron 45, 3, 295	2012
51	Controlling the Optical Bistability beyond the multi-photon resonance condition in a three-level closed – loop atomic system	Journal of Luminescence 132, 114	2012
52	Giant Kerr nonlinearity in a four-level atomic medium	Optik 124, 366	2013
53	Effect of Quantum Interference from Incoherent Pumping Field and Spontaneous Emission on Controlling the Optical Bistability and Multi-Stability	Commun. Theor. Phys. 59, 199	2013
54	Hartman effect in one-dimensional photonic crystal doped by Λ -type three-level atoms	Physica E 47, 66	2013
55	Sub-half-wavelength atom localization of a V-type three-level atom via relative phase	J. Opt. Soc. Am. B / Vol. 30, No. 3, 512	2013
56	Phase control of group velocity in one-dimensional photonic crystal with a dispersive defect layer	Optik 124, 3305	2013

57	Coherent control of quantum entropy via quantum interference in a four-level N-type atomic system	Optik 124, 3861	2013
58	Optical Bistability in Low-Dimensional Semiconductor heterostructure under CW Pump Laser and Infrared Pulse Signals	Physics of Wave Phenomena, Vol. 21, No. 3, 214	2013
59	Enhancement of Kerr nonlinearity at $\lambda=1550\text{nm}$ in an Er^{3+} - doped optical fiber	J. M. Optics 8, 60, 674	2013
60	Coherent Control of Quantum Entropy via Quantum Interference in a Four-Level Atomic System	Journal of Sciences, Iran 24(2): 179	2013
61	High refractive index and lasing without inversion in an open four-level atomic system	Optics Commun. 311, 261	2013
62	Controllable Kerr nonlinearity via incoherent pump fields in semiconductor quantum wells	Quant. Phys. Lett. 2, No. 3, 31	2013
63	Active control of transmission and group velocity in one-dimensional photonic crystals	OpticsCommun. 311, 83	2013
64	Control of the Threshold Intensity and Hysteresis Cycle of Optical Bi(multi)stability Via Atomic injection and Exit Rates from Cavity	Physics of Wave Phenomena, 2013, Vol. 21, No. 4, 274	2013
65	Inversion-less light amplification in one-dimensional photonic crystal with a dispersive layer	Eur. Phys. J. D. 67, 235	2013
66	Optical Rectification and Second Harmonic Generation on Quasi-Realistic InAs/GaAs quantum Dots: With Attention to Wetting Layer Effect	ISRN Condensed Matter Physics V. 2013, ID 530259, 12 pages	2013
67	Coherent control of optical bistability and multistability via double dark resonances (DDRs)	Optics Commun. 312, 117	2014
68	Phase control of the group velocity in a quantum-dot molecule	Optik 125 , 1488	2014
69	Rayleigh–Benard Convection in the homeotropic nematic liquid crystal by a Gaussian laser beam absorption	Optik 125, 997	2014
70	The effect of Woods–Saxon potential on envelope function, intersubband dispersion curves and group velocity of InAs/GaAs quantum dots with wetting layer	Physica E 60, 42	2014
71	Optically controllable switch for light propagation based on triple coupled quantum dots	Applied Optics Vol. 53, No. 11, 2375	2014
72	Phase dependent coherent control of group delay in a doped metamaterial slab	Optics Commun. 323, 87	2014
73	Controlling the Goos-Hänchen shift via quantum interference	Eur. Phys. J. D 68: 55, 1-10	2014
74	Kerr nonlinearity due to intersubband transition in a three-level InAs/GaAs quantum dot: the impact of a wetting layer on dispersion curves	J. Opt. 16 , 055004	2014

75	Refractive index switching based on loss controlling in a doped metamaterial slab	J. Opt. Soc. Am. B / Vol. 31, No. 6, 1240	2014
76	Controlling the optical bistability in a three-level quantum-dot molecule via gate voltage and indirect incoherent pump field	Eur. Phys. J. D 68: 115	2014
77	Controlling the optical bistability in a Lamda-type atomic system via incoherent pump field	Appl. Phys. B 117, 3, 927	2014
78	Manipulation of Goos-Hanchen shifts in the atomic configuration of mercury via interacting dark-state resonances	Phys. Rev. A 90, 053836	2014
79	The effect of spontaneously generated coherence on the Goos-Hanchen shifts behavior	Eur. Phys. J. D 68: 362	2014
80	Quantification of bipartite and multipartite entangled states in Mach–Zehnder interferometer	Optics Commun. 338,380	2015
81	Control of the entanglement between triple quantum dot molecule and its spontaneous emission fields via quantum entropy	Physica E, 67,121	2015
82	Wideband slab photonic crystal waveguides for slow light using differential optofluidic infiltration	Applied Optics Vol. 54, No. 5, 1002	2015
83	Hartman effect in a doped one-dimensional photonic crystal at normal and oblique incidences	J. Opt. Soc. Am. B Vol. 32, No. 5, 751	2015
84	Controlling the optical bistability via quantum interference of incoherent pump in a four-level atomic system	Optik 126, 530	2015
85	Compact triple coupled quantum well system for electrical/optical control of optical bi/multistability	Applied Optics Vol. 54, No. 9 2461	2015
86	Phase controlled subluminal and superluminal light propagation in double quantum wells	J. Opt. Soc. Am. B Vol. 32, No. 6, 1139	2015
87	Efficient 2D probe absorption spectrum in nanodiamond nitrogen vacancy centers	Laser Phys. Lett . 12 , 095201	2015
88	Optical nonlinearity due to thermomechanical effect in the planar and homeotropic nematic liquid crystals	Physica B, 476, 6	2015
89	Atom localization in 2D for five-level atomic schemes in X-configuration	Laser Phys. 25, 095202	2015
90	2D spatial distribution of probe absorption in a triple semiconductor quantum well nanostructure	Laser Phy.Lett. 12,105201(7pp)	2015
91	Atom position measurement in a four-level Lambda shaped scheme with twofold lower-levels	Opt. Quant. Electron. 47, 6	2015
92	Large Kerr coefficient via quantum interference induced by incoherent pump field and spontaneous emission	Optik, 126, 3414	2015
93	Large Kerr index with amplification in an open four-level atomic system with two fold lower levels	Applied Optics, 10256 Vol. 54, No. 34 /	2015
94	Controlling the onset of OB/OM in a semiconductor quantum well system in an inverted Y-type configuration	Laser Phys. 26 015201 (6pp)	2016
95	Coherent control of some optical properties in a system of molecular magnets	Laser Phys. Lett. 13 015203 (6pp)	2016

96	Controllable optical bistability and multistability in a graphene structure under external magnetic field	Laser Phys. 26 025201 (8pp)	2016
97	Control of the Goos–Hänchen shifts of a probe light beam using phase tunability of the intracavity medium	Applied Optics Vol. 55, No.8, 10	2016
98	The optical properties of a weak probe field in a graphene ensemble under Raman excitation	Laser Phys. Lett. 13 065202 (8pp)	2016
99	Coherent Control of Kerr Nonlinearity via Double Dark Resonances	OPTICS AND LASER PHYSICS Vol. 103, No. 6, pp. 369–379	2016
100	High Harmonic Generation and Analysis the Ionization Probability for Hydrogen Gas in Plasmonic Field Enhancement	Nanoscale Vol 2, No 4	2016
101	Colossal Kerr nonlinearity based on electromagnetically induced transparency in a five-level double-ladder atomic system	Applid optics Vol. 55, No. 22, 5892	2016
102	Controlling the electromagnetically induced grating via spontaneously generated coherence	Eur. Phys. J. D 70, 191	2016
103	Phase control of electromagnetically induced grating in a four-level atomic system	Opt Quant Electron 48:438	2016
104	Two-dimensional Sub-wavelength Atom Localization of a Four-Level K-type Atomic System with two Adjacent Lower Levels via Probe Absorption	Iran J Sci Technol Trans Sci 10.1007/s40995- 016-0100-1	2016
105	Proposal for a compact design for real-time optical bistability switching via a semiconductor cavity containing quantum wells	Applied Optics, Vol.55, No 28, 8107	2016
106	Proposal for a 133 Goos-Hänchen shift-assisted de/multiplexer based on a multilayer structure containing quantum dots	J. Applied Phys. 120, 133102	2016
107	Pulse propagation through a dielectric slab doped with a triple quantum dot nanostructure	Laser Phys. 26, 115202 (8pp)	2016
108	Temporal evolutional absorption behaviors of graphene under Landau quantization	Physica E 86 , 10–16	2017
109	Atom-photon entanglement dynamics near the PBG	Optik, 131, 116	2017
110	Dynamical behavior of atom–photon entanglement for a four-level atom near the band edge of a 3D-anisotropic photonic crystal	Quantum Inf Process (2017) 16:145	2017
111	Optical bistability forming due to a Rydberg state	J. Opt. Soc. Am. B Vol. 34, No. 9, 1923	2017
112	Phase-sensitive Kerr nonlinearity in a three-level n-doped semiconductor quantum well (SQW)	Eur. Phys. J. D 71, 238	2017
113	Phase-dependent Kerr nonlinearity of a dielectric slab doped by Λ -type atoms	Laser Phys. 27, 105401 (8pp)	2017
114	Utilizing electromagnetically induced transparency in InAs quantum dots for all-optical transistor design	Applied Optics Vol. 56, No. 28, 7944	2017

115	Controlling nonlinear optical response in an open four-level molecular system using quantum control of spin-orbit interaction	Eur. Phys. J. Plus 132: 424	2017
116	Phase control of transmission in one-dimensional photonic crystal with defect layer doped by quantum dots	Opt Quant Electron 49:367	2017
117	Phase-sensitive Kerr nonlinearity of V-type atoms-doped dielectric slab	Journal of Nonlinear Optical Physics & Materials Vol. 26, No. 4 (2017) 1750053	2017
118	Controlling the light propagation in one-dimensional photonic crystal via incoherent pump and interdot tunneling	Optical Engineering 57(1), 016112	2018
119	All-optical switch based on doped graphene quantum dots in a defect layer of a one-dimensional photonic crystal	Applied Optics Vol. 57, No. 3 , 521	2018
120	Terahertz surface plasmon-polaritons in one-dimensional graphene based Fibonacci photonic superlattices	Superlattices and Microstructures 115 ,78-87	2018
121	Behaviour of nematic liquid crystals doped with ferroelectric nanoparticles in the presence of an electric field	Molecular Physics VOL.. 116, NO. 12, 1650-1658	2018
122	Atom localization Using a Rydberg State	Physics of Wave Phenomena 26, No. 1, pp. 1–9.	2018
123	Electromagnetically induced grating based on Zeeman coherence oscillations in cases beyond the multi-photon resonance condition	J. Opt. Soc. Am. B Vol. 35, No. 9, 2118	2018
124	High-speed electro-optical switching in an InGaAsP/InP quantum well nanostructure	Mater. Res. Express 5 115902	2018
125	All-optical grating in a V + Ξ configuration using a Rydberg state	Phys. Rev. A 98, 043822	2018
126	Investigation of nematic liquid crystal doped with spherical multiferroic nanoparticles in the presence of a magnetic field	Brazilian journal of Physics	2018
127	Near-infrared light controlling using the photonic crystal with coupled quantum dots in defect layer	Mater. Res. Express 6 016204	2019

Conference Papers

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	Title of Paper	Title and Place of Assembly	Date
1	Chaos and nonlinear effects	Physics conference, Tabriz, Iran	1990
2	Photon Tunneling time and its application to light transmission in transparent media	The 10th Iranian conference on Electrical Engineering, Tabriz, Iran	2002
3	Speckle interferometry by partial coherent beam	SPIE Int. Soc. Opt. Eng, 4933, 72 (Norway)	2003
4	Partially coherent beam propagation	SPIE Int. Soc. Opt. Eng, 4933, 372	2003
5	Controlling of spontaneous emission	SPIE Int. Soc. Opt. Eng, 5227, 213 (Romania)	2003
6	Atom Localization via spontaneously emitted Photon	ICOLS 2003, Palm Cove, Queensland, Australia	2003
7	Spatial coherent length measurement via Gaussian Schell-Model Sources	Iran-Tabriz, P.170, March	2003
8	Phase control of spontaneous emission	Iranian Physics Conference, Tabriz, Iran	2003
9	Controlling of absorption spectrum	47th Annual Conference South Africa	2004
10	Switching from subluminal to superluminal light propagation in coherent atomic systems	11th Photonics Gathering of Physics Society of Iran, Tehran, Iran	2005
11	Phase control of electromagnetically induced transparency and its applications to tunable group velocity and atom localization	SPIE Int. Soc. Opt. Eng. 5735, 69 (USA)	2005
12	The effect of Spontaneously Generated Coherence on the absorption and dispersion spectrum	12th Photonics Gathering of Physics Society of Iran, Shiraz, Iran	2006

13	Controlling of Spontaneous Emission via Quantum Interference of Incoherent Pumping Field	12th Photonics Gathering of Physics Society of Iran, Shiraz, Iran	2006
14	Absorption properties of a weak probe field in a four level medium	SPIE Int. Soc. Opt. Eng, 6256, 62560U	2006
15	The effect of quantum interference of incoherent pump field on the group velocity.	Iranian Physics Conference, Shahrod, Iran	2006
16	The effect of the incoherent pumping field on the absorption and dispersion spectrum	Iranian Physics Conference, Shahroud, Iran	2006
17	Atom localization via absorption spectrum	15 International laser physics workshop, Lausanne, Switzerland	2006
18	Subluminal and superluminal light propagation via spontaneously generated coherence (SGC) high intensity laser light.	Laser Physics-2006'' Conference Ashtarak, Armenia	2006
19	Population Evolution of a V-type three-level atom in a double-band photonic crystal	13th Photonics Gathering of Physics Society of Iran, Tehran, Iran	2007
20	Controlling of light the group velocity via four level atomic coherence	13th Photonics Gathering of Physics Society of Iran, Tehran, Iran	2007
21	The effect the spontaneously generated coherence on the dynamical behaviors of the dispersion and the absorption	14 th central EWQO, Palermo Italy	2007
22	Phase controlled of the absorption and the dispersion spectrum via incoherent pumping field	XXV ICPEAC Freiburg, Germany	2007
23	The impact of incoherent pumping field on dynamical behavior of the dispersion and the absorption	Iranian Physics Conference, Yaoj, Iran	2007
24	The effect of quantum interference due to incoherent pumping fields on amplification without inversion in a three level Λ system	Iranian Physics Conference, Yaoj, Iran	2007
25	The effect spontaneously generated coherence on the optical bistability	Iranian Physics Conference, Yaoj, Iran	2007
26	Transient and steady state behavior of the dispersion and the absorption	Laser Physics-2006'' Conference Ashtarak, Armenia	2007

27	Controlling the velocity of a light pulse in a three-level probe-absorptive medium	14 th Photonics Gathering of Physics Society of Iran, Rafsanjan, Iran	2008
28	Controlling the dispersion and the absorption in a single-channel four-level system	5th Central European Workshop on Quantum Optics, Belgrad, Serbia	2008
29	The effect of the dielectric layer doped with three-level Λ -type atoms on controlling the group velocity of transmitted & reflected light	Iranian Physics Conference, Kashan, Iran	2008
30	The effect of spontaneously generated coherence on the group velocity of reflected and transmitted light from one-dimensional photonic crystals with a dispersive defect	Iranian Solid state Physics onference, Ahvaz, Iran	2009
31	The effect of spontaneously generated coherence on spontaneous emission of a Λ -type three-level atom in a double-band photonic crystal	15 th Photonics Gathering of Physics Society of Iran, Esfahan, Iran	2009
32	Controlling the optical bistability via interacting dark-resonances	Annual Physics conference of Iranian –Isfahan 15-18 August	2009
33	Control of the switching between optical bistability and multistability in three-level Λ -type atomic system	Annual Physics conference of Iranian –Isfahan 15-18 August	2009
34	Unexpected population inversion via spontaneously generated coherence of a Λ system	Annual Physics conference of Iranian –Isfahan 15-18 August	2009
35	Phase control of group velocity in a Λ -type atomic system with two fold lower levels	Annual Physics conference of Iranian –Isfahan 15-18 August	2009
36	The effect of incoherent pumping field on the propagation of an electromagnetic wave in a dispersive medium	Annual Physics conference of Iranian –Isfahan 15-18 August	2009
37	Gain without population inversion in N-type atomic system	16 th Photonics Gathering of Physics Society of Iran, Yazd, Iran	2010
38	Effect of coupling field on entropy of a three-level atomic system	16 th Photonics Gathering of Physics Society of Iran, Yazd, Iran	2010

39	The impact of the relative phase on the transient optical properties of a Λ -type atomic system with two-fold lower levels	16 th Photonics Gathering of Physics Society of Iran, Yazd, Iran	2010
40	Switching from bistability to multistability via phase sensitivity	16 th Photonics Gathering of Physics Society of Iran, Yazd, Iran	2010
41	Controlling from bistable to multistable in a two level pumped-probe system	16 th Photonics Gathering of Physics Society of Iran, Yazd, Iran	2010
42	Enhanced Kerr nonlinearity via spontaneously generated coherence in a four level atomic system	Annual Physics conference of Iranian –Hamadan September	2010
43	The effect of relative phase between applied fields for controlling double-negativity or single-negativity of the atomic medium	Annual Physics conference of Iranian –Hamadan September	2010
44	Electromagnetically induced transparency with slow light level in a four level atomic system	Annual Physics conference of Iranian –Hamadan September	2010
45	Amplitude and phase control of optical properties of a Kozlov-Rice 5-level quantum system	Annual Physics conference of Iranian –Hamadan September	2010
46	Entanglement of a Lambda -type three-level atom and spontaneous emission field	Annual Physics conference of Iranian –Hamadan September	2010
47	Controlling the optical bistability in a three-level closed-loop atomic system beyond the two-photon resonance condition	Annual Physics conference of Iranian –Hamadan September	2010
48	Coherent Control of the Dispersion and the Absorption near a Photonic Band Edge	ICONO2010(Russia)	2010
49	Study of spontaneously generated coherence on dynamical population inversion of N-type atomic system	17 th Photonics Gathering of Physics Society of Iran, Kerman, Iran	2011
50	Leasing without inversion via quantum interference from spontaneous emission and incoherent pumping field	17 th Photonics Gathering of Physics Society of Iran, Kerman, Iran	2011

51	The Simultaneous Effect of Spontaneously Generated Coherence and Incoherent Pumping Field on Group Velocity of a Four-Level Atomic System	17 th Photonics Gathering of Physics Society of Iran, Kerman, Iran	2011
52	Generation of atom- photon Entanglement via polarized photon	17 th Photonics Gathering of Physics Society of Iran, Kerman, Iran	2011
53	Tunable phase control for subluminal to superluminal light propagation in left-handed materials	17 th Photonics Gathering of Physics Society of Iran, Kerman, Iran	2011
54	Improvement of coherent atomic system for enhancement of Kerr nonlinearity in nonlinear optics	17 th Photonics Gathering of Physics Society of Iran, Kerman, Iran	2011
55	Control of the Goos-Hänchen shift via spontaneously generated coherence	17 th Photonics Gathering of Physics Society of Iran, Kerman, Iran	2011
56	Controlling the negative refractive index in a four level atomic system via applied fields	Laser Physics 2011, Ashtarak, Armenian	2011
57	Controlling the probe-absorption and –dispersion via quantum interference from incoherent pumping field in the four-level atomic system	Laser Physics 2011, Ashtarak, Armenian	2011
58	Optical properties of four-level medium via spontaneously generated coherence	Laser Physics 2011, Ashtarak, Armenian	2011
59	Giant Kerr nonlinearity via interacting dark resonance states	Laser Physics 2011, Ashtarak, Armenian	2011
60	Absorptive and dispersive properties of four-level tripod atomic medium via incoherent pumping field	Laser Physics 2011, Ashtarak, Armenian	2011
61	Controlling the optical bistability via electromagnetically induced absorption	Annual Physics conference of Iranian –Urmia September	2011
62	Controlling the Goos-Hänchen shift via relative phase in a cavity with three-level atomic medium	Annual Physics conference of Iranian –Urmia September	2011
63	Optical bistability in the presence of additional radio-frequency field	Annual Physics conference of Iranian –Urmia September	2011
64	Optical bistability in a three-level Λ system in the presence of Doppler broadening	Annual Physics conference of Iranian –Urmia September	2011

65	Controlling optical bistability to multistability via phase-control in presence of quantum interference in double-quantum well	Annual Physics conference of Iranian –Urmia September	2011
66	Enhancement of Kerr nonlinearity via interacting dark resonance	Annual Physics conference of Iranian –Urmia September	2011
67	Refractive index variation of metamaterials via relative phase between applied fields in a cascade-type three-level atomic system	Annual Physics conference of Iranian –Urmia September	2011
68	Enhanced Kerr nonlinearity via spontaneously generated coherence	Annual Physics conference of Iranian –Urmia September	2011
69	Lasing via two approaches, bare and dressed state interaction	Annual Physics conference of Iranian –Urmia September	2011
70	Enhancing the Kerr Nonlinearity at long wavelength with application for all optical switching	18 th Iranian Conference on Optics and Photonics-Tabriz	2012
71	Investigating absorption and dispersion in a four-level system in the presence of Doppler broadening	18th Iranian Conference on Optics and Photonics-Tabriz	2012
72	Tunneling on Phase control of the group velocity in a V-Shaped quantum dot molecule	18 th Iranian Conference on Optics and Photonics-Tabriz	2012
73	Controlling of atom-photon entanglement via relative phase of applied fields	18 th Iranian Conference on Optics and Photonics-Tabriz	2012
74	Controlling of optical bistability via external magnetic field in a coherent atomic medium	18 th Iranian Conference on Optics and Photonics-Tabriz	2012
75	The effect of electromagnetically induced transparency on enhancement of Kerr nonlinearity	18 th Iranian Conference on Optics and Photonics-Tabriz	2012
76	Controlling absorption- dispersion properties of four-level atomic system via quantum interference	18 th Iranian Conference on Optics and Photonics-Tabriz	2012

77	Enhancement of Kerr nonlinearity in asymmetric coupled double quantum wells	18 th Iranian Conference on Optics and Photonics-Tabriz	2012
78	Hartman effect in one-dimensional photonic crystal doped by ladder - type three -level atoms	18 th Iranian Conference on Optics and Photonics-Tabriz	2012
79	The effect of coupling field on controlling single negative and double negative refractive index in a cascade-type three-level atomic system	18 th Iranian Conference on Optics and Photonics-Tabriz	2012
80	The effect of coherent coupling fields on delay time of a light pulse in a slab doped with three-level ladder-type atoms	Annual conference of Physics Iran	2012
81	controllable negative susceptibility and permittivity via relative phase of applied fields in N-type four level atomic system	19 th Iranian Conference on Optics and Photonics-Systan	2013
82	Size-dependent optical rectification in three-level InAs/GaAs quantum dots with wet layer	19 th Iranian Conference on Optics and Photonics-Systan	2013
83	Coherent control of the Goos-Hanchen shifts via quantum interference with a cavity containing a four level N type atomic medium	Annual conference Physics of Iran	2013
84	Controlling of Goss Hanchen shifts of TM- Polarized probe light beam in a four level atomic system	20 th Iranian Conference on Optics and Photonics-Beheshti	2013
85	Controlling the optical bistability in four level quantum well system via coherent and In coherent pump fields	3th laser conference, Tehran, 1393	2014
86	Controlling the normal light propagation in one dimensional photonic band gap crystal doped by two and three level atomic system	3th electromagnetism conference, Tehran	2014
87	Angle controlling of the light propagation in one dimensional photonic band gap crystal doped by two and three level atomic system	2nd National Conference on Applied Research in Mathematics and Physics, Tehran	2014
88	Design of an electro-optical switch based on quintuple coupled quantum dot molecule	ICOLE, Esfahan	2015
89	Design and Simulation of all optical Amplitude Demodulator based on Electro Magnetic Transparency (EIT)	20 th Iranian Conference on Optics and Photonics-Yazd	2015

90	Flatband Slow Light in Slab Photonic Crystal Waveguide by adding Silicon Pillar in Air Holes	National conference on Physics and its Applications, Malayer	2015
91	Detuning Effects on the Atom-photon entanglement of a 4-level atom near the PBG	Quantum Information and Measurement (QIM) © 2017 OSA	2017

Doctorate Thesis Supervision

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	Full Name of Student	Year	Title of Thesis
1	Hossein Jafarzadeh	2014	The study of optical bistability and multi-stability in the atomic systems and semiconductor nanostructures
2	Davood Jafari	2013	The effect of quantum interference in propagation of a light pulse through a dispersive dielectric layer and one dimensional photonic crystal
3	Hamed Sattari	2014	Doping effect of impurity atoms on the propagation of electromagnetic wave in layered systems
4	Ali Raheli	2016	The study of enhanced nonlinear Kerr effect in atomic systems
5	Vahideh Tahmoorian Askari Borojerd	2017	Atom-photon entanglement of an atom embedded in micro cavity photonic crystal
6	Forough Bozorgzadeh	2017	Controlling the Diffraction Pattern via Electromagnetically Induced Transparency

Master Thesis Supervision

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	Full Name of Student	Year	Title of Thesis
1	Alireza Maleki	2008	The study of refractive index variation in the presence of driving fields
2	Sahar Ahmadipannah	2007	The Control of spontaneous emission via external field and photonic crystals
3	Nader Salahshour	2008	The effect of spontaneously generated coherence on the optical bistability
4	Lida Ebrahimi	2007	The effect of incoherent pumping fields on the optical characteristic of a three level quantum system
5	Golnaz Minagar	2008	The absorption and dispersion in the presence of photonic crystal
6	Mehdi Sharifi	2008	The effect of the dielectric layer on the transmitted and reflected light
7	Leila Kasaei	2009	Controlling of optical properties of atomic system via incoherent pumping field
8	Roshanak Etemadpour	2009	The effect of quantum interference on the group velocity of a light pulse in a dispersive medium
9	Mansour Mousaei	2015	Quantum entanglement between Quantum dot molecule and its spontaneous emission fields
10	Zakiye Rahimi	2010	The effect of intensity of coherent and incoherent pumping fields on light propagation in a dispersive medium
11	Shahnaz Ass	2010	Study of pulse propagation through one-dimensional Photonic crystals
12	Seyed Hassean Asadpour	2010	Population inversion in a coherent atomic systems
13	Hamed Moharami	2011	Optical properties of coherence atomic system via radiation fields and atomic parameters influence
14	Hadi Mohamadkhani	2010	Localization of atom via absorption spectrum
15	Hajar Noshad	2011	Study of quantum entanglement via quantum interference
16	Mojtaba Rezaie	2011	The study of the light propagation in left-hand materials
17	Sasan Moradi	2011	Application of semiconductor nanostructure in quantum processing of information
18	Rajab Nasehi	2010	The effect of incoherent processes on creation of induced coherence

19	Parisa Maboodi	2012	Coherent control of the Goos-Hanchen shifts via quantum interference
20	Neda Zolghadri	2012	Variation of refractive index in left handed materials
21	Hamid Reza Hamedi	2012	Enhancement of Kerr nonlinearity via quantum coherence
22	Meisam Memarzadeh	2012	Controlling optical bistability to multistability in multi-level atomic system
23	Davood Taherkhani	2012	Generation and study of entangled states in nanostructures
24	Behnaz Esfahlani Hokmabad	2012	Hartman effect in one-dimensional nano photonic crystal contained defect layer
25	Behnam Arzhang	2012	The study of entanglement via quantum entropy
26	Reza Hematti	2011	Controlling the spontaneous emission via incoherent pumping field
27	Solmaz Ebadollahi	2014	Optical bistability and multistability in semiconductor nanostructures
28	Farzam Nosrati	2014	The role of entanglement in Mach-Zender interferometer
29	Seyed Mohammad Mirnourani	2014	Test and Measurement of DWDM networks
30	Arash Radmehr	2015	Coherent control of Goos-Hanchen shift in dielectric slabs
31	Ehsan Naghizadeh	2014	Nonlinear dynamic study of semiconductor micro resonator by saturation absorber
32	Ali Glestani Shishavan	2013	Enhancement of Kerr nonlinearity with decrease linear and nonlinear absorption
33	Mahsa Shakouri	2014	Lasing without inversion in rare earth
34	Mozhgan Momeni Demneh	2014	Probe beam absorption and dispersion in quantum well nanostructures
35	Somayeh Bahmani	2014	Investigation of Molecular reorientation due to volume expansion and thermomechanical effects in the Hybrid nematic liquid crystal
36	Maryam-sadat Rafiei	2012	Investigation of Direct Volume Expansion effect in the homeotropic nematic liquid crystal
37	Fahimeh Nayyeri Khezerluo	2012	Investigation of Direct Volume Expansion effect in the homeotropic nematic liquid crystal
38	Vahid Abediny Bonab	2012	Investigation of Volume Expansion effect in planar nematic liquid
39	Parinaz Rakh	2013	The study of bistability and multi-stability in nonlinear medium
40	Roghaie Aghaee	2014	Controlling the amplitude and phase of Hartman effect in nano-scaled photonic crystal
41	Hossein Namakin Goshayesh	2015	Effect of defect layer on coherent light pulses propagation in one-dimensional photonic crystals

42	Mohammad Mahdavi Hezaveh	2014	Design and simulation of all optical demodulator using electromagnetically induced transparency
43	Jalil Shiri	2015	All optical switching based on EIT in quantum-well semiconductor intersubband transition devices
44	Negar Charchi	2015	Dynamical and steady state behavior of the absorption and dispersion in one-dimensional photonic crystal with defect layer doped by atom
45	Mohammad Reza Ghorbani fard	2015	The effect on incoherent pump field on lasing without inversion

Research Activities

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	Title of Project	Place of Work	Dates	
			From	To
1	Atom Localization	University of Tabriz	2004	2005
2	Subluminal and superluminal light propagation in an coherent atomic system	University of Tabriz	2004	2005
3	Control of optical patterns in passive semiconductor micro-resonator	University of Tabriz	2005	2006
4	The study of transient and steady state behavior of the EIT	University of Tabriz	2005	2006
5	Generation and controlling of cavity solitons in semiconductor micro-resonator	University of Tabriz	2007	2008
6	The study of transient and steady state behavior of the absorption and dispersion	University of Tabriz	2007	2008
7	Propagation of electromagnetic field in a dispersive medium	University of Tabriz	2008	2009
8	Study of all optical switching via optical patterns in semiconductor micro-resonator	University of Tabriz	2008	2009
9	The effect of quantum interference on phase control of optical properties of atomic medium	University of Tabriz	2009	2009
10	Subluminal and superluminal light propagation	University of Tabriz	2009	2010
11	Study of nonlinear fitting of gain curve on cavity solitons in a semiconductor micro-resonator	University of Tabriz	2009	2010

12	Controlling the group velocity in a five-level quantum system	University of Abhar	2008	2010
13	The propagation of a light pulse in an atomic medium and the study of switching from normal to anomalous dispersion	University of Tabriz	2008	2010
14	Controlling the optical bistability via interacting dark resonances	University of Tabriz	2010	2010
15	Star sensor	Space & weather organization	2010	2011
16	Atom localization via absorption spectrum and dark resonance states	University of Tabriz	2010	2011
17	Enhanced Kerr nonlinearity in quantum well structure	University of Tabriz	2011	2012
18	Proposal for lasing with and without population inversion in an Er-doped YAG crystal	University of Tabriz	2010	2010
19	Controlling the Kerr nonlinearity via quantum coherence	University of Tabriz	2012	2013
20	single photon source via quantum dot embedded in a semiconductor microcavity	University of Tabriz	2012	2013
21	Optical bistability and multi-stability in quantum dot molecule	University of Tabriz	2014	2015

Awards, Honorary Degrees, Medals and Positions

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	Title of Award, Medal, Position	Issuing Authority	Country	Year
1	Distinguished Researcher of Tabriz University (award)	University of Tabriz	Iran	2006
2	Distinguished Researcher of Tabriz University (award)	University of Tabriz	Iran	2008
3	Distinguished Researcher of Tabriz University (award)	University of Tabriz	Iran	2010
4	Distinguished Researcher of Tabriz University (award)	University of Tabriz	Iran	2012
5	Distinguished Researcher of Tabriz University (award)	University of Tabriz	Iran	2014