

Mehdi Feizpour

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19/08/1995

Education

- 2020–2024 Doctor of Philosophy in Photonics Engineering at *Vrije Universiteit Brussel*
- Conducted pioneering research in nanobiosensing
 - Collaborated with hospitals to integrate photonics technologies into medical applications
 - Published/presented research findings at SPIE Europe and several peer-reviewed journals
 - Mentored and supervised 7 of students in research projects
- 2018–2020 European Master of Science in Photonics at Vrije Universiteit Brussel and Ghent University
- Achieved “High honors” overall GPA of 16.2/20
 - Did an exchange program specialized in Biophotonics at Lund University
 - Did an internship in Biomedical Imaging at Strasbourg University
- 2013–2018 Bachelor of Science in Physics at Shiraz University
- Ranked 5th in Photonics Entrance Exam 2018

Research Experience

- 10/2020-10/2024 SERS-based Lab-on-a-Chip for Rapid Diagnostics and Antibiotic Susceptibility Testing
Supervisors: Prof. Heidi Ottevaere, Prof. Wendy Meulebroeck, Dr. Qing Liu, Ph.D. Project - VUB
- 01/2020-07/2020 Raman Readout of In-Vitro Models Used for Drug Development
Supervisors: Prof. Heidi Ottevaere, Prof. Wendy Meulebroeck, Dr. Tatevik Chalyan, Dr. Qing Liu, M.Sc. Thesis Project - VUB
- 07/2019-09/2019 Dual Oxygenation and Perfusion Measurement for Real-Time Metabolism Imaging during Surgery
Supervisors: Prof. Sylvain Gioux, Dr. Joseph Angelo, Internship - Strasbourg University (IHU Medical Imaging Center)

Honours and Awards

- 2019 Erasmus+ Exchange Scholarship (1500 €) Lund University
- 2018-2020 VUB Master Excellence Scholarship (20000 €) Vrije Universiteit Brussel
- 2017,2018 Award in Physics Teaching Contest Shiraz University

Journal Publications

- 2024 Photocatalytic hydrogen evolution enhancement with slow photon and surface plasmon assistance in inverse opal TiO₂ sensitized with CdS, Au and Pt nanoparticles
Draft ready
- 2024 Development of two-photon polymerized periodic nanostructures for label-free SERS biosensing
In Review, OPTICA
- 02/2024 Characterizing Planar SERS Substrates: Unraveling the Link between Physical Characteristics and Performance Metrics
Journal of Physics: Photonics, IOP
- 09/2023 Classification of hemoglobin fractions in the liquid state using Raman spectroscopy combined with machine learning
Microchemical Journal, Elsevier

Experimental Skills

Confocal and surface-enhanced Raman microscopy; spatial frequency domain imaging; scanning electron microscopy; Nanoscribe two-photon polymerization and FEMTOprint 3D fabrication; atomic force microscopy; white light interferometry; automation; cell-culturing.

Computer Skills

Programming: Python, Machine Learning, Optimization Algorithms, Cluster Computing, LabView
Physics: Lumerical, COMSOL, OpticStudio, Quantum Espresso

Conference Publications

2024	Analyzing SERS reproducibility and performance: the role of illumination area Nanophotonics X, SPIE Photonics Europe
2024	FDTD modeling of 2PP-fabricated SERS substrates: design, simulation and hotspot analysis Nanophotonics X, SPIE Photonics Europe
2024	Automatic optimization of spectral classifiers' hyperparameters for pathogen identification through evolutionary techniques Data Science for Photonics and Biophotonics, SPIE Photonics Europe
2024	Two-Photon Polymerized nanopillars for Surface-Enhanced Raman spectroscopy Optical Sensing and Detection VIII, SPIE Photonics Europe
2024	Advancing Hemoglobinopathy Screening with Raman Spectroscopy and Machine Learning Biomedical Spectroscopy, Microscopy, and Imaging III, SPIE Photonics Europe
07/2022	Two-Photon Polymerization based fabrication of SERS substrates for biosensing applications Advanced Photonics Congress, Optica Publishing Group

Soft Skills

Leadership, Teamwork, Adaptability, Self-motivation, Conflict Resolution
Management and leadership: Led VUB's OPTICA/SPIE chapter, helped organize BePOM and MSB
Excellent team-working capability: Consistently engaged in collaborative efforts, evidenced by published works
Adaptable, and versatile skillset: Led multiple interdisciplinary projects, from concept to proof-of-concept

Teaching Experience (Latest)

2022-2024	Photonics Laboratory Course for RADMEP Program	KU Leuven
2023 & 2024	Laboratories In Photonics Research	Vrije Universiteit Brussel
2022-2024	Masters Thesis Supervision of Salma Nabiloo (DNN Classification of SERS Spectra) and Halewijn Van den Bossche (Antibiotic Susceptibility testing via SERS) and Internship supervision of Eloisa Manetti (Curved SERS Substrates)	Vrije Universiteit Brussel

Conferences/Workshops Attendances (Latest)

2024	XXVIII International Conference on Raman Spectroscopy (ICORS)	Rome, Italy
2024	SPIE Photonics Europe	Strasbourg, France
2022	International Symposium on Microscale Separations and Bioanalysis	University of Liege, Liege, Belgium
2022	Belgian Online Photonics Meetup	Vrije Universiteit Brussel, Brussels, Belgium

Memberships

2018-2024	Member of SPIE and OPTICA Societies - 2021 VUB Chapter President	International
2017-2018	Member of Iran Association of Physics	National - Iran

Work Experience

09/2016-09/2018	Shiraz University Physics Department Outreach Officer	Shiraz University
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References

Prof.	Heidi Ottevaere Affiliation: Vrije Universiteit Brussels Role: Chairwoman of Applied Physics and Photonics Dep. and M.Sc. and Ph.D. thesis promoter Email : Heidi.Ottevaere@vub.ac.be	Promoter
Prof.	Wendy Meulebroeck Affiliation: Vrije Universiteit Brussels, Role: Professor at VUB and M.Sc. and Ph.D. thesis promoter Email : wendy.meulebroeck@vub.be	Promoter
Prof.	Hugo Thienpont Affiliation: Vrije Universiteit Brussels, Role: Professor at VUB and head of Photonics research group Email : hugo.thienpont@vub.be	Director of Brussels Photonics (B-PHOT)