CURRICULUM VITA

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EDUCATION:

PhD: Physics, Alzahra University, Tehran, Iran, GPA: 19.87 / 20.00

MSc: Physics, Alzahra University, Tehran, Iran, 2009, GPA: 19.09 / 20.00

BSc: Physics, Alzahra University, Tehran, Iran, 2001, GPA: 15.89 / 20.00

THESES:

Ph.D. THESIS:

"Design and Analysis of DFB Raman Fiber Laser with Nonlinear Effects"

MSc. THESIS:

"Modeling and Analysis of Static Behavior of Gain-Coupled Distributed Feedback Semiconductor Lasers"

RESEARCH INTERESTS:

Theoretical & experimental optics & photonics,
Simulation & modeling of optoelectronic devices,
Photonic crystals, Laser spectroscopy
Optical materials, Laser and nanoparticles interactions

AWARDS

The first rank in MSc
The first rank in PHD exam
The first rank in PHD
Admired Educational Professor in 1398
Admired Educational Professor in 1400
Advisor of admired physics Society in Semnan University in 98

Advisor of admired student journal in Semnan University in 98

AWARDS

Physics 1
General physics
Laser
Laser application
Laser application 1
Plasma
Optics
Spectroscopy
Laser Spectroscopy
Advanced statistical mechanics
Special topics 1
Special topics 2

PUBLICATIONS:

- **JOURNAL PAPERS :**

1. M. Aliannezhadi, F.Shahshahani, and V. ahmadi, "*Dependence of coupling coefficient and lasing wavelength on injection current in pure gain-coupled distributed feedback semiconductor lasers"*, Modern Optics, Volume 57, pp 857-865 (2010).

2. M. Aliannezhadi, F.Shahshahani, and V. ahmadi, "*Improved performance of complex gain coupled DFB laser by using tapered grating structure"*, Volume 44, pp 1-16 (2012)

3. M. Aliannezhadi, F.Shahshahani, and V. ahmadi, "*Analysis of Single Mode Operation and Fiber Length Dependence of Threshold Pump Power of QWS-DFB-RF Laser",* Electrical Engineering, Volume 44, No, pp 35-42 (2014).

4. M. Aliannezhadi, F. Shahshahani, and V. Ahmadi, "Analysis of Raman DFB fiber laser considering nonlinear SPM and XPM effects", Journal of Applied Electromagnetic, Volume 44, pp 43-47 (2015).

5. M. Aliannezhadi, A. H. Mollazadeh, and M., Minbashi, "The effect of nano particles and laser intensity on cancer therapy and Tissue temperature variations after irradiation," Volume 13, No 4, pp 2-11 (2018).
6. M. Aliannezhadi, M. faez. Cancer treatment by High-Intensity Focused Ultrasound (HIFU). RJMS.; 24 (162) :40-53 (2017).

7. B. Behzadi, M.Aliannezhadi, M. Hossein-Zadeh, and R. K. Jain, Design of a New Family of Narrow Linewidth Mid-Infrared Lasers, Journal of the Optical Society of America B; 34(12): 2501-2513 (2017).

8. M. Aliannezhadi, F. Shahshahani, and V. Ahmadi, "Modeling the optical nonlinear effects on DFB-RF laser based on the transfer matrix method," Applied Mathematical Modelling, vol. 74, pp. 85-93, 2019.

9. M. Aliannezhadi, M. Minbashi, and V. V. Tuchin, "Effect of laser intensity and exposure time on photothermal therapy with nanoparticles heated by a 793-nm diode laser and tissue optical clearing," Quantum Electronics, vol. 48, no. 6, p. 559, 2018.

10. M. Sovizi, M. J. Pouya, and M. Aliannezhadi, "Modeling and analysis of x-ray diffraction in square and triangular arrays," Iranian Journal of Applied Physics, vol. 8, no. 1, pp. 21-32, 2018.

11. M. Aliannezhadi, S. Amini, M. Taghizadeh, and M. Heidari, "The Effect of Light Fluence Rate on Photodynamic Therapy," (in eng), Laser in Medicine, Research vol. 16, no. 2, pp. 26-18, 2019.

12. H. Ahmadian, F. S. Tehrani, and M. Aliannezhadi, "Hydrothermal synthesis and characterization of WO3 nanostructures: effects of capping agent and pH," Materials Research Express, vol. 6, no. 10, p. 105024, 2019.

13. M. Sovizi and M. Aliannezhadi, "Design and simulation of high-sensitivity refractometric sensors based on defect modes in one-dimensional ternary dispersive photonic crystal," JOSA B, vol. 36, no. 12, pp. 3450-3456, 2019.

14. M. Aliannezhadi and B. Baghery, "The effect of electrical potential on the coagulation area in radiofrequency ablation by using a needle electrode," (in eng), Modern Research Physics, Research vol. 3, no. 2, pp. 59-74, 2019.

15. J. Alipour Zardkouhi, F. S. Tehrani, and M. Aliannezhadi, "Simulation and investigation of layering of thin metal layers by thermal evaporation method," Nano World, vol. 15, no. 56, pp. 49-56, 2019.

16. H. R. Ahmadian, F. Shariatmadar Tehrani, and M. Aliannezhadi, "Effect of hydrothermal temperature on the physical and chemical properties of tungsten oxide nanostructures," Applied Chemistry, vol. 15, no. 54, pp. 43-54, 2020, doi: 10.22075/chem.2019.17193.1603.

17. F. S. Tehrani, H. Ahmadian, and M. Aliannezhadi, "Hydrothermal synthesis and characterization of WO3 nanostructures: Effect of reaction time," Materials Research Express, vol. 7, no. 1, p. 015911, 2020.

18. J. Alipour zardkouhi, F. Shariatmadar Tehrani, and M. Aliannezhadi, "Theoretical study on the effect of source-to-substrate distance on copper thin film deposited by thermal evaporation technique," Nanoscale, vol. 7, no. 1, pp. 82-89, 2020.

19. A. Bahadori, H. R. Dizaji, N. Memarian, and M. Aliannezhadi, "Effect of preparation conditions on physical properties of manganese oxide thin films," Journal of Sol-Gel Science and Technology, vol. 95, pp. 180-189, 2020.

20. M. Faez, M. Aliannezhadi, and L. Naderi, “Investigation of Nutrition and Pharmaceutical Compounds Extraction by ultrasonic waves,” Journal of Vibration and Sound, vol. 8, no. 16, pp. 26-42, 2020.

21. F. Shariatmadar Tehrani, H. Ahmadian, and M. Aliannezhadi, "High specific surface area micro-mesoporous WO 3 nanostructures synthesized with facile hydrothermal method," The European Physical Journal Plus, vol. 136, pp. 1-11, 2021.

22. F. S. Tehrani, E. Rasouli, and M. Aliannezhadi, "Novel photoluminescent In2O3/a-SiC core/shell nanostructure synthesized by HW-assisted PECVD method," The European Physical Journal Plus, vol. 136, no. 3, p. 307, 2021.

23. M. Abbaspoor, M. Aliannezhadi, and F. S. Tehrani, "Effect of solution pH on as-synthesized and calcined WO3 nanoparticles synthesized using sol-gel method," Optical Materials, vol. 121, p. 111552, 2021.

24. M. Aliannezhadi and T. Parhizkari, "The effect of HIFU exposure time on the treatment of hepatocellular carcinoma," Journal of Vibration and Sound, vol. 10, no. 19, pp. 3-14, 2021.

25. M. Sovizi and M. Aliannezhadi, "Localized surface plasmon resonance (LSPR) of coupled metal nanospheres in longitudinal, transverse and three-dimensional coupling configurations," Optik, vol. 252, p. 168518, 2022.

26. S. Sheikhi, M. Aliannezhadi, and F. S. Tehrani, "Effect of precursor material, pH, and aging on ZnO nanoparticles synthesized by one-step sol–gel method for photodynamic and photocatalytic applications," The European Physical Journal Plus, vol. 137, no. 1, p. 60, 2022.

27. M. Abbaspour, M. Aliannezhadi, and F. Shariatmadar Tehrani, "Effect of pegylation on optical and structural properties of WO3 nanostructures synthesized by sol-gel method," Nano World, vol. 18, no. 66, pp. 13-20, 2022.

28. M. Abbaspoor, M. Aliannezhadi, and F. S. Tehrani, "High-performance photocatalytic WO3 nanoparticles for treatment of acidic wastewater," Journal of Sol-Gel Science and Technology, pp. 1-12, 2022.

29. S. Sheikhi, M. Aliannezhadi, and F. S. Tehrani, "The effect of PEGylation on optical and structural properties of ZnO nanostructures for photocatalyst and photodynamic applications," Materials Today Communications, vol. 34, p. 105103, 2023.

30. M. Aliannezhadi, M. Abbaspoor, F. Shariatmadar Tehrani, and M. Jamali, "High photocatalytic WO3 nanoparticles synthesized using Sol-gel method at different stirring times," Optical and Quantum Electronics, vol. 55, no. 3, p. 250, 2023.

31. M. Aliannezhadi, M. H. Mozaffari, and F. Amirjan, "Optofluidic R6G Microbubble DBR Laser: A Miniaturized Device for Highly Sensitive Lab-on-a-chip Biosensing," Photonics and Nanostructures-Fundamentals and Applications, p. 101108, 2023.

32. E. Naranji, M. Aliannezhadi, and M. Zaefi, "Fundamental and applications of ultraviolet Zinc Oxide Nanowire Lasers," Nano World, pp. 23-38, 2023.

33. P. Beheshti Gozal Abad Sofla, M. Aliannezhadi, and A. A. Masoudi, "The effect of laser pulse radiation on treatment of intra-cranial space occupying lesion (ICSOL) by the photothermal method," Laser in Medicine, Research vol. 19, no. 3, pp.1-10, 2023.

34. Z. Gholizadeh, M. Aliannezhadi, M. Ghominejad, and F. S. Tehrani, "High specific surface area γ-Al2O3 nanoparticles synthesized by facile and low-cost co-precipitation method," Scientific Reports, vol. 13, no. 1, p. 6131, 2023.

35. M. Aliannezhadi, Z. Gholizadeh, M. Ghominejad, and F. Shariatmadar Tehrani, "The effect of precursor on the alumina nanostructures synthesized by green method for copper ions removal from industrial wastewater," Iranian Journal of Physics Research, vol. 22, no. 4, pp. 711-722, 2023.

36. M. Aliannezhadi, P. Beheshti Gozal Abad Sofla, and A. A. Masoudi, "The effect of the laser exposure time on brain cancer treatment by a non-invasive and selective photothermal method using a diode laser," Nano World, vol. 19, no. 70, pp. 1-10, 2023.

37. M. I. Al-Shemri, M. Aliannezhadi, M. J. Al-Awady, and R. A. Ghaleb, "Interaction of different lasers beams with synthesized H2Ti3O7 nanotubes:

toward photodynamic therapy," Optical and Quantum Electronics, vol. 55, no. 8, p. 671, 2023.

38. Z. Gholizadeh, M. Aliannezhadi, M. Ghominejad, and F. Shariatmadar Tehrani, "Optical and structural properties of spherical-shaped boehmite and γ-alumina nanoparticles by ultrasonic-assisted hydrothermal method: the effects of synthesis route, calcination, and precursor concentration," Optical and Quantum Electronics, vol. 55, no. 10, p. 880, 2023.

39. M. Sovizi and M. Aliannezhadi, "Highly sensitive asymmetric and symmetric cancer sensors with ultra-high-quality factor and resolution power," Scientific Reports, vol. 13, no. 1, p. 12251, 2023.

- **CONFERENCE PAPERS:**

1. M. Aliannezhadi, F. Shahshahani, “Analysis of the Stability of Pure Gain Coupling DFB Laser against Spatial Hole Burning”, 1st National conference of optics and laser Engineering, Isfahan, 2009.

2. M. Aliannezhadi, F. Shahshahani, V. Ahmadi, “The effect of Phase Shift on the Operation of Gain Coupling Distributed Feedback Semiconductor Lasers”, conference of Physics, Isfahan, 2009.

3. M. Aliannezhadi, F. Shahshahani, V.Ahmadi, “Analysis of Convex Grating Gain Coupling Distributed Feedback Semiconductor Lasers at Threshold Condition”, conference on Physics, Isfahan, 2009.

4. N. Abootalebi, F. Shahshahani, V. Ahmadi, and M. Aliannezhadi, “Analysis of Relative Intensity Noise in RW-QWS-DFB Semiconductor Lasers with Asymmetric Reflector Facets in the Presence of External Optical Feedback”, 16th conference of optics & photonics, Yazd, 2010.

5. M. Aliannezhadi, F. Shahshahani, V. Ahmadi, N. Abootalebi, “Numerical Analysis of PGC-DFB Semiconductor Lasers with Asymmetric Waveguide at Threshold Condition”, 16th conference of optics & photonics, Yazd, 2010.

6. M. Aliannezhadi, F. Shahshahani, and V. Ahmadi, N. Abootalebi, “Numerical Analysis of Operation and Stability of Concave Tapered Grating Complex Coupled DFB Semiconductor Lasers above Threshold Condition and SHB Effect”, ICEE2010, Isfahan, 2010.

7. N. Abootalebi, F. Shahshahani, V. Ahmadi, and M. Aliannezhadi, , “Enhancement of Operation RW-QWS-DFB with Antireflection Facets in comparison with Plane Waveguide QWS-DFB Semiconductor Lasers”, ICEE2010,

Isfahan, 2010.

8. H. Rezaei, M. Aliannezhadi, “Optimization effect of lighting system on correction of consumption pattern and liberalization of network capacity”, 1st National conference of Reforming the Electrical Energy Consumption Pattern, Ahvaz, 2010.

9. H. Rezaei, M. Aliannezhadi, “Investigating on different style to provide lighting in Posts and location of Semnan Regional Electric Co”, 4st conference of Engineer Day, Semnan, 2010.

10. M. Aliannezhadi and F. Shahshahani, “Analysis of Raman DFB fiber laser with Reflecting Facets at Threshold Condition,” 1st Iranian Conference of Electromagnetic Engineering (ICEME), Tehran, 2012.

11. M. Aliannezhadi, F. Shahshahani, and V. Ahmadi, “Analysis of Raman DFB fiber laser considering nonlinear SPM and XPM effects,” 3th Iranian Conference of Electromagnetic Engineering (ICEME), Tehran, 2014. (Selected as one of the best papers)

12. M. Aliannezhadi, M. Faez, “Theoretical modeling of the HIFU hyperthermia For breast cancer”, 2rd Computational Sciences Conference, Damghan, August 2016

13. M. Aliannezhadi, M. Minashi, “Simulations of liver cancer treatment using microwave”, 2rd Computational Sciences Conference, Damghan, August 2016

14. M. Aliannezhadi, M. Javanbakht, “The effects of gold nanorod concentration on the liver cancer treatment by Nd-YAG laser”, 2rd Computational Sciences Conference, Damghan, August 2016

15. M. Aliannezhadi, M. Minashi, “Theoretical analysis of liver cancer therapy using interstitial microwave ablation”, 3rd International Congress on Computer,Electrical and Communication, International Conference on Biomedical Engineering and Health Systems, September 2016

16. M. Aliannezhadi, M. Javanbakht, “Numerical analysis of radio-frequency ablation for liver cancer tumor nearby vessel”, 3rd International Congress on Computer,Electrical and Communication, International Conference on Biomedical Engineering and Health Systems, September 2016

17. M. Faez, Z. Hamidi Isfahani . M. Aliannezhadi, “The effect of ultrasound on the quality of liquid foods”, second International and 25th Iranian Congress on Food Science and Technology, April 2018

18. M. Aliannezhadi, B. Bagheri, “The effect of metabolism on RF ablation with needle electrode”, 26th Annual International Conferene of Iranian Society of Mehanical Engineering, April 2018

19. L. Naderi, M. Faez, and M. Aliannezhadi, “Treatment of the breast cancer by High-intensity focused ultrasound ”, International Congress and Exhibition of Sciences and Innovative Technologies (ICESIT-2018) , September 2018

SOME OF SEMINARS PRESENTED IN UNIVERSITY:

- Semiconductor lasers
- Distributed Bragg reflector (DBR) semiconductor lasers
- Distributed Feedback (DFB) semiconductor lasers
- Raman effect
- Distributed Feedback (DFB) Raman fiber laser
- Cancer treatment by hyperthermia
- Cancer treatment by interaction of laser and nanostructures
- Optical nanostructures

TEACHING EXPERIENCE:

Physics Lab, Physics 1, Optics, Applied optics, Plasma, Laser, and Applications of laser, Fluid mechanic, Laser Spectroscopy, Advanced Statistical Mechanics

COMPUTATIONAL SKILLS:

C++, MATLAB, M.S. Office. COMSOL multiphysics

LANGUAGE:

Persian (Mother Language)
English (Advance)

LETTER OF RECOMMENDATION:

I have recommendations of excellent professor such as:

Dr. Ahmadi: Advisor

Dr. Kaviani: Professor
Dr. Rohani: Professor
Dr. Sajad: Professor
Dr. Shahshahani: Supervisor

GRATUATE COURSES: (Grade out of 20.00)

Quantum I:	18.75
Statistical Mechanics:	18.90
Special Issues:	17.70
Quantum II:	18.30
Numerical Methods:	19.50
Classical Electrodynamics:	19.50
Classical Mechanics:	18.50
Advanced Laser:	20.00
Seminar:	19.50
MSc Thesis:	19.75
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Quantum Optics	20
Laser Spectroscopy	19.50
Quantum Field Theory	20
Nonlinear Optics	20
PhD Comprehensive Examination	19