Curriculum Vitae

First name: Mohammad
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Date of birth: 8 Feb. 1979
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Employments:

2024-Now: Professor of Atomic Physics and Optics, Physics Department, Faculty of Science, Shahid Chamran University (SCU) of Ahvaz, Ahvaz, Iran.
2016-2024: 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:

2022-Now: Head of Physics Department, Faculty of Science, SCU of Ahvaz.
2019-2022: Vice President of Research and Technology, Faculty of Science, SCU of Ahvaz.
2015-2021: Topical Editor of Applied Optics journal (OSA).
2020-Now: Editorial member of Journal of Research on Many Body Systems (SCU of Ahvaz).
2016-Now: Manager of Center for Research on Laser and Plasma (CRLP), 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-chanel 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 Prudenzano
- **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:

- **PhD Scholarship Recipient**, *Ministry of Science, Research, and Technology (MSRT), Iran*, Full scholarship awarded during doctoral studies for academic excellence and research potential (2003-2008)
- **Top Researcher of Khuzestan Province**, *Selected by the Ministry of Science, Research, and Technology (MSRT), Iran*, Honored as the leading researcher in Khuzestan Province for outstanding scientific achievements and contributions to research, Year: 2018

- **Top 3 Undergraduate Student**, *SCU of Ahvaz*, Graduated among the top three students in the Bachelor's program based on cumulative GPA and academic excellence, Field of Study: Physics, Graduation Year: 2001.
- **Outstanding Physics Teacher**, City of Shiraz, Iran, Recognized as the top physics teacher in Shiraz for excellence in teaching and student achievement, Awarded in: 2002.
- **Outstanding Invited Lecturer**, *Islamic Azad University, Dezful Branch*, Recognized as the best invited lecturer by the university's committee for excellence in lectures and academic contribution, Awarded in: 2008.
- **Best Paper Presentation Award**, *1st National Conference on Laser and Optics Engineering, Iran*, Iran (2009).
- **Best Paper Presentation Award**, *3rd National Conference on Laser and Optics Engineering, Iran*, Iran (2013).
- Supervisor of the best MSc student's thesis (Mohammadreza Shahzadeh) of SCU in 2013.
- **Outstanding Researcher Award**, *SCU of Ahvaz*, Recognized as the top researcher of the year for exceptional research achievements and scientific contributions, Awarded in 2015.
- **Best poster presentation Award**, Iranian Annual Physics Conference, Shiraz, 2016.
- **Outstanding Researcher Award**, *SCU of Ahvaz*, Recognized as the top researcher of the year for exceptional research achievements and scientific contributions, Awarded in 2016.
- **Multiple-Time Top Research Grant Recipient**, *SCU of Ahvaz*
- **Outstanding Researcher Award**, *Shahid Chamran University of Ahvaz*, Recognized as the top researcher of the year for exceptional research achievements and scientific contributions, Awarded in 2019.
- **Postdoctoral Fellowship Grant**, Ministry of Science, Research, and Technology, Awarded for hosting a postdoctoral researcher in the field of laser-plasma interaction, (2021-2024).
- **Research grant recipient**: Iranian National Science Foundation (INSF) in the field of femtosecond laser (2024-2026)
- Postdoctoral Fellowship Grant, INSF, Awarded for hosting a postdoctoral researcher in the field of Graphene Nonlinear Plasmonic (2025-2026).
- **Postdoctoral Fellowship Grant**, INSF, Awarded for hosting a postdoctoral researcher in the field of strong-field laser physics (HHG and attosecond pulses), (2025-2026).
- **Doctoral Student Support Grant**, *Iran National Science Foundation (INSF)*, Awarded for supervising a PhD student in the area of Laser
- **Outstanding Researcher Award**, *Shahid Chamran University of Ahvaz*, Recognized as the top researcher of the year for exceptional research achievements and scientific contributions, Awarded in 2024.

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,** by: **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,** by: **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).

Funds:

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) Biological effects of harmful sound systems (2003).
4) Thermal effects in solid-state Nd:YAG laser amplifiers and their compensation (2014-2015).
5) Investigation of thermally-induced phase mismatching for generation of second harmonic laser in KTP type-II crystal (2010).
6) Modeling of heat effects on self-doubled NYAB laser in double-pass cavity using finite difference method (2011).

Industrial projects:

1) Design and generation of ultrashort attosecond train pulses in optical region (2016-2020).
2) Design and construction of high resolution (0.01 nm) and broadband (200 nm -900 nm) spectrometer (2021).
3) Design and fabrication of a LIDAR system for dust detection in Khouzestan province (in progress, 2022).
4) Construction of Ar arc lamp (2019).

Presentations given:

- **2003:** ***Laser Remote Sensing***, One-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.
- **2016**: Workshop on ***Comsol Multiphysics***, Shiraz University of Technology, Iran.
- **2017**: ***How to generate Attosecond Trains of Pulses***, Shahid Chamran University of Ahvaz.
- **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**: ***CPA Lasers and its impact on strong field laser physics (Special talk on 2018 Noble Prize)***, Week of Research, SCU, Ahvaz, Iran.
- **2020**: ***Switchable leak detection system of methane and ethane gases from gas pipeline*****,** Khouzestan Gas Company.

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 (SCU)

- **2013:** Design and fabrication of high-power CW CO_2 laser (SCU)
- **2014**: Thin film coating of organic polymers on ITO and FTO aimed to fabrication of OLEDs (SCU).
- **2014**: Thin metal (Ag, Al,…) film coatings by thermal evaporation (PVD).
- **2014**: Design and construction of krypton and argon arc and flash lamp for laser and medical applications (SCU).
- **2015**: Welding of glass to metals
- **2015**: Construction a chemical vapor deposition (CVD) system (SCU).
- **2015**: Graphene synthesis by CVD method (SCU).
- **2018**: Designing collinear and cross-beam thermal lens spectroscopy setups (SCU)
- **2020**: Designing a Joule heating graphene making instrument (CRLP of SCU)
- **2020**: Design and fabrication of a sun-light pumped Nd:YAG laser (CRLP of SCU).
- **2016**-**Now**: Design and construction of an attosecond beamline (CRLP of SCU).
- **2021**: Designing a plasma-activated water setup (CRLP of SCU).
- **2021**: Design and construction of electron energy analyzer (CRLP of SCU).
- **2021**: Design and construction of high resolution spectrometer (in progress).
- **2021**: Design and fabrication of a high voltage (up to 30 kV) and high frequency (up to 20 KHz) plasma generator (CRLP)

Miscellaneous:

- **2000-2001:** Journal Editor of "Teif", A journal of Physics Students Association, SCU.
- **2016**: Member of Scientific Committee of Iranian Annual Physics Conference.
- **2018**: Member of Scientific Committee of Iranian Annual Physics Conference.
- **2020:** Member of Scientific Committee of Iranian Annual Physics Conference.
- **2021:** Member of Scientific Committee of Iranian Annual Physics Conference.
- **2000:** Executive member of 1st Scientific and Applied Physics conference, 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.
- **2013:** Executive member of 20nd National Conference on Crystallography and Mineralogy, Ahvaz, Iran.
- **2014:** Executive member of 6th National Conference of Vacuum, Ahvaz, Iran.
- **2022:** Executive member of 28th Iranian Conference of Optics and Photonic, Iran.
- **2022:** Member of Scientific Committee, 28th Iranian Conference of Optics and Photonic, Iran.
- **National's 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 (Physics department, SCU)**.**
- **2013:** developer of Atomic and Molecular Research lab (Physics department, SCU).
- **2016**: Founder of Center for Research on Laser and Plasma (CRLP of SCU).
- **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 (Word 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 Nanothechnology (SPIE), etc.

Professional memberships:

- OSA (Optical Society of America)
- OPSI (Optics and Photonic Society of Iran)
- PSI (Physics Society of Iran)
- A member of "Specialist Committee of Optics and Photonics," Iran National Standard Organization.
- A member of "Science and Technology Park of Khouzestan"

Research interests:

Common interests:

- Diffraction and wave optics
- Solid-state lasers
- Spectroscopy
- Plasmonic of 2D materials (grapheme, phosphorene, BDS, etc.)
- Optoelectronic (semiconductor quantum dots).

New interests:

- ***Strong-field laser physics***
- ***Laser-matter interaction in strong field regime***
- ***Laser-plasma interaction***
- ***Femtosecond and attosecond lasers***
- ***Electron optics***
- ***Ultrashort pulse characterization***
- ***UV/VUV/XUV spectroscopy***

Skills:

- ***Softwares:*** Comsol Multiphysics, MATLAB, MAPLE, JAVA, FORTRAN, C++, Solidwork, High performance computing.
- ***Industrial skills:*** *TIG Welding, glassblowing,* metal turning, constructing electronic and electrical circuits, working with the most mechanical tools.

Publications:

Peer-Reviewed Journal Publications

1- **Mohammad Sabaeian**, 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 Sabaeian**, 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 Sabaeian** and Hamid Nadgaran, "An analytical model for finite radius dual-beam mode-mismatched thermal lens spectroscopy," Journal of Applied Physics **114**, 133102 (2013).
4- Zahra Seidalilir, Ehsan Soheyli, **Mohammad Sabaeian**, Reza Sahraei, "Enhanced electrochemical and electro-optical properties of nematic liquid crystal doped with Ni:ZnCdS/ZnS core/shell quantum dots," Journal of Molecular Liquids **320**, 114373 (2020).
5- Mojtaba Narimousa, **Mohammad Sabaeian**, and Seyed Mehdi Mousavi Ghahfarrokhi, and Omid Panahi, "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).
6- **Mohammad Sabaeian** 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).
7- Yaser Hajati, Zeinab Zanbouri, **Mohammad Sabaeian**, "Optimizing encapsulated graphene in hexagonal boron nitride toward low propagation loss and enhanced field confinement", Journal of Optical Society of America B **6**(5), 1189-1199 (2019).
8- Seyedeh Laleh Mousavi, F Jamali-Sheini, **Mohammad Sabaeian**, R Yousefi, Enhanced solar cell performance of P3HT:PCBM by SnS nanoparticles, Solar Energy **199**, 872-884 (2020).
9- Seyedeh Laleh Mousavi, Farid Jamali-Sheini, **Mohammad Sabaeian**, Ramin Yousefi, "The Role of Ag/Al Electrodes in the Improvement of PEDOT:PSS/P3HT:PCBM Solar Cells Performance," IEEE Journal of Photovoltaics **10**(5), (2020).
10- M. Shahzadeh and **Mohammad Sabaeian**, "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).
11- **Mohammad Sabaeian**, H. Nadgaran and L. Mousave, "Analytical solution of the heat equation in longitudinally pumped cubic solid state laser," Applied Optics **47**, 1-9 (2008).
12- Yaser Hajati, Zeinab Zanbouri, and **Mohammad Sabaeian**, "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).
13- **M. Sabaeian**, H. Nadgaran, M. De Sario, L. Mescia and F. Prudenzano, "Investigation of thermal effects in octagonal double-clad fiber lasers," Optical Materials **31**, 1300-1305 (2009).
14- **Mohammad Sabaeian** 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).
15- **Mohammad Sabaeian**," 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).
16- **Mohammad Sabaeian**, 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).

17- **Mohammad Sabaeian** and Mohammadreza Shahzadeh, "Simulation of temperature and thermally-induced stress of human tooth under CO_2 pulsed laser beams using finite element method," Lasers in Medical Science **30**, 645-651 (2015).
18- Ali Khaledi-Nasab, **Mohammad Sabaeian,** 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).
19- **Mohammad Sabaeian** 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).
20- Mohammadreza Shahzadeh and **Mohammad Sabaeian**, 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).
21- **Mohammad Sabaeian** and H. Nadgaran, "Bessel-Gauss beams: Investigation of thermal effects on their generation", Optics Communications **281**, 672-678 (2008).
22- H. Nadgaran, M. Servatkhah and **Mohammad Sabaeian**, "Mathieu-Gauss beams: A thermal consideration," Optics Communications **283**, 417-426 (2009).
23- Laleh Mousavi, **Mohammad Sabaeian**, and Hamid Nadgaran, "Thermally-induced birefringence in solid-core photonic crystal fiber lasers," Optics Communications **300**, 69-76 (2013).
24- Alaeddin Sayahian Jahromi, **Mohammad Sabaeian**, and Hamid Nadgaran, "Heat coupled laser rate equations: a model for Er-doped fiber lasers," Optics Communications **311***,* 134-139 (2013).
25- Ali khaledi-Nasab, **Mohammad Sabaeian**, 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).
26- Mohammadreza Shahzadeh and **Mohammad Sabaeian**, "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).
27- **Mohammad Sabaeian** and Mohammadreza shahzadeh, "A comparison between semi-spheroid and dome-shaped quantum dots coupled to wetting layer," AIP Advances **4**, 067134 (2014).
28- M. Mohammadrezaee, **Mohammad Sabaeian,** 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).
29- **Mohammad Sabaeian** 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).
30- Hamid Nadgaran and **Mohammad Sabaian**, "Pulsed pump: Thermal effects in solid state lasers under super-Gaussian pulses," Pramana Journal of Physics **67**, 1119-1128 (2005).
31- Laleh Mousavi, **Mohammad Sabaeian**, 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).
32- **Mohammad Sabaeian**, "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).
33- Ali Khaledi-Nasab, **Mohammad Sabaeian,** 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.
34- Ali Khaledi-Nasab, **Mohammad Sabaeian**, 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).
35- **Mohammad Sabaeian**, 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).
36- Laleh Mousavi, **Mohammad Sabaeian**, 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).
37- **Mohammad Sabaeian**, 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).
38- **Mohammad Sabaeian**, 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).
39- **Mohammad Sabaeian** 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).
40- Hamidreza Rezaei, **Mohammad Sabaeian**, 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).
41- **Mohammad Sabaeian**, 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).
42- **Mohammad Sabaeian**, 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)
43- **Mohammad Sabaeian**, 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).
44- Narges Ajamgard, **Mohammad Sabaeian**, 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).
45- Mehdi Heydari, **Mohammad Sabaeian**, 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).

46- **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).
47- 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).
48- **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).
49- **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).
50- 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)
51- 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).
52- 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).
53- 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).
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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 CO_2 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 comutations 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 Behruzi**,** ***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).
12) Reza Maghsoudi**, CO2 pulsed laser,** Shahid Chamran University of Ahvaz, Iran (2022).

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 thermal effect on Ag nanoparticle scattering,*** **Islamic Azad University, Central Tehran Branch, Tehran, Iran (2012).**
3) Maryam Falatounzadeh (**MSc. thesis**), ***Investigation of beam quality of solid-state laser output under thermal effects,*** 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),**
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.

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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 Zanbouri (**MSc thesis**), ***An investigation of plasmonic properties of graphene nonoribbon on two-dimensional hexagonal boron nitride*****,** Shahid Chamran University of Ahvaz, Iran.
33) Habib Mansouri, ***Design and construction of a pulsed transversely excited atmospheric pressure (TEA) CO_2 laser with folded cavity and grating preionization system*****,** Shahid Chamran University of Ahvaz, Iran.
34) Javad Hamoudi, **Design and construction of a continues-wave solar pumped solid-state laser,** Shahid Chamran University of Ahvaz, Iran.
35) Zeinab Hardani, ***Non-perturbative study of super-high intense laser interaction with atomic aimed to high-order harmonic generation***, Shahid Chamran University of Ahvaz, Iran.
36) Marzieh Amini**,** ***Cross-beam thermal lens spectroscopy for detection of traces in bee-honey*****,** Shahid Chamran University of Ahvaz, Iran (in progress).
37) Saeed Niknafs, ***Design and construction of a cylindrical deflector electron energy analyzer*****,** Shahid Chamran University of Ahvaz, Iran (in progress).
38) Keivan Aboulzadeh, ***Spectroscopy of nanosecond intense laser interaction with noble gas,*** Shahid Chamran University of Ahvaz, Iran (in progress).
39) Saeed Adhami, ***Investigation of plasmonic Fano's effect in graphene nanocrescents,*** Shahid Chamran University of Ahvaz, Iran (in progress).

PhD students

1) Alaeddin Sayahian Jahromi (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 (advisor), ***Plasmonic based biological sensors*****,** Shahid Chamran University of Ahvaz, Iran.
3) Azar Sadollahkhani (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 (co-supervisor), ***k.p matrix representation of two-dimensional blue and black phosphorene***, Shahid Chamran University of Ahvaz, Iran (2018).
5) Hamidreza Rezaei (co-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 (2019).
6) Khadijeh Beiranvand (co-supervisor), ***Calculation of some electronic and optical properties of MoS_2 monolayer with k.p model***, Shahid Chamran University of Ahvaz, Iran (2020).
7) Maryam Riyahi (co-supervisor), ***Design and fabrication of photonic microwaveguide in the presence of graphene*****,** Shahid Chamran University of Ahvaz, Iran (2020).

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10) Marjan Zakavi (supervisor), ***The study of femtosecond ultra-high intensity laser pulses interation with helium atom***, Shahid Chamran University of Ahvaz, Iran *(2023).*
11) Zeinab Zanbouri, ***Investigation of waveguide, absorption, and sensing properties resulted from of surface plasmons in some phosphorene-graphene composite nanostructures*****,** Shahid Chamran University of Ahvaz, Iran (2024).
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13) Azadeh Ebrahimzadeh (supervisor), ***Nanoscale attophysics***, Shahid Chamran University of Ahvaz, Iran (in progress).
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