

Curriculum Vitae

First name: Mohammad
Last name: Sabaeian
Date of birth: 8 Feb. 1979
Place of birth: Dezful, Iran
Nationality: Iranian
Skype ID: sabaeian
Email address: sabaeian@scu.ac.ir
sabaeian@gmail.com
Departmental Phone Number: 0098-611-333-1040
Cell Phone: 0098-917-310-0376

Employments:

2016-Now: Associate Professor of Physics in Laser and Optics, Physics Department, Faculty of Science, Shahid Chamran University (SCU) of Ahvaz, Ahvaz, Iran.

2008-2016: Assistant Professor of Physics in Laser and Optics, Physics Department, Faculty of Science, SCU, Ahvaz, Iran.

Responsibilities:

2015-Now: Topical Editor of Applied Optics journal (OSA).

2014-Now: Topical Editor of Journal of Research on Many Body Systems (SCU).

2016:-Now: Manager of Center for Research on Laser and Plasma, SCU of Ahvaz, Ahvaz, Iran.

Education Background:

- **2003-2008,** PhD: Physics (Laser & Optics), University of Shiraz, Shiraz 71454, Iran. Average mark: 17.79 out of 20.
PhD thesis title: Investigation of thermal effects in solid state and fiber lasers
Supervisor: Prof. Hamid Nadgaran
- **2001-2003,** MSc: Atomic and Molecular Physics, University of Shiraz, Shiraz 71454, Iran. Average mark: 17.63 out of 20.
MSc. thesis title: Measurement of liquid surface tension by laser beam diffraction
- **1997-2001,** BSc: Physics, Shahid Chamran University of Ahvaz, Ahvaz, Iran. Average mark: 17.54 out of 20.
BSc. Graduation dissertation: Design and fabrication of 4-channels sender and receiver in radio frequency domain
- **1994-1997:** High School Diploma in Mathematics & Physics, Modarres High School, Dezful, Iran. Average: 18.21 out of 20.

Sabbatical leaves:

- **2006-2007:** Plitecnico di Bari, Faculta de Taranto, Italy.
Project: Rare Earth Doped Fiber Lasers and Amplifiers, Supervisor: Prof. Francesco Prudeniano
- **2014:** Honan University, Changsha, China.
Project: Thermal lens spectroscopy of Graphene Oxide (optical properties of 2D systems).

Teaching experience:

- **2001-2002:** High-School Physics Courses, Shiraz, Iran.
- **2002-2003:** Elementary Physics: Scientific and Applied University of Power Ministry, Shiraz, Iran,
- **2003-2004:** BSc. Physics Courses: Islamic Azad University, Arsanjan Branch, Fars Province, Iran.
- **2003-2004:** BSc. Physics Courses: Payame-e-Noor University, Shiraz, Iran.
- **2004-2010:** Physics Courses: Islamic Azad University, Dezful Branch, Dezful, Iran.
- **2008-Now:** MSc. and BSc., and PhD. Physics Courses: Shahid Chamran University of Ahvaz, Ahvaz, Iran.

Awards and honors:

- Winner of Ministry of Science, Research and Technology's Scholarship for PhD (2003-2008)

- Distinguished Researcher of Khouzestan province, Iran (2018).
- Being on the dean's list at Shahid Chamran University of Ahvaz (2001- Top 3)
- Distinguished lecturer among Shiraz's teachers, Iran (2002)
- Distinguished annual researcher, Islamic Azad University, Dezful, Iran (2008)
- Best presenter in 1st National Conference on Laser and Optics Engineering, Iran (2009).
- Best presenter in workshops in 3rd National Conference on Laser and Optics Engineering, Iran (2013).
- Best consulting advisor among Shahid Camran University's professors (2013).
- Supervisor of the best MSc student's thesis (Mohammadreza Shahzadeh) of SCU in 2013.
- Distinguished researcher at Shahid Chamran University of Ahvaz, 2015.
- Best poster presentation in Iranian Annual Physics Conference, Shiraz, 2016.
- Distinguished researcher at Faculty of Science, Shahid Chamran University of Ahvaz, 2016.
- Winner of national fund for extending attosecond physics in macro- and nano-scales
- Winner of highest grants at SCU in several years

Languages:

- *Persian (native)*
- **English (Expert)**
- *Italy (Speaking, communication)*

Intended workshops:

1. Molecular Dynamics, **Sharif University of Technology, Tehran, Iran, November 2006.**
2. School of Plasma, **Amir-Kabir University of Technology, Tehran, Iran.**
3. Introduction to Recent Advances in Nanotechnology, **University of Kashan, Iran.**
4. From Block waves optics to Photonic crystal fibers, Lecturer: Philip St. Russell, Max Planck Institute for the Science of Light, Germany, (in **Photonics 2010, 11 December, Guwahati, India**).
5. Plasmonics: Principles and Potential Applications, Lecturer: ByoungHo Lee, Seoul National University, South Korea (in **Photonics 2010, 12 December, Guwahati, India**).
6. Fiber-optic Bragg Grating Sensor systems, Background and structural health monitoring applications, Lecturer: Wolfgang Ecke, IPHT, Jena, Germany (in **Photonics 2010, 11 December, Guwahati, India**).
7. Fiber optics sensors, sensing principles and challenging application examples, Lecturer: Wolfgang Hable, Federal institute for materials Research and Testing, Berlin, Germany, (in **Photonics 2010, 12 December, Guwahati, India**).
8. High performance computation and TORIN (HPC5), **IPM, Tehran, Iran (2013).**
9. Advanced School on Two Dimensional Systems: from Semiconductors to New Two dimensional Materials, **25-26 May 2014, Tabriz University, Iran.**
10. Second PAM International School on Emergent Quantum Phenomena in Graphene, **26-28 April, Sharif University of Technology (2015).**
11. **Attosecond and High Harmonic Science: From Fento to Atto**, by P. Corkum, Europhoton Vienna Sumer School (2016).
12. **Attosecond and High Harmonic Science: Attosecond technology and using extreme nonlinear optics**, by P. Corkum, Europhoton Vienna Sumer School (2016).
13. **Fiber optic modeling**, Dr. Rüdiger Paschotta, Europhoton Vienna Sumer School (2016).
14. **Megajoule-Class Lasers for Fusion and Beyond**, by: Chris Barty, Europhoton Vienna Sumer School (2016).
15. **Filamentation of Powerful femtosecond laser pulses**, S. L. Chin, Europhoton Vienna Sumer School (2016).
16. **High Brightness Fiber Laser Technologies**, by: A.Galvanauskas, Europhoton Vienna Sumer School (2016).
17. **Semiconductor saturable absorber mirrors (SESAMs) 1**, by: Ursal Keller, Europhoton Vienna Sumer School (2016).
18. **Semiconductor saturable absorber mirrors (SESAMs) 2**, by: Ursal Keller, Europhoton Vienna Sumer School (2016).
19. **Structural light Workshop, one-week workshop, IASBS, Zanjan (2016).**

Experimentations:

- **2003:** Design and setup of research Ion Argon Laser Laboratory, University of Shiraz, Iran.

- **2004:** Running the ion Ar laser pumped Ti:sapphire laser, University of Shiraz, Iran.
- **2005:** Running the LBO pumped Ti:Sapphire laser (UV laser), University of Shiraz, Iran.
- **2006-2007:** Setup an octagonal fiber laser, Politecnico di Bari, Italy.
- **2012:** Design and fabrication of high voltage DC power supply (up to 40 kV)
- **2013:** A new design and fabrication of high-power CW CO₂ laser
- **2013-Now:** Design and fabrication a sun-light pumped Nd:YAG laser
- **2013-Now:** Design a thermal lens spectroscopy system
- **2013-2014:** Fabrication of a spin-coater (up to 14 rpm) for organic materials coating
- **2014:** Thin film coating of organic polymers on ITO and FTO aimed to fabrication of OLEDs.
- **2014:** Thin metal (Ag, Al,...) film coatings by thermal evaporation (PVD).
- **2014:** Fabrication of Krypton Arc Lamp for laser applications
- **2014:** Design and fabrication of a commercial xenon flash lamp Nd:YAG laser
- **2015:** Welding of glass to metals; a project for fabricating arc and flash lamps
- **2015:** Construction a CVD system
- **2015:** Graphene synthesis by CVD method
- **2017:** Designing a Photoluminescence setup
- **2017:** Designing a Raman setup

Miscellaneous:

- **2016:** Member of Scientific Committee of Iranian Annual Physics Conference.
- **2018:** Member of Scientific Committee of Iranian Annual Physics Conference.
- **2000:** Executive member of 1st Scientific and Applied Physics conference, Ahvaz, Iran.
- **2000-2001:** Journal Editor: Physics Students Scientific Society “Teif”, Physics Department, Shahid Chamran University of Ahvaz, Iran.
- **2008:** Executive member of 14th Iranian Conference of Condensed Matter, Ahvaz, Iran.
- **2009:** Executive member of 2nd Conference of Recent Advances in Superconductivity, Ahvaz, Iran.
- **2014-2015:** Design and setup of research ion Argon Laser Laboratory, Shahid Chamran University of Ahvaz, Iran.
- **2013:** Executive member of 20nd National Conference on Crystallography and Mineralogy, Ahvaz, Iran.
- **2013-2014:** Establisher of an Electro-Optics Research Laboratory, Shahid Chamran University of Ahvaz, Iran.
- **2014:** Executive member of 6th National Conference of Vacuum, Ahvaz, Iran.
- **Topical Editor:** Journal of Research on Many-Body Systems, Shahid Chamran University of Ahvaz, Iran.
- **Topical Editor:** Applied Optics (OSA).
- **Journal Reference:** Scientific Report (Nature group), Optics Express (OSA), Optics Letters (OSA), the Journal of Optical Society of America B (OSA), Journal of Applied Physics (AIP), Superlattices and microstructures (Elsevier), Iranian Journal of Surface Science and Engineering, International Journal of Thermal Sciences (Elsevier), Measurement Science and Technology (IOP), Journal of Science Kharazmi University (Iran), Modern Physics Letters B (World Scientific), Sensors and Actuators B: Chemical (Elsevier), Applied Optics (OSA), The Journal of Renewable and Sustainable Energy (AIP), Phase Transition (Taylor and Francis), The European Journal of Physics B, Materials & Design (Elsevier), IEEE Journal of Quantum Electronics (IEEE), the Journal of Physics and Chemistry of Solids (Elsevier), Materials Research Express (IOP), Nanomaterials and Nanotechnology (SPIE).
- **National Festival Reference:** The member of referee Committee of 9th and 10th National Movement Festival, Ministry of Science, Research, and Technology.
- **2012:** Founder of Electro-Optic Research lab (SCU).
- **2013:** Founder of Atomic and Molecular Research lab (SCU).
- **2015:** Founder of Center for Research on Laser and Plasma (SCU).

Professional memberships:

- OSA (Optical Society of America)
- OPSI (Optics and Photonic Society of Iran)
- PSI (Physics Society of Iran)
- A member of “Computational Chemistry Pole”, Shahid Chamran University (SCU) of Ahvaz.
- A member of “Specialist Committee of Optics and Photonics,” Iran National Standard Organization.

- A member of “Science and Technology Park of Khuzestan”

Research interests:

Common interests:

- Two-dimensional photonic crystals and photonic crystal fibers
- Solid-state lasers
- Thermal lens spectroscopy
- Photonic crystals fiber lasers
- Cavity quantum electrodynamics
- High performance computations
- Plasmonics (theory and experiments)
- Optoelectronic (semiconductor quantum dots).

New interests:

- ***Strong-field laser physics***
- ***Attosecond lasers***
- ***Femtosecond lasers***
- ***Ultrashort pulse measurements***
- ***Ultrashort pulse laser spectroscopy***
- ***CPA lasers***

Presentations given:

- **2003: *Laser Remote Sensing***, On-day Physics Gathering, Azad University, Arsanjan Branch, Iran.
- **2003: *Fiber Lasers***, High School Physics Teachers Seminar, Dezful, Iran.
- **2003: *Negative Refractive Index***, Week of Research, Islamic Azad University, Dezful Branch, Dezful, Iran.
- **2006: *Thermal Effects in high power fiber lasers***, Weekly Scheduled talk, University of Shiraz, Iran
- **2010: *Maple Workshop***, Physics club, Shahid Chamran University of Ahvaz, Iran.
- **2011: *Recent Advances in Optics and Laser***, Shahid Chamran University of Ahvaz, Iran.
- **2011: *Comsol Multiphysics Workshop***, Kerman University, Iran.
- **2013: Workshop on *Numerical Simulation with Finite Element Method***, 3rd National Conference on Laser and Optics Engineering, Iran.
- **2013: *How to prepare a scientific report***, Islamic Azad University, Deaful Branch, Dezful, Iran.
- **2014: *Thermal lens Spectroscopy***, Honan University, College of Communication Science and Engineering.
- **2015: *Laser and its applications***, a Live Radio Interview in Khuzestan Province Radio Studio.
- **2015: Workshop on *Physical Simulations***, 5th Physics Student Festival, Shahid Chamran University.
- **2015: *A Report on Advances in Optics at SCU***, Institute of Advance Studies on Basic Science (IASBS), 2015.
- **2016: Workshop on *Comsol Multiphysics***, Shiraz University of Technology, Iran (2016).
- **2017: *How to generate Attosecond Trains of Pulses***, Shahid Chamran University of Ahvaz (2017).
- **2017: *Attosecond Sources***, 5th Iranian Conference on Optics and Laser Engineering (ICOLE 2017).
- **2018: *100 years with optics (Part I)***, International Day of Light, Shahid Chamran University of Ahvaz (2018).
- **2018: *CPA Lasers and its impact on strong field laser physics***, Week of Research, SCU, Ahvaz, Iran.

Skills:

- ***Operating system:*** Windows and Linux
- ***Technical Software:*** Comsol Multiphysics, Lumerical, Gaussian, MATLAB, MAPLE, JAVA, FORTRAN, C++,
- ***Parallel programming*** (High Performance Computing) based on CPU (Open MP, MPI) and GPU (Open CL, CUDA)
- ***Other:*** Microsoft office, Origin, Tecplot, Mathtype, End note, Latex

Research Projects:

- 1) Investigation of thermal, thermally-induced stresses and photo-elastic effects on propagation modes of photonic crystal fiber lasers (2011).

- 2) Optical properties of plasmonic and panda-shaped photonic crystal fiber, (2016).
- 3) Temperature effects on the performance of KGW Raman generator (2012).
- 4) Biological effects of harmful sound systems (2003).
- 5) Thermal effects and compensation of them in solid state lasers (2014-2015).
- 6) Design and generation of ultrashort attosecond train pulses in optical region (in progress, 2016).
- 7) Utilization of Al₂O₃ nanolayers to strengthen aluminum high voltage power cables aimed to remove steel medium (2017).
- 8) Investigation of thermally-induced phase mismatching for generation of second harmonic laser in KTP type-II crystal (2010).
- 9) 3D-modeling of heat effects on self-doubler NYAB laser in double-pass cavity using finite difference method (2011).

Publications:

Peer-Reviewed Journal Publications

- 1- **M. Sabaieian**, L. Mousave and H. Nadgaran, "Investigation of Thermally-induced phase mismatching in continuous-wave second harmonic generation: A theoretical model," *Optics Express*, **18**, 18732-18743 (2010).
- 2- **Mohammad Sabaieian**, Fatemeh Sedaghat Jalilabadi, Mostafa Mohammadrezaee, and Alireza Motazedian, "Heat coupled Gaussian-wave CW double-pass type-II second harmonic generation: inclusion of thermally induced phase mismatching and thermal lensing," *Optics Express* **22**(21), 25615-25628 (2014).
- 3- **Mohammad Sabaieian** and Hamid Nadgaran, "An analytical model for finite radius dual-beam mode-mismatched thermal lens spectroscopy," *Journal of Applied Physics* **114**, 133102 (2013).
- 4- **Mohammad Sabaieian** and Mohammadreza Shahzadeh, "Investigation of in-plane- and z-polarized intersubband transitions in pyramid-shaped InAs/GaAs quantum dots coupled to wetting layer: size and shape matter" *Journal of Applied Physics* **116**, 043102 (2014).
- 5- M. Shahzadeh and **Mohammad Sabaieian**, "Numerical simulation of Optical nonlinearity enhancement in oblate semi-spheroid-shaped quantum dots coupled to wetting layer," *J. Opt. Soc. Am. B* **32** (6), 1097-1104 (2015).
- 6- **M. Sabaieian**, H. Nadgaran and L. Mousave, "Analytical solution of the heat equation in longitudinally pumped cubic solid state laser," *Applied Optics* **47**, 1-9 (2008).
- 7- Yaser Hajati, Zeinab Zambouri, and **Mohammad Sabaieian**, "Low-loss and high-performance mid-infrared plasmon-phonon in Graphene-Hexagonal boron nitride waveguide," *J. Opt. Soc. Am. B* **35**(2), 446-453 (2018).
- 8- **M. Sabaieian**, H. Nadgaran, M. De Sario, L. Mescia and F. Prudeniano, "Investigation of thermal effects in octagonal double-clad fiber lasers," *Optical Materials* **31**, 1300-1305 (2009).
- 9- **Mohammad Sabaieian** and A. Khaledi-Nasab, "Size-dependent intersubband optical properties of dome-shaped InAs/GaAs quantum dot with wetting layer," *Applied Optics* **51**, 4176-4185 (2012).
- 10- **Mohammad Sabaieian**, "Analytical solutions for anisotropic time-dependent heat equation with Robin boundary condition for cubic-shaped solid state laser crystals," *Applied Optics* **51**, 7150-7159 (2012).
- 11- **Mohammad Sabaieian**, Alireza Motazedian, Mostafa Mohammad Rezaee, and Fatemeh Sedaghat Jalil-Abadi, "Pulsed Bessel-Gauss beams: A depleted wave model for type II second harmonic generation," *Applied Optics* **53**(32), 7691-6796 (2014).
- 12- **Mohammad Sabaieian** and Mohammadreza Shahzadeh, "Simulation of temperature and thermally-induced stress of human tooth under CO₂ pulsed laser beams using finite element method," *Lasers in Medical Science* **30**, 645-651 (2015).
- 13- Ali Khaledi-Nasab, **Mohammad Sabaieian**, Mostafa Sahraei, and Vahid Fallahi, "Kerr nonlinearity due to intersubband transition in three-level InAs/GaAs quantum dot: the impact of wetting layer on dispersion curves", *Journal of Optics* **16**, 055004 (2014).
- 14- **Mohammad Sabaieian** and Mohammadreza Shahzadeh, "Self-assembled strained pyramid-shaped InAs/GaAs quantum dot: the effects of wetting layer thickness on discrete and quasi-continuum levels" *Physics E* **61**, 62-68 (2014).
- 15- Mohammadreza Shahzadeh and **Mohammad Sabaieian**, "Wetting layer-assisted modification of in-plane- and z-polarized transitions in strain-free GaAs/AlGaAs quantum dots," *Superlattices and Microstructures* **75**, 514-522 (2014).
- 16- **Mohammad Sabaieian** and H. Nadgaran, "Bessel-Gauss beams: Investigation of thermal effects on their generation", *Optics Communications* **281**, 672-678 (2008).

- 17- H. Nadgaran, M. Servatkhah and **Mohammad Sabaiean**, "Mathieu-Gauss beams: A thermal consideration," *Optics Communications* **283**, 417-426 (2009).
- 18- Laleh Mousavi, **Mohammad Sabaiean**, and Hamid Nadgaran, "Thermally-induced birefringence in solid-core photonic crystal fiber lasers," *Optics Communications* **300**, 69-76 (2013).
- 19- Alaeddin Sayahian Jahromi, **Mohammad Sabaiean**, and Hamid Nadgaran, "Heat coupled laser rate equations: a model for Er-doped fiber lasers," *Optics Communications* **311**, 134-139 (2013).
- 20- Ali khaledi-Nasab, **Mohammad Sabaiean**, Vahid Fallahi, Mostafa Sahrai, Mostafa Mohammad Rezaee, "Intersubband absorption dispersion and group velocity on Woods-Saxon InAs/GaAs quantum dots with wetting layer," *Physics E* **60**, 42-49 (2014).
- 21- Mohammadreza Shahzadeh and **Mohammad Sabaiean**, "The effects of wetting layer on electronic and optical properties of intersubband P-to-S transitions in strained dome-shaped InAs/GaAs quantum dots," *AIP Advances* **4**, 067113 (2014).
- 22- **Mohammad Sabaiean** and Mohammadreza shahzadeh, "A comparison between semi-spheroid and dome-shaped quantum dots coupled to wetting layer," *AIP Advances* **4**, 067134 (2014).
- 23- M. Mohammadrezaee, **Mohammad Sabaiean**, A. Motazedian, F. Sedaghat, "Complete anisotropic time-dependent heat equation in KTP crystal under repetitively pulsed Gaussian beams: a numerical approach," *Applied Optics* **54** (6), 1241-1249 (2015).
- 24- **Mohammad Sabaiean** and H. Nadgaran, "Investigation of thermal dispersion and thermally-induced birefringence on high-power double clad Yb:Glass fiber laser," *International Journal of Optics and Photonics (IJOP)* **2**(1), (2008).
- 25- Hamid Nadgaran and **Mohammad Sabaiean**, "Pulsed pump: Thermal effects in solid state lasers under super-Gaussian pulses," *Pramana Journal of Physics* **67**, 1119-1128 (2005).
- 26- Laleh Mousavi, **Mohammad Sabaiean**, and Hamid Nadgaran, "Numerical modeling of self-heating effects on guiding modes of high-power photonic crystal fiber lasers," *Lithuanian Journal of Physics* **53**(2), 104-111 (2013).
- 27- **Mohammad Sabaiean**, "The effects of air-holes on temperature and temperature gradient of solid-core photonic crystal fibers," *OptiK: International Journal for Light and Electron Optics* **124**(22), 5787-5791 (2013).
- 28- Ali Khaledi-Nasab, **Mohammad Sabaiean**, Mostafa Sahraei, and Vahid Fallahi, "Optical rectification and second harmonic generation on quasi-realistic InAs/GaAs quantum dots: with attention to wetting layer effect," *ISRN Condensed Matter Physics* (2013) DOI 10.1155/2013/530259.
- 29- Ali Khaledi-Nasab, **Mohammad Sabaiean**, Mehdi, Rezaie, Mostafa Mohammad-Rezaee, "Linear and Nonlinear Tunable Optical Properties of intersubband transitions in GaN/AlN Quantum Dots in Presence and Absence of Wetting Layer" *Journal the of European Optical Society: Rapid Publication* **9**, 1400 (2014).
- 30- **Mohammad Sabaiean**, Fatemeh Sedaghat Jalil-Abadi, Mostafa Mohammad Rezaee, Alireza Motazedian, and Mohammadreza Shahzadeh, "Temperature dependence of thermal conductivity and radiation boundary condition on the temperature distribution of KTP crystal: an inhomogeneity and nonlinearity in 3D diffusion equation", *Brazilian Journal of Physics* **45**, 1-9 (2015).
- 31- Laleh Mousavi, **Mohammad Sabaiean**, and Hadi Askari, "Self-doubler NYAB laser: A theoretical model for coupling the rate and nonlinear equations," *Journal of Research on Many body Systems* **4** (7), 45-54 (2014).
- 32- **Mohammad Sabaiean**, Fatemeh Sedaghat Jalil-Abadi, Mostafa Mohammad Rezaee, Alireza Motazedian, and Mohammadreza Shahzadeh, "Temperature increase effects on a double-pass cavity type II second-harmonic generation: a model for depleted Gaussian continuous waves," *Applied Optics* **54** (4), 869-875 (2015).
- 33- **Mohammad Sabaiean**, M. Shahzadeh, and M. Farbod, "Electric field-induced nonlinearity enhancement in strained semi-spheroid-shaped quantum dots coupled to wetting layer" *AIP Advances* **14**(12), 127105 (2014).
- 34- **Mohammad Sabaiean** and Mohammadreza Shahzadeh, "GaAs pyramidal quantum dot coupled to wetting layer in an AlGaAs matrix: a strain-free system" *Physica E* **68**, 215-223 (2015).
- 35- Hamidreza Rezaei, **Mohammad Sabaiean**, and Laleh Moosavi, Developing and designing a special-cut dual-core photonic crystal fiber (PCF) for pressure sensing, *MAGNT Research Report* **3**(2), 1354-1362 (2015).
- 36- **Mohammad Sabaiean**, Seyed Azadi Hosseini, Mohammadreza Sahahzadeh, and Irej Kazeminezhad, "Investigation of size effect on the emission properties of InAs/GaAs conical-shaped quantum dot lasers," *Journal of Research on Many Body Systems* **4**(8), 55-67 (1393).
- 37- **Mohammad Sabaiean**, Narges ajamgard, and Mehdi Heydari, "Enhancing Purcell's factor of plasmonic bowtie nano-antennas for quantum dot emitters of InGaN/GaN in green band" *Journal of Research on Many-body Systems* **5**(10), 43-52 (2015)
- 38- **Mohammad Sabaiean**, Mehdi Heydari, and Narges Ajamgard, "Plasmonic excitation-assisted optical and electric enhancement in ultra-thin solar cells: the influence of nano-strip cross section," *AIP Advances* **5**, 087126 (2015).
- 39- Narges Ajamgard, **Mohammad Sabaiean**, and M. Heydari, "Designing a plasmonic waveguide for controlling spontaneous emission rate of colloidal quantum dots," *Journal of Research on Many-body Systems* **6**(12), 53-61 (2016).
- 40- Mehdi Heydari, **Mohammad Sabaiean**, and Narges Ajamgard, "The influence of silver nanopyramids on the optical absorption in the plasmonic organic photovoltaic cells," *Journal of Research on Many-body Systems* **6**(12), 63-70 (2016).

- 41- **Mohammad Sabaeian**, Hamidreza Rezaei, “An analytical model for top-hat long transient mode-mismatched thermal lens spectroscopy”, *Journal of the European Optical Society-Rapid publications* **11**, 16004 (2016).
- 42- Seyedeh Laleh Mousvi and **Mohammad Sabaeian**, “Thermal stress-induced depolarization loss in conventional and panda-shaped photonic crystal fiber lasers,” *Brazilian Journal of Physics* **46**, 481-488 (2016).
- 43- **Mohammad Sabaeian**, Hamidreza Rezaei, Abdolmohammad Ghalambor-Dezfouli, “Time-resolved thermal lens spectroscopy with single-pulsed laser excitation beam: An analytical model for dual-beam mode-mismatched experiments,” *Applied Optics* **56**(4), 999-1005 (2017).
- 44- **Mohammad Sabaeian** and Maryam Riyahi, “Truncated pyramidal-shaped InAs/GaAs quantum dots in the presence of a vertical magnetic field: An investigation of THz wave emission and absorption,” *Physica E* **89**, 105–114 (2017).
- 45- Mehdi Heydari and **Mohammad Sabaeian**, “Plasmonic nanogratings on MIM and SOI thin-film solar cells: comparison and optimization of optical and electric enhancements,” *Applied Optics* **56**(7), 1917-1924 (2017)
- 46- Azadeh Ebrahimzadeh, Alireza Mojtaba, Ali Shiri, Seyed Mehdi Mousavi, and **Mohammad Sabaeian**, “Design and construction of xenon flash-lamp pumped solid-state laser and measuring some physical parameters,” *Journal of Research on Many Body Systems* **13**(7), 113-122 (1396).
- 47- Sheida Namniha, **Mohammad Sabaeian**, and Mansoor Farbod, “Fabrication and characterization of two-layered polymer light emitting diode with a structure of ITO/PEDOT:PSS/ MEH:PPV/Al,” *Journal of Research on Many Body Systems* (Accepted, 2017).
- 48- Narges Kafaei and **Mohammad Sabaeian**, “Two-band k.p Hamiltonian of phosphorene based on the infinitesimal basis transformations approach,” *Superlattices and Microstructures* **109**, 330-336 (2017).
- 49- Mahbube Khabbaz, **Mohammad Sabaeian**, and Hamid Nadgaran, “Heat coupled Gaussian continuous-wave double-pass optical parametric oscillator: thermally induced phase mismatching for periodically poled MgO:LiNbO₃ crystal” *Applied Optics* **56**(23), 6419-6426 (2017).
- 50- **Mohammad Sabaeian** and Maryam Riyahi, “Truncated pyramidal-shaped InAs/GaAs quantum dots in the presence of a vertical magnetic field: An investigation of THz wave emission and absorption,” *Physica E* **89**, 105-114 (2017).
- 51- Khadijeh Beiranvand, Abdolmohammad Ghalambor-Dezfouli, and **Mohammad Sabaeian**, “Infinitesimal base transformations method for calculating the k.p Hamiltonian of monolayer MoS₂,” *Superlattices and Microstructures* **110**, 180-190 (2017).
- 52- Khadijeh Beiranvand, Abdolmohammad Ghalambor-Dezfouli, and **Mohammad Sabaeian**, “Three-band k.p Hamiltonian of monolayer MoS₂ based on the group theory and infinitesimal basis transformations approach” *Physica B: Condensed Matter* **527**, 66-71 (2017).
- 53- Majid Shahriari, Abdolmohammad Ghalambor Dezfouli, and **Mohammad Sabaeian**, “Band structure and orbital character of monolayer MoS₂ with eleven-band tight-binding model,” *Superlattices and Microstructures* **114**, 169-182 (2018).
- 54- Narges Kafaei, **Mohammad Sabaeian**, and Abdolmohammad Ghalambor-Dezfouli, “The blue phosphorene: Calculation of five-band k.p Hamiltonian based on the group theory and infinitesimal basis transformations approach” *Physics and Chemistry of Solids* **118**, 1-5 (2018).
- 55- **Mohammad Sabaeian**, Zeinab Nazari-Tarkarani, Azadeh Ebrahimzadeh, “Design and construction of a home-made and cheaper argon arc lamp” *Optical Review*, 25(4), 493-499 (2018).
- 56- Mojtaba Narimousa, **Mohammad Sabaeian**, and Seyed Mehdi Mousavi Ghahfarrokhi, “Second-order autocorrelation measurements for group velocity dispersion and pulse broadening of femtosecond pulses passing through Ti:sapphire, BK7, and fused silica” *Applied Optics* **57**(18), 5011-5018 (2018).
- 57- Narges Kafaei, Khadijeh Beiranvand, **Mohammad Sabaeian**, Abdolmohammad Ghalambor Dezfouli, and Han Zhang, “Spin-dependent k.p Hamiltonian of Black phosphorene based on the Löwdin partitioning method” *Journal of Applied Physics* **124** (3), 035702 (2018).
- 58- K Beiranvand, Abdolmohammad Ghalambor Dezfouli, **Mohammad Sabaeian**, A two-band spinful k.p Hamiltonian of monolayer MoS₂ from a nine-band model based on group theory, *Superlattices and Microstructures* **120**, 812-823 (2018).
- 59- Majid Shahriari, Abdolmohammad Ghalambor Dezfouli, **Mohammad Sabaeian**, “Investigation of uniaxial and biaxial strains on the band gap modifications of monolayer MoS₂ with tight-binding method,” *Superlattices and Microstructures* **125**, 34-57 (2019).

Books

1. Translation of “Quantum Mechanics, Concepts and Applications,” Vol. **1**, N. Zettitli, Publisher: John Wiley” from English to Persian.
2. Translation of “Quantum Mechanics, Concepts and Applications,” Vol. **2**, N. Zettitli, Publisher: John Wiley” from English to Persian.
3. Computational Physics (a graduated text), Shahid Chamran University of Ahvaz, Iran.

Peer-Reviewed conference presentations

1. M. Afkhami-Garaei, **M. Sabaeian** and H. Nadgaran, “Design and Modeling of low-temperature fiber sensor based on microdisk whispering gallery modes,” *Proc. IEEE, Photonic Global Conference (PGC) Singapore*, 1-3, (2011).
2. **M. Sabaeian**, H. Nadgaran, Z. Kargar, S. Sheikhi and M. Afkhami-Garaei, “Gamma-ray sensor based on microdisk whispering gallery modes,” *Proc. SPIE*, Vol. 8073, 80730R-1:7 (2011).

3. A. Khaledi-Nasab, M. Shahzadeh, H. Amouzegar and **M. Sabaecian**, "Intersubband electronic properties of InAs/GaAs quantum dot molecules with horizontal spacer," The 2nd Asian Symposium on Electromagnetic and Photonics Engineering, August 28-30, 2013, Tabriz, Iran.
4. **M. Sabaecian**, H. Nadgaran, M. De Sario, L. Mescia and F. Prudenzeno, "Thermal effects on octagonal fiber laser," Photoluminescence in Rare Earths: Photonic Materials and Devices, 31May-1June (2007), Trento, Italy.
5. **M. Sabaecian**, H. R. Rezaei and H. Nadgaran, "Mechanical force sensing by dual-core photonic crystal fiber," The 14th OptoElectronics and Communications Conference, July 2009, Hong-Kong.
6. L. Mousave, **M. Sabaecian** and H. Nadgaran, "The influence of thermal effects on the efficiency and intensity of the second harmonic waves in KTP type-II crystals, 15th international School on Quantum Electronics "Laser Physics and Applications", 15-19 September 2008, Bourgas, Bulgaria.
7. H. Nadgaran and **M. Sabaecian**, "Measurement of liquids surface tension by diffraction of laser beam", 10th Annual Conference of Photonics, January 2004, Mahan, Kerman, Iran.
8. L. Mousave, **M. Sabaecian** and H. Nadgaran, "Investigation of thermally-induced Phase mismatching in second harmonic generation," The 1st National Conference on Optics and Laser engineering, 20-21 May (2009), Shahin-Shahr, Isfahan, Iran.
9. **M. Sabaecian** and H. R. Rezaei, "Designing a pressure sensor based on dual-core photonic crystal fiber," The 1st National Conference on Optics and Laser engineering, 20-21 May (2009), Shahin-Shahr, Isfahan, Iran.
10. **M. Sabaecian**, L. Shahmandi and M. M. Gharabeigi, "Calculation of temperature distribution and thermal lensing in Nd:YAG laser crystal under flash lamp repetitive pump, The 1st National Conference on Optics and Laser engineering, 20-21 May (2009), Shahin-Shahr, Isfahan, Iran.
11. L. Mousave, **M. Sabaecian** and H. Nadgaran, "Influence of induced heat on mode characteristics of high power photonic crystal fiber laser," 10th international conference on fiber optics and photonics, 11-15 December 2010, Guwahati, India.
12. **M. Sabaecian**, H. Nadgaran and L. Mousave, "Investigation of thermo-optical properties of CdTe nano-particle solution by transient thermal lens spectroscopy," 3rd Iranian student Conference on Nano Technology, 6-9 February (2008), Shiraz, Iran.
13. H. Nadgaran, **M. Sabaecian** and L. Mousave, "Investigation of thermal dispersion and thermally-induced birefringence on high-power double-clad Yb:glass fiber laser, " 14th Annual Conference of Optics and Photonics, 29 January-1 February, 2007, Vali-e-Asr University, Rafsanjan, Iran.
14. **M. Sabaecian**, H. Mokhtari and L. Shahmandi, "Analytical solution of transient heat equation and calculation of thermal lensing for flash lamp side-pumped Nd:YAG laser, "15th Iranian Conference on Optics and Photonics and 1st Iranian Conference on Photonics Engineering, University of Isfahan, 27-29 January 2009, Isfahan, Iran.
15. M. Servatkah, H. Nadgaran, **M. Sabaecian** and S. Hosseini, "Mathieu-Gauss beams, A thermal consideration," 15th Iranian Conference on Optics and Photonics with 1st Iranian Conference on Photonics Engineering, University of Isfahan, 27-29 January 2009, Isfahan, Iran.
16. H. Nadgaran and **M. Sabaecian**, "Investigation of the Thermal Induced-Stresses and Birefringence in Nd:YAG Solid State Laser," 13th Iranian Conference on Optics and Photonics, The Center for Communications Researches, 7-9 February (2005), Tehran, Iran.
17. **M. Sabaecian** and A. Khaledi-Nasab, "Investigation of size effect on energies and wave functions of dome and cylindrical InAs/GaAs quantum dots," 17th Iranian Conference on Optics and Photonics, 9-11 February (2011), Mahan, Iran.
18. **M. Sabaecian** and M. T. Etebar, "Investigation of second cladding thickness on reducing thermal effects in high-power Yb:Glass fiber laser," 17th Iranian Conference on Optics and Photonics, 9-11 February (2011), Mahan, Iran.
19. H. Nadgaran, **M. Sabaecian**, M. Afkhami-Garai and S. Sheikhi, "Design of sensors based on WGM modes and its application as pressure sensor," 17th Iranian Conference on Optics and Photonics, 9-11 February (2011), Mahan, Iran.
20. **M. Sabaecian** and M. Baghalaei, "Design and Modeling of Biological Liquid Temperature Sensor Based on Fiber-Coupled Microdisk Whispering Gallery Modes", The 2nd International Conference on Optics and Laser engineering, May (2011), Shahin-Shahr, Isfahan, Iran.
21. **M. Sabaecian** and M. Falatoun-zadeh, "The influence of thermal dispersion and stresses on Gaussian beam propagation in Nd:YAG solid-state laser crystal," The 2nd International Conference on Optics and Laser engineering, May (2011), Shahin-Shahr, Isfahan, Iran.
22. H. Nadgaran, R. Pourmand and **M. Sabaecian**, "Thermally-induced stress impact on polymer fiber Bragg grating illuminated by LED's," The 2nd International Conference on Optics and Laser Engineering, May (2011), Shahin-Shahr, Isfahan, Iran.

23. **M. Sabaecian**, M. R. Shahzadeh and F. Khodarahmi, "Simulation of human tooth temperature distribution under CO₂ laser pulse," Laser in Medicine National Congress, 16th-18th February 2011, Imam Khomeini Hospital, Tehran, Iran.
24. F. Sedaghat, M. Mohammad-Rezaee, A. Moatazedian, and **M. Sabaecian**, "Investigation of temperature-induced phase mismatching effect in efficiency and temperature band width of second harmonic generation in double-pass KTP type II crystal," 18th Iranian Conference on Optics and Photonics (ICOP2012), Tabriz, Iran.
25. M. Mohammad Rezaee, F. Sedaghat, A. Moatazedian, and **M. Sabaecian**, "Calculation of temperature distribution in nonlinear crystal under repetitive short pulsed pump by FDM," 18th Iranian Conference on Optics and Photonics (ICOP2012), Tabriz, Iran.
26. **M. Sabaecian** and A. Khaledi-Nasab, "Refractive index variations in InAs/GaAs dome-shaped quantum dot via size alteration," 18th Iranian Conference on Optics and Photonics (ICOP2012), Tbriz, Iran.
27. **M. Sabaecian** and A. Askari, "Analytical investigation of importance of source term in shor-transient heat equation in metal heating with pulsed laser," 5th Payam-e-Noor University National Conference on Physics, 6-7 October (2011).
28. A. Motazedian, M. Mohammad-Rezaee, F. Sedaghat Jalil-Abadi, **M. Sabaecian**, "Temperature distribution of a solid-state crystal under repetitive Bessel-Gauss pulses," Iran Annual Physics Conference, September 2012, Yazd, Iran.
29. M. Moghbelhossein, A. Askari, and **M. Sabaecian**, "Analytical investigation of effect of welding parameters on electron beam welding in the free vacuum environment," Iran Annual Physics Conference, September 2012, Yazd, Iran.
30. H. Liaghat and **M. Sabaecian**, "Investigation of nano-silver layer on mode characteristics of a plasmonic hollow-core photonic crystal fiber, Iran Annual Physics Conference, September 2012, Yazd, Iran.
31. L. Mousavi and **M. Sabaecian**, "Simulation of temperature, thermal stresses, and thermally-affected electric fields of a photonic crystal fiber laser," Iran Annual Physics Conference, September 2012, Yazd, Iran.
32. A. Askari, M. Moghbelhossein, and **M. Sabaecian**, "Investigation of electron beam parameters on temperature distribution of metal under welding in vacuum with finite element method" National Conference on Finite Element Method in Applied Physics, Mahan, Kerman (27 September 2011).
33. M. Mousavi and **M. Sabaecian**, "Calculation of thermally-induced birefringence and depolarization loss for high power photonic crystal fiber lasers with finite element method," National Conference on Finite Element Method in Applied Physics, Mahan, Kerman (27 September 2011).
34. H. Liaghat and **M. Sabaecian**, "Field intensity control in plasmonic hollow-core photonic crystal fiber by silver nano-layer," National Conference on Finite Element Method in Applied Physics, Mahan, Kerman (27 September 2011).
35. A. Moatazedian, M. MohammadRezaee, F. Sedaghat, and **M. Sabaecian**, "Calculation of temperature distribution in end-pumped nonlinear KTP crystal under a Bessel-Gauss pulses by using FEM and FEM," National Conference on Finite Element Method in Applied Physics, Mahan, Kerman (27 September 2011).
36. F. Sedaghat, M. MohammadRezaee, A. Moatazedian, and **M. Sabaecian**, "Comparison of FEM and FDM in calculation of temperature distribution in end-pumped nonlinear KTP crystal," National Conference on Finite Element Method in Applied Physics, Mahan, Kerman (27 September 2011).
37. **M. Sabaecian** and A. Khaledi-Nasab, "3D simulations of coupled InAs/GaAs quantum dots energy levels using the finite element method," National Conference on Finite Element Method in Applied Physics, Mahan, Kerman (27 September 2011).
38. **M. Sabaecian** and M. Shahzadeh, "Simulation of human tooth temperature and thermally-induced stresses under CO₂ pulsed laser beams by using finite element method," National Conference on Finite Element Method in Applied Physics, Mahan, Kerman (27 September 2011).
39. **M. Sabaecian** and A. Khaledi-Nasab, "3D simulations of coupled InAs/GaAs quantum dots energy levels using finite element method," *Proc. Nat. Conf. Finite Element Method in Applied Physics*, Mahan, Iran, pp. 89-95, 2012.
40. **M. Sabaecian** and M. Shahzadeh, "Simulation of human tooth temperature and thermally-induced stresses under CO₂ pulsed laser beams using finite element method," *Proceeding National Conference on Finite Element Method in Applied Physics*, Mahan, Iran, pp. 1-6, 2012.
41. M. Mohammadrezaee, A.Parsafar, and **M. Sabaecian**, "Reduction of calculations time and required memory in solving time-dependent heat equation with repetitively short pulsed source in Cylindrical coordinates," *Proceeding First National Conference on computational Science*, Damghan University, Damghan, Iran, pp. 138-142, 2012.
42. A. Parsafar, M. Mohammadrezaee, and **M. Sabaecian**, "A comparison between temperature distribution in a nonlinear crystal with temperature-independent and temperature-dependent thermal conductivity constants by FDM and FEM," *Proc. Conf. Computational Science*, Damghan University, Damghan, Iran, pp. 133-137, 2012.

43. A. Khaledi-Nasab, **M. Sabaiean**, M. Sahrai, and V. Fallah, "Size-dependent optical rectification on three levels InAs/GaAs quantum dot with its wetting layer," *Proceeding 19th Iranian Conference on Optics and Photonics*, Zahedan, Iran, 405-408, 2012.
44. **M. Sabaiean**, M. Shahzadeh, A. Khaledi-Nasab, and S. A. Hosseini, "Investigation of wave function, energy spectrum, and spontaneous emission lifetime of InAs/GaAs quantum dot molecule with wetting layer", Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
45. M. Sabaiean, and M. Shahzadeh, "Energy levels of heterostructure pyramid-shaped InAs/GaAs quantum dot with perturbation potential due to lattice strain", Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
46. **M. Sabaiean** and M. Shahzadeh, "Simulation and comparison of human tooth temperature under 10.6 μm CO₂ single pulse and successive laser pulses", Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
47. A. Khaledi-Nasab, M. Shahzadeh, H. Amouzegar and **M. Sabaiean**, "Intersubband electronic properties of InAs/GaAs quantum dot molecules with horizontal spacer," The 2nd Asian Symposium on Electromagnetic and Photonics Engineering, August 28-30, 2013, Tabriz, Iran.
48. S. A. Hosseini, M. Shahzadeh, A. Khaledi-Nasab, and **M. Sabaiean**, "Investigation of size effect on lifetime of cone-shaped quantum dot," The 3rd Iranian Conference on Optics and Laser Engineering, October 9-10, 2013, Shahin Shahr, Isfahan, Iran.
49. A. Motazedian, M. Mohammad-Rezaee, F. Sedaghat Jalilabadi, A. Parsafar, **M. Sabaiean**, "Calculation of induced phase mismatching as a result of thermal effect in a solid-state KTP crystal under repetitive Bessel-Gauss pulses Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
50. A. Parsafar, M. Mohammad-Rezaee, A. Motazedian, F. Sedaghat Jalilabadi, **M. Sabaiean**, "High intensity pumped KGW Raman generator: Stokes induced heating and phase ", Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
51. F. Sedaghat Jalil-Abadi, M. Mohammad-Rezaee, A. Motazedian, A. Parsafar, **M. Sabaiean**, "3D Numerical simulation of type II CW second harmonic generation in double pass cavity", Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
52. F. SedaghatJalilabadi, M. Mohammad-Rezaee, A. Motazedian, A. Parsafar, **M. Sabaiean**, "Calculation of thermally-induced phase-mismatching in type II second harmonic generation for a Gaussian CW end-pumped KTP", Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
53. M. Mohammad-Rezaee, A. Motazedian, F. Sedaghat Jalilabadi, A. Parsafar, **M. Sabaiean**, "Gaussian Pulsed type II second harmonic generation: a simulation for 3D coupled wave equations," Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
54. M. Mohammad-Rezaee, A. Motazedian, F. Sedaghat Jalilabadi, A. Parsafar, **M. Sabaiean**, "Calculation of time-space dependent thermally induced phase mismatching in nonlinear crystals under Gaussian repetitively pulsed pumping: a case study on KTP", Annual Physics Conference of Iran, August 26-29, 2013, Birjand, Iran.
55. S. A. Hosseini, M. Shahzadeh, A. Khaledi-Nasab, **M. Sabaiean**, "Investigation of size effect on lifetime of cone-shaped quantum dot," The 3rd Iranian Conference on Optics & Laser Engineering, October 9-10, 2013, Shahin-Shahr, Isfahan, Iran.
56. M. Heydari, N. Ajamgard, and **M. Sabaiean**, "The effect of Ag nano-strip cross section on field density enhancement in absorption layer of plasmonic solar cell," The 3rd Iranian Conference on Optics & Laser Engineering, October 9-10, 2013, Shahin-Shahr, Isfahan, Iran.
57. L. Mousavi, M. Mohammadrezaee, H. Askari, and **M. Sabaiean**, "Numerical simulation of self-doubler NYAB laser efficiency," The 3rd Iranian Conference on Optics & Laser Engineering, October 9-10, 2013, Shahin-Shahr, Isfahan, Iran.
58. A. Motazedian, M. Mohammadrezaee, F. Sedaghat Jalilabadi, A. Parsafar, and **M. Sabaiean**, "Numerical simulation of pulsed Bessel-Gauss type II second harmonic generation," The 3rd Iranian Conference on Optics & Laser Engineering, October 9-10, 2013, Shahin-Shahr, Isfahan, Iran.
59. M. Shahzadeh and M. Sabaiean, "Investigation of eigen-energies, envelop functions, transition lifetime and linear absorption for a 3D InAs/GaAs quantum dot and a 3D InAs/In_{0.2}Ga_{0.8}As/GaAs Quantum Dot-in-a-Well (DWELL)," The 20th Iranian Conference on Optics and Photonics, Shiraz (2014).
60. M. Heydari, N. Ajamgard, and M. Sabaiean, "Optical absorption enhancement in ultra-thin solar cells using plasmonic excitation in noble metallic nano-strips," 2nd National Conference on Nano-Science and Nano-Technology, Tehran, Iran (2015).
61. N. Ajagard, M. Heydari, and M. Sabaiean, "Quality factor of photonic crystal based microcavities aimed to enhance in spontaneous emission of atomic emitters," 2nd National Conference on Nano-Science and Nano-Technology, Tehran, Iran (2015).

62. Sheida Namniha, Mohammad Sabaeian, and Mansoor Farbod, "Fabrication and analysis of single- to four-layer light emitting diodes based on an active layer of MEH:PPV," Proceeding of Iranian Annual Physics Conference, Shiraz, 2016.
63. Azadeh Ebrahimzadeh, Alireza Mojtaba, Ali Shiri, Seyed Mehdi Mousavi, Mohammad Sabaeian, "Design, construction, and optimization of a diode-side-pumped solid-state Nd:YAG laser and measuring some output beam parameters," Proceeding of Iranian Annual Physics Conference, Shiraz, 2016.
64. M. Juodaki, M. Heidary, M. Sabaeian, "...," Proceeding of Iranian Annual Physics Conference, Shiraz, 2016.
65. S. Baham Bakhtiari, M. Zargar Shoushtari, and M. Sabaeian, "The process of synthesizing SrAl₂O₄ nanoparticles by combustion method using microwave," 8th National Payam-e-Noor Conference on Physics, Shiraz Payam-e-Norr University, Shiraz.
66. Z. Zare, M. Sabaeian, Fatima Matroodi, "The modeling of thermally induced phase mismatching in a pulsed optical parametric oscillator in KTP crystal," Proceeding of Iranian Annual Physics Conference, Yazd, Aug. 2017.
67. M. Zargar Shoushtari, S. Baham Bakhtiari, and M. Sabaeian, "Synthesis of Strontium Aluminate Nanoparticles Doped with Dysprosium (SrAl₂O₇:Dy) and Study of their Structural and Optical Properties," 8th International Conference on Nanostructures, Tehran, March 2018.
68. E. Pouyanimehr, M. Sabaeian, R. Azadi, F. Matroodi, "Remote Spectrometry of explosive and organic materials through the generation of DC plasma," Proceeding of Iranian Annual Physics Conference, Yazd, Aug. 2017.
69. Z. Radrashid, M. Zargar Shoushtari, M. Sabaeian, "Synthesis and study of strontium aluminate nanoparticles properties and doping them with europium," 25th National Conference on Crystallography and Mineralogy, Yazd, Jan. 2018.
70. Kh. Beiranvand, A. Ghalambor-Dezfuli, and M. Sabaeian, "k.p Hamiltonian of monolayer MoS₂ based on the infinitesimal basis transformations perturbation theory," ANNUAL ADVANCED INTERNATIONAL SCHOOL ON LOW DIMENSIONAL SYSTEMS, Tabriz, May 2016

Supervised theses:

BSc students

- 1) Seyed Akbar Hossini (**BSc. thesis**), **Holography: Concepts, applications and fabrication**, Shahid Chamran University of Ahvaz, Iran (2009).
- 2) Ali Khaledi-Nasab (**BSc. thesis**), **Semiconductor quantum dots**, Shahid Chamran University of Ahvaz, Iran (2011).
- 3) Mohammadreza Shahzadeh (**BSc. thesis**), **Simulation of temperature and thermally-induced stress of human tooth under CO₂ pulsed laser beams using finite element method**, Shahid Chamran University of Ahvaz, Iran (2011).
- 4) Mohsen Baghalaei (**BSc. thesis**), **Biological temperature sensor based on fiber-coupled microdisk whispering gallery modes**, Shahid Chamran University of Ahvaz, Iran (2012).
- 5) Mina Afsharnia, **High performance computations based on GPU**, Shahid Chamran University of Ahvaz, Iran (2013).
- 6) Shirin Saki, **Study of flash-lamps for solid-state lasers**, Shahid Chamran University of Ahvaz, Iran (2014).
- 7) Hamed Amouzgar, **Fabrication of 2.4 m diameter optical reflector for laser applications**, Shahid Chamran University of Ahvaz (2014).
- 8) Hossein Khalili, **Photomultiplier Tube, Concepts, Design, and Circuits**, Shahid Chamran University of Ahvaz, Iran (2016).
- 9) Mina Behruzin, **Lock-in Amplifier**, Shahid Chamran University of Ahvaz, Iran (2017).
- 10) Mahshid Ya-Ali, **XUV spectroscopy**, Shahid Chamran University of Ahvaz, Iran (2017).
- 11) Zeinab Sajjadi, **Diffraction Elements**, Shahid Chamran University of Ahvaz, Iran (2018).

MSc students

- 1) Hamidreza Rezaei (**MSc. thesis**), **Designing a stress sensor based on dual-core photonic crystal fiber**, Islamic Azad University, Qom Branch, Qom, Iran (2009).
- 2) Elham Maghamianzadeh (**MSc. thesis**), **Investigation of beam quality of solid-state laser output under thermal effects**, Islamic Azad University, Central Tehran Branch, Tehran, Iran (2012).
- 3) Maryam Falatounzadeh (**MSc. thesis**), **Investigation of thermal effects on solid-state beam quality**, Islamic Azad University, Central Tehran Branch, Tehran, Iran (2012).
- 4) Leila Shahmandi (**MSc. thesis**), **Investigation of thermal effects in flash lamp side pumped solid-state Nd:YAG pulsed lasers**, Yazd University, Iran (2009).

- 5) Heydar Liaghat (MSc. thesis), *Investigation of metal nano-layer on mode characteristics of photonic crystal fiber*, Islamic Azad University, Fars Science and Research Branch, Iran (2012).
- 6) Azam Askari (MSc. thesis), *Time-dependent solution for heat equation in electron beam welding*, Shahid Chamran University of Ahvaz, Iran (2012).
- 7) Fatemeh Sedaghat Jalilabadi, “*An investigation of thermally-induced phase mismatching effect in KTP crystal type-II double-pass cavity CW SHG*” Shahid Chamran University of Ahvaz, Iran (2013).
- 8) Alireza Motazedian, “*An investigation of efficiency and filed profile of quasi-nondiffracting Bessel-Gauss beams in pulsed second harmonic generation under thermal effects*” Shahid Chamran University of Ahvaz, Iran (2013).
- 9) Mostafa Mohammadrezaee, “*Heat-Pulsed second harmonic generation coupling: A theoretical model*” Shahid Chamran University of Ahvaz, Iran (2013).
- 10) Ali Khaledi-Nasab (MSc. thesis), *Kerr effect in dome-shaped InAs/GaAs quantum dots molecules*, Bonab University, Iran (2013).
- 11) Bahman Rezaei (MSc. thesis), *Investigation of optical properties of micricavities based 2D metallic photonic crystals*, Payam-e-noor University, Ahvaz, Iran (in progress).
- 12) Hassan Mohammadi (MSc. thesis), *Investigation of plasmonic excitation of metallic nano-particles in photovoltaic solar cells*, Payam-e-Noor University, Ahvaz, Iran (in progress).
- 13) Seyed Azadi Hossini (MSc. thesis), *Size dependent emission properties of In_xGa_{1-x}As/GaAs conical-shaped quantum dot lasers*, Shahid Chamran University of Ahvaz, Iran (2014).
- 14) Mohammadreza Shahzadeh (MSc. thesis), *Investigation of electronic and optical properties of pyramid-shaped quantum dots with strain and wetting layer effects*, Shahid Chamran University of Ahvaz, Iran (2014).
- 15) Maryam Maktabi (MSc thesis), *Quantum dot based photo detectors*, Payam-e-noor University, Ahvaz, Iran.
- 16) Mehdi Heydari (MSc thesis), *The influence of noble metal nano-strips on optical absorption of ultra-thin silicon solar cells*, Shahid Chamran University of Ahvaz, Iran (2015).
- 17) Rahimeh Nasser (MSc thesis), *Investigation of exciton excitation in dome-shaped InN/GaN quantum dots*, Payam-e-noor University, Ahvaz, Iran (2015).
- 18) Narges Ajamgard (MSc thesis), *An investigation of spontaneous emission rate of quantum dots in a plasmonic photonic crystal microcavity*, Shahid Chamran University of Ahvaz, Iran (2015)
- 19) Sheida Namniha, “*Fabrication of Organic light emitting diode using thermal evaporation and spin-coating deposition methods*” Shahid Chamran University of Ahvaz, Iran (2016).
- 20) Azadeh Ebrahimzadeh (MSc thesis), *Design and fabrication of a side-pumped solid-state Nd:YAG laser using commercial xenon lamp*, Shahid Chamran University of Ahvaz, Iran (2016).
- 21) Zeinab Nazari (MSc thesis), *Design and fabrication of krypton flash- and arc-lamps and its optimization for laser applications*, Shahid Chamran University of Ahvaz, Iran (2016)
- 22) Narges Rajabinasab (MSc thesis), *Design and construction of high power gas flow CO₂ laser*, Shahid Chamran University of Ahvaz, Iran (2016).
- 23) Majid Dindar (MSc thesis), *Ti:sapphire laser pumped ion Argon laser*, Shahid Chamran University of Ahvaz, Iran (2016).
- 24) Mahboubeh Khabbaz (MSc thesis), *An investigation of thermally-induced phase mismatching in Mgo:PPLN continuous wave optical parametric oscillator double-pass cavity in infrared region*, University of Shiraz (2016).
- 25) Mahyar Joudaki (MSc thesis), *An investigation of Fano effect in crescent-shaped plasmonic nanostructures*, Shahid Chamran University of Ahvaz, Iran (2017).
- 26) Azardokht pouladzadeh (MSc thesis), *Chemical vapor deposition of graphene on copper substrate for gas sensing and light detection applications*, Shahid Chamran University of Ahvaz, Iran (2017).
- 27) Azimeh Nikandish (MSc thesis), *An analytical model for second harmonic generation under thermal effects*, Shahid Chamran University of Ahvaz, Iran (2017).
- 28) Farzaneh Kouravand (MSc thesis), *Investigation of plasmonic excitation in thin metal films*, Payam-e-noor University, Ahvaz, Iran.
- 29) Elham Pouyanimehr (MSc thesis), *Trace detection of explosive materials by laser remote sensing*, Shahid Chamran University of Ahvaz, Iran.
- 30) Zeinab Zarei (MSc thesis), *Investigation of thermal effects on optical parametric oscillator in mid-IR region*, Shahid Chamran University of Ahvaz, Iran.
- 31) Mojtaba Narimousa (MSc thesis), *Modeling and analysis of group velocity dispersion in femtosecond solid-state laser system in the Bessel-Gauss mode and designing its experimental setup*, Shahid Chamran University of Ahvaz, Iran.

- 32) Zeinab Zambouri (MSc thesis), *An investigation of plasmonic properties of graphene nonribbon on two-dimensional hexagonal boron nitride*, Shahid Chamran University of Ahvaz, Iran..
- 33) Zeinab Hardani (MSc thesis), *Non-perturbative study of super-high intense laser interaction with atomic aimed to high-order harmonic generation*, Shahid Chamran University of Ahvaz, Iran (in progress).
- 34) Hossein Hayat Davoudi (MSc thesis), *Measurement of nonlinear optical properties of Selenide compound nanoparticles by Z-scan and thermal lens spectroscopy techniques*, Shahid Chamran University of Ahvaz, Iran (in progress)

PhD students

- 1) Alaeddin Sayahian Jahromi (PhD thesis supervisor), *“Investigation of thermal effects in Er fiber lasers: Direct and ab initio coupling of thermal equation and rate equations,”* The University of Shiraz, Iran (2103).
- 2) Kobra Rahmani (PhD thesis, Advisor), *Plasmonic based biological sensors*, Shahid Chamran University of Ahvaz, Iran.
- 3) Azar Sadollahkhani (PhD thesis advisor), *Synthesis of core-shell nanostructure based on zinc oxide and investigation of the effect of different shells on their band gap and optical and photocataytic properties*, Shahid Chamran University of Ahvaz, Iran.
- 4) Narges Kafaei (PhD thesis supervisor), *k.p matrix representation of two-dimensional blue and black phosphorene*, Shahid Chamran University of Ahvaz, Iran (2018).
- 5) Hamidreza Rezaei (PhD thesis supervisor), *Development of theoretical models and experimental investigation of useful and destructive thermal effects in continuous and femtosecond pulsed pumping laser systems*, Shahid Chamran University of Ahvaz, Iran (in progress).
- 6) Khadijeh Beiranvand (PhD thesis co-supervisor), *Calculation of some electronic and optical properties of MoS₂ monolayer with k.p model*, Shahid Chamran University of Ahvaz, Iran (in progress).
- 7) Maryam Riyahi (PhD thesis co-supervisor), *Design and fabrication of photonic microwaveguide in the presence of graphene*, Shahid Chamran University of Ahvaz, Iran (in progress).
- 8) Majid Shahriari (PhD thesis co-supervisor), *Calculation of electronic and optical properties of MoS₂ by using tight-binding model*, Shahid Chamran University of Ahvaz, Iran (in progress).
- 9) Masoomeh Dehghanian (PhD thesis supervisor), *Macroscopic aspects of attosecond pulse generation*, Shahid Chamran University of Ahvaz, Iran (in progress).
- 10) Marjan Zakavi, *Non-perturbative, relativistic, and beyond dipole approximation study of super-high intense laser interaction with atomic gases aimed to generate high-order harmonics*, Shahid Chamran University of Ahvaz, Iran (in progress).
- 11) Azadeh Ebrahimzadeh (PhD thesis supervisor), *Nanoscle attophysics*, Shahid Chamran University of Ahvaz, Iran (in progress).

References:

- 1) Prof. Hamid Nadgaran, Department of Physics, University of Shiraz, Shiraz, Iran.
E-mail: nadgaran@susc.ac.ir
- 2) Prof. Mojtaba Jafarpour, Department of Physics, Shahid Chamran University of Ahvaz, Ahvaz, Iran.
E-mail: mojtaba_jafarpour@hotmail.com
- 3) Prof. Irej Kazeminezhad, Department of Physics, Shahid Chamran University of Ahvaz, Ahvaz, Iran.
Ikazeminezhad@scu.ac.ir
- 4) Prof. F. Prudenzano, Faculta di Taranto, Politecnico de Bari, Italy.
E-mail: prudenzano@poliba.it
- 5) Prof. Han Zhang, Shenzhen Engineering Laboratory of Phosphorene and Optoelectronics, Shenzhen University, Shenzhen.
E-mail: hzzhang@szu.edu.cn
- 6) Prof. Ali Hatef, Nipissing University, Canada.
E-mail: alih@nipissingu.ca