



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE ____6843____

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at Dipartimento di ____Fisica Aldo Pontremoli dell'Università degli Studi____

Scientist- in - charge: Prof. Potenza Marco Alberto Carlo

Hossein Karimkhani

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Karimkhani
Name	Hossein

PRESENT OCCUPATION

Appointment	Structure
Research Assistant	University of Tabriz

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree			
Specialization			
PhD			
Master	MSc. Electrical Engineering - Photonics Engineering - Nanophotonics Engineering	University of Tabriz, Iran	2020
Degree of medical specialization			
Degree of European specialization			
Other	BSs. Electrical Engineering - Power	Islamic Azad University Tabriz	2014



REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date registration	of Association	City

FOREIGN LANGUAGES

Languages	level of knowledge
English	TOEFL Overall: 81
Turkish	Native
Azerbaijani	Native
Persian	Native

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2020	Ranked 3rd out of students of Electrical Engineering in M.Sc degree

TRAINING OR RESEARCH ACTIVITY

description of activity
Research Assistant: 1- Research Laboratory of Photonics. University of Tabriz, (2017-current), under supervision of Prof. Hamid Vahed Tasks: 1- Conducting under graduated students on their thesis. 2- Providing various articles and books translations.
Teaching Experience: 1- Teacher Assistant: " Optical and Fiber Telecommunications", Under Supervision of Prof.Hamid Vahed, University of Tabriz, 2018.

PROJECT ACTIVITY

Year	Project
2016 - 2017	Electrical Systems Optimizations <ul style="list-style-type: none">Optimizing Methodes: Particle swarm optimization (PSO), Response surface methodology (RSM)Softwares: MATLAB
2017 - current	Electro Optical Modulolators Designing <ul style="list-style-type: none">Simulation of various Electro Optical Modulators Based on Graphene LayersSoftwares: Lumerical, COMSOL, CST, MATLAB
2017 - current	Optical Sensors Designing <ul style="list-style-type: none">Simulation of various Optical Sensors Based on Ring Resonators and Disks



	<ul style="list-style-type: none"> • Softwares: Lumerical, COMSOL, CST, MATLAB
2023 current	<ul style="list-style-type: none"> - Ring Resonators Designing <ul style="list-style-type: none"> • Simulation of various Micro Ring Resonators (MRR's) • Softwares: Lumerical, COMSOL, CST, MATLAB
2023 current	<ul style="list-style-type: none"> - Neuromorphic Photonics Systems Designing <ul style="list-style-type: none"> • Simulation of Neuromorphic Photonics Systems based on Non-Linear Activation Functions (NLAF) • Simulation of Neuromorphic Photonics Systems based on Spiking Neural Networks (SNN's) on Micro Ring Resonators (MRR's) • Softwares: Lumerical, COMSOL, CST, MATLAB
2023 current	<ul style="list-style-type: none"> - Frequency Selective Surface Layers Designing <ul style="list-style-type: none"> • Simulation of Frequency Selective Surface (FSS) Structures • Softwares: Lumerical, COMSOL, CST, MATLAB

PATENTS

Patent

CONGRESSES AND SEMINARS

Date	Title	Place
2019	The Annual Physics Conference of Iran	Tabriz, Iran

PUBLICATIONS

Books
Translation of: Chris A. Mack, Field Guide to Optical Lithography, SPIE, 2006, Translator: Hossein Karimkhani, ISBN: 978-600-8902-86-7
Articles
H. Karimkhani and H. Vahed, "Hybrid broadband optical modulator based on multi-layer graphene structure and silver nano-ribbons," <i>Opt. Quantum Electron.</i> , vol. 52, pp. 1-11, 2020, (https://doi.org/10.1007/s11082-020-02354-0)
H. Karimkhani and H. Vahed, "Numerical Analyze of a Broadband Optical Modulator Based on Bilayer Graphene and h-BN in the Wavelength range of 1300 to 1800 nm with High Extinction Ratio," <i>Journal of Iranian Association of Electrical and Electronics Engineers</i> , 2020.
H. Karimkhani and H. Vahed, "An optical modulator with ridge-type silicon waveguide based on graphene and MoS2 layers and improved modulation depth," <i>Opt. Quantum Electron.</i> , vol. 53, pp. 1-10, 2021, (https://doi.org/10.1007/s11082-021-02901-3).
H. Karimkhani, A. Attariabad, and H. Vahed, "High sensitive plasmonic sensor with simple design of the ring and the disk resonators," <i>Opt. Quantum Electron.</i> , vol. 54, no. 6, pp. 1-13, 2022, (https://doi.org/10.1007/s11082-022-03736-2).
H. Karimkhani and H. Vahed, "A broadband Optical Modulator Based on Rib-Type Silicon Waveguide Including Graphene and h-BN Layers," <i>Optik (Stuttg.)</i> , p.168633, 2022,



(<https://doi.org/10.1016/j.ijleo.2022.168633>).

H. Karimkhani and H. Vahed, "A structure of electro-absorption hybrid plasmonic modulator using silver nano-ribbon," *Opt. Quantum Electron.*, vol. 55, pp. 1-13, 2023, (<https://doi.org/10.1007/s11082-023-05177-x>).

H. Karimkhani and H. Vahed, "Broadband Silver Ribbon-Embedded Graphene and h-BN Optical Modulator with High Modulation Depth and Extinction Ratio and Low Switching Voltage," *IEEE Photonics Journal*, 2024, (<https://doi.org/10.1109/JPHOT.2023.3346451>).

Articles in reviews

H. Karimkhani and M. A. Karim, "Wide-Band High Performance Optical Modulator Based on a Stack of Graphene and h-BN Layers with Plasmonic Edge Mode," *Journal of the Optical Society of America B (JOSAB): Optical Physics*, 2024

Congress proceedings

Hossein Karimkhani, H Vahed, "Analyze of Physical characteristic in Two Layers Graphene Based Electro-Optic Modulator" The Annual Physics Conference of Iran, 2019.

Sarah S Sharif, Hossein Karimkhani, Yaser M Banad, "Exploring nonlinear activation function within microring resonators for all-photonic neuromorphic computing ", *Physics and Simulation of Optoelectronic Devices XXXII*, 2024, (<https://doi.org/10.1117/12.3003259>).

OTHER INFORMATION

My research experience/interests include Optical Systems, Electro Optical Modulators, 2D Materials, Plasmonic Devices, Ring Resonators, Modulation, Optical Sensors, Neuromorphic Photonics, and Quantum Photonics. My MSc thesis title is "Design and Analyze of Hybrid Plasmonic Modulator Based on multi-layer Graphene and improve the Modulation Index". Currently, I have ten published papers. My total citation is 55, with 4 h-index. As a motivated student, I have worked in areas other than my thesis. In detail, I have experience working (or am familiar) with different types of Optical Structures, Ring Resonators, Absorbers, Multi-Layer Structures, and Neuromorphic Photonics.

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

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Place and date: ____Tabriz, Iran____, _09/24/2024__