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EDUCATION

M.Sc. Electrical Engineering- Electronics

Kashan University, Isfahan, Iran

(Ranked 501–600th in Times world university rankings of 2021)

GPA: 18.77/20 (4/4)

Thesis Title: Changing the Layer Stack of InP based Hybrid Plasmonic Waveguide with the purpose of Propagation Length Increment.

Sept.2016 – June 2018

Supervisor: Dr. Mahmoud Nikoufard

Defended Master thesis with Excellent grade (20/20)

B.Sc. Electrical Engineering- Control Engineering

Vali-e-Asr University of Rafsanjan, Kerman, Iran

GPA: 15.58/20 (3/4)

Thesis Title: Design and Simulation of a PID controlled SEPIC DC-DC Converter Using Matlab.

Sept.2012 – Sept.2016

Supervisor: Dr. Meisam Yahyazadeh



AWARDS & HONORS

- **Ranked 1st GPA** among the graduating class of 2018 in the master's program at Kashan University.
- **Ranked 3rd GPA** among the graduating class of 2016 in the undergraduate program of Vali-e-Asr University of Rafsanjan.
- Received national graduate and undergraduate full scholarship (tuition waiver).
- Ranked within the top 5% among more than 40,000 participants in the Iranian University entrance exam for the master's degree in electrical engineering.
- Ranked within the top 5% among more than 300,000 participants in the Iranian University entrance exam for the bachelor's degree in electrical engineering.



RESEARCH INTERESTS

- Integrated Photonics
- Hybrid Plasmonics and Plasmonic devices
- Terahertz devices for communications applications
- Novel Design techniques of Terahertz devices
- Metasurface and metamaterial
- Photonic Crystals



PUBLICATIONS

Journal Publications

- **M. A. Mahdian**, M. Nikoufard. A novel structure based on gap waveguides for terahertz applications. In preparation for the IEEE Journal of Lightwave Technology. (2021)
- **M. A. Mahdian**, M. Nikoufard, and F. Soleimannezhad. Effect of etching depth on the performance of InP-based hybrid plasmonic waveguides. International Journal of Electronics and Communications 2020. <https://doi.org/10.1016/j.aeue.2020.153403>
- F. Soleimannezhad, M. Nikoufard, and **M. A. Mahdian**. Low-loss indium phosphide-based hybrid plasmonic waveguide. Microwave and Optical Technology Letters 2020. <https://doi.org/10.1002/mop.32488>

Conference Publications

- **M. A. Mahdian**, M. Nikoufard, and F. Soleimannezhad. Effect of Etch Depth on Design of InP Based Multi-Mode Interferometer. Annual Physics Conference of Iran. Aug. 2017. Qazvin, Iran.
- F. Soleimannezhad, **M. A. Mahdian**, and M. Nikoufard. Effective Mode Area and Propagation Length of Deeply-etched InP-Based. Annual Physics Conference of Iran. Aug. 2017. Qazvin, Iran.
- F. Soleimannezhad, **M. A. Mahdian**, and M. Nikoufard. Investigation of Effective Parameters on Coupling Length in Deeply Etched Directional Hybrid Plasmonic Coupler Based on InP. Annual Physics Conference of Iran. Aug. 2019. Tabriz, Iran.



ACADEMIC PROJECTS

- M. A. Mahdian, "*Design and simulation of an 8-bit full-adder alongside layout design*", VLSI Circuit Design, Dr. Hossein Karimiyan, Kashan University, Spring 2017.
- M. A. Mahdian, "*Design and Simulation of a high gain operational amplifier based on Gain Boosting technique*", Linear integrated Circuits (CMOS), Dr. Farzan Rezaei, Kashan University, Fall 2017.
- M. A. Mahdian, "*Principles and Design of Passive Photonic Integrated Circuits based on InP technology*", Optoelectronics (1), Dr. Mahmoud Nikoufard, Kashan University, Fall 2017.
- M. A. Mahdian, "*Investigation of Waveguide based Passive Photonic Integrated Circuits operation through FDTD simulation*", Photonic Integrated Circuit (PIC), Dr. Mahmoud Nikoufard, Kashan University, Spring 2017.
- M. A. Mahdian, "*Review, Comparison and Simulation of Hybrid Plasmonic Waveguide (HPW) devices in recent prior literature through FEM Simulations*", Photonic Integrated Circuit (PIC), Dr. Mahmoud Nikoufard, Kashan University, Spring 2017.



Experience

- **Teaching and Research Experience**
 - Teaching assistant of Electronics II in Vali-e-Asr university of Rafsanjan for two semesters of 2015-2016 | Troubleshooted the students' problems in the Electronics II course.
 - I Taught hardware design (basics of circuit design) to first-year students at the Vali-e-Asr university of Rafsanjan. (Extracurricular activities)
 - Research assist during and after my master's education at the University of Kashan.
- **Experience Timeline**
 - Bachelor's Education at Vali-e-Asr university of Rafsanjan (2012-2016).
 - Teaching assistant of Electronics II. (2015-2016)
 - Basic educational Electronic projects during bachelor. (DC power supply and PCB design)
 - Master's Education at Kashan University. (2016-2018)
 - Hobbyist Freelance hardware engineer (DC regulators, electronic Insect repeller, DIY Arduino projects). (2016-2018)
 - Researcher at Dr. Nikoufard's Lab (Integrated photonic waveguides design). (2016-2018)
 - Conscription (Mandatory military service). (2018-Oct. 2020-Jul.)
 - Preparation for TOEFL Exam. (Aug. 2020 – Oct. 2020)
 - Continuation of my research collaboration with Dr. Nikoufard at Kashan University on integrated photonic and terahertz waveguides as a research assistant. (Aug. 2020 - present)
 - Self-Studying DeepLearning and Machine Learning (from online resources, e.g., Coursera). (2020 - present)



LANGUAGE SKILLS

- English (Fluent)
-TOEFL iBT: 104 (R 28, L 29, S 23, W 24).



CERTIFICATES

- AVR (Hardware programming in C language), Certified by Iran Technical & Vocational Training Organization. (272 Hours, Standard code: 0-23/93/1/1)
- PLC (Basics of PLC programming), Certified by Iran Technical & Vocational Training Organization. (272 Hours, Standard code: 0-84/55/2/4)
- ICDL (General computer skills), Certified by Iran Technical & Vocational Training Organization.
- Photonic Integrated Circuit design with Lumerical software, Certified by the Nanotechnology Promoting committee, Pars Asia.



SKILLS

Programming Languages

- C/C++
- Python
- MATLAB

Web Languages

- HTML/ CSS
- JavaScript / JQuery

Applications

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| <ul style="list-style-type: none"> • COMSOL Multiphysics® • Lumerical • CST Studio Suite® • Synopsys HSPICE® • Tanner EDA • OriginPro (by OriginLab) • Altium Designer • Blender | <ul style="list-style-type: none"> • Keil µVision® • CodeVisionAVR • Arduino Software (IDE) • Proteus Design Suite • Adobe Photoshop® • Adobe Audition® • Adobe Illustrator® • CorelDRAW Graphics Suite® |
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SELECTED COURSES AND GRADES

- Theory and Technology of Manufacturing Semiconductor Devices (19/20)
- Photonic Integrated Circuit (PIC) (18.5/20)
- Optoelectronics (1) (19/20)
- Semiconductor Devices (19.5/20)
- VLSI Circuits Design (19/20)



SELECTED PRACTICAL ACADEMIC PROJECTS

- Design and Implementation of an Ultrasonic Insect Repellent System with adjustable output frequency.
- Design and Implementation of a microcontroller-based system for indoor IoT devices. (Smart home lighting)
- Design and Implementation of an Educational Development board based on STM32.
- Collaboration in Implementation of isolated linear DC power supply (during my bachelor's).



REFERENCES

- Dr. Mahmoud Nikoufard: mnik@kashanu.ac.ir
- Dr. Daryoosh Dideban: dideban@kashanu.ac.ir