

Faculty Vitae

1. General Information:

Names	Nationality	Contact
Dr. Marwa Ammar SELMI	Tunisian	Email: m.selmi@mu.edu.sa Tel: +966-563447961

2. Qualifications:

Degree	Discipline	Institution	Year
Ph.D.	Medical Physics	Laboratory of Electronics and Microelectronics Faculty of Science of Monastir, University of Monastir (Tunisia)	2016
Master	Materials, Nanostructures and Applications	Laboratory of Electronics and Microelectronics Faculty of Science of Monastir, University of Monastir (Tunisia)	2012
Bachelor	Physics	Faculty of Science of Monastir, University of Monastir (Tunisia)	2010
Baccalaureate	Mathematics	Secondary High School Nasrallah, Kairouan (Tunisia)	2007

3. Academic Experience:

Institution	Title	Period
College of Applied Medical Sciences, Majmaah University, KSA	Assistant Professor	2016-Present
Faculty of Science of Monastir, University of Monastir, Tunisia	Teaching Assistant	2015-2016
High School of Sciences and Technology, Hammam Sousse, University of Sousse, Tunisia.	Teaching Assistant	2014-2015

4. Doctoral Training: Period: 01 Nov 2014 - 30 Jan 2015

Training at the Laboratory Microfluidics, MEMs, and Nanostructure, (MMN), at the High School of Physics and Industrial Chemistry, Paris 1, **ESPCI ParisTech, France. Supervisor: Dr. Patrick TABELING**

5. Books:

Marwa Selmi and Hamedh Belmabrouk 'Modélisation d'un biocapteur microfluidique'. Editions universitaires européennes. ISBN-13: 978-3-8417-2988-0. (2016)

6. Publications:

- [1] S Elkossi, **M Selmi**, F Bourguiba, T Alshahrani, H Belmabrouk, Jamel AS Smida. Colossal dielectric response and non-Debye relaxation of La_{0.7}Sr_{0.25}Na_{0.05}Mn_{0.85}Ti_{0.15}O₃ ceramic. Inorganic Chemistry Communication, **2023/4/29**
- [2] **Marwa Selmi**, Amjad Iqbal, Amor Smida, Mohamed Ibrahim Waly, Hamedh Belmabrouk Modeling of heat transfer distribution in tumor breast cancer during microwave ablation therapy. Microwave and Optical Technology Letters, **2022**
- [3] Hamedh Belmabrouk, **Marwa Selmi**, Thamraa Alshahrani, Zeineb Raddaoui, Abdullah Bajahzar, Mahjoub Jabli, Thamer Alharbi Cationic dye removal using Pergularia tomentosa L. fruit: kinetics and isotherm characteristics using classical and advanced models. Comptes Rendus. Chimie, **2022**

- [4] **Marwa Selmi**, Abdullah Bajahzar, Hafedh Belmabrouk, Effects of target temperature on thermal damage during temperature-controlled MWA of liver tumor. Case Studies in Thermal Engineering. **2022/1/26**
- [5] H Belmabrouk, **M Selmi**, T Alshahrani, A Bajahzar, M Jabli. Experimental and theoretical study of methylene blue biosorption using a new biomaterial Pergularia tomentosa L. fruit. International Journal of Environmental Science and Technology, **2022/2/2**
- [6] Yosra Saad, Mohamed Hichem Gazzah, Karine Mougine, **Marwa Selmi**, Hafedh Belmabrouk. Sensitive Detection of SARS-CoV-2 Using a Novel Plasmonic Fiber Optic Biosensor Design. **2022/1/3**
- [7] Sameh Kaziz, Yosra Saad, Mohamed Bouzid, **Marwa Selmi**, Hafedh Belmabrouk. Enhancement of COVID-19 detection time by means of electrothermal force. Microfluidics and Nanofluidics. (2021)
- [8] Yosra Saad, **Marwa Selmi**, Mohamed Hichem Gazzah, Hafedh Belmabrouk The magnetic field effect on the improvement of the binding reaction of C-reactive protein at the microfluidic channel surface of an SPR biosensor. The European Physical Journal Plus. (2021)
- [9] **Marwa Selmi**, Amor Smida, Safwen El Kossi. Effect of Polaron formation in conduction and dielectric behavior in La_{0.7} Sr_{0.25} K_{0.05} MnO₃ oxide. Journal of Materials Science: Materials in Electronics. (2021)
- [10] Amor Smida, Amjad Iqbal, **Marwa Selmi**, Ayman A Althwayb, Nazih Khaddaj Mallat. Varactor diode-based dual-band frequency tunable multiple-input multiple-output antenna. International Journal of RF and Microwave Computer-Aided Engineering (2021)
- [11] N Zaidi, Mounira Elabassi, **Marwa Selmi**, EK Hlil. Structural Characterization and Magnetic Interactions of La_{0.7}Sr_{0.25}Na_{0.05}Mn_{1-x}Al_xO₃. Journal of Superconductivity and Novel Magnetism (2020)
- [12] **Marwa Selmi**, Hafedh Belmabrouk,. AC Electroosmosis Effect on Microfluidic Heterogeneous Immunoassay Efficiency., journal of Micromachines (2020)
- [13] **Marwa Selmi**, Abdul Aziz Bin Dukhyil Hafedh Belmabrouk,. Numerical Analysis of Human Cancer Therapy Using Microwave Ablation. Journal of Applied. Sciences., 10, 211; doi:10.3390/app10010211, (2020)
- [14] Amjad Iqbal, **Marwa Selmi**, Lway Faisal Abdulrazak, Omar A. Saraereh, Nazih Khaddaj Mallat and Amor Smida. A Compact Substrate Integrated Waveguide Cavity-Backed

- Self-Triplexing Antenna. DOI 10.1109/TCSII.2020.2966527, IEEE Transactions on Circuits and Systems II: Express Briefs (2020)
- [15] Yosra Saad, **Marwa Selmi**, Mohamed Hichem Gazzah, Abdullah Bajahzar, Hafedh Belmabrouk. Performance enhancement of a copper-based optical fiber SPR sensor by the addition of an oxide layer. *Optik - International Journal for Light and Electron Optics* **190** (2019)
- [16] **Marwa Selmi**, Hafedh Belmabrouk, Abdullah Bajahzar. Numerical Study of the Blood Flow in a Deformable Human Aorta. *Journal of Applied. Sciences.*, 9, 1216; doi:10.3390/app9061216 *Applied Sciences. Sensor letter*, (2019)
- [17] Saad, Yosra, **Selmi, Marwa**, Gazzah Mohamed Hichem, Belmabrouk, Hafedh. Theoretical evaluation of a fiber-optic SPR biosensor based on a gold layer treated with thiol acid. *Eur. Phys. J. Appl. Phys.* 82, 31201 (2018)
- [18] **Marwa Selmi**, Hafedh Belmabrouk. 3D Numerical Simulation of Binding Efficiency of Immunoassay for a Biosensor with Involving a Cylinder. *Sensor letter*, (2018)
- [19] Saad, Yosra, **Selmi, Marwa**, Gazzah Mohamed Hichem, Belmabrouk, Hafedh. The Effect of Physical and Geometric Parameters on the Surface Plasmon Resonance Response of a Fiber Optic Biosensor: Sensitivity Analysis and Numerical Optimization. *Sensor letter*, (2018)
- [20] **Marwa Selmi**, Mohamed Hichem Gazzah, Hafedh Belmabrouk. "Optimization of microfluidic biosensor efficiency by means of fluid flow engineering". *Scientific Reports*, (2017). pp. 7: 5721:
- [21] Yosra Saad, **Marwa Selmi**, Mohamed Hichem Gazzah, Hafedh Belmabrouk. "Graphene Effect on the Improvement of the Response of Optical Fiber SPR Sensor". *IEEE Sensor Journal*, (2017), VOL. 17, NO. 22, NOVEMBER 15, 7440-7447
- [22] **Marwa Selmi**, Mohamed Hichem Gazzah, Hafedh Belmabrouk, "Numerical Study of the Electrothermal Effect on the Kinetic Reaction of Immunoassays for a Microfluidic Biosensor". *Langmuir* 32, 13305–13312 (2016).
- [23] **Marwa Selmi**, Randa Khemiri, Fraj Echouchene, Hafedh Belmabrouk, "Electrothermal effect on the immunoassay in a microchannel of a biosensor with asymmetrical interdigitated electrodes". *Applied Thermal Engineering* 10, 77–84 (2016).
- [24] **Marwa Selmi**, Randa Khemiri, Fraj Echouchene, Hafedh Belmabrouk, "Enhancement of the analyte mass transport in a microfluidic biosensor by deformation of fluid flow and electrothermal force". *ASME J. Manuf. Sci. Eng.* Vol. 138, Issue, 8, (2016).

- [25] **Marwa Selmi**, Fraj. Echouchene, and Hafedh. Belmabrouk, “Analysis of Microfluidic Biosensor Efficiency Using a Cylindrical Obstacle”. *Sensor Letters*, Vol. 14, N° 1, pp: 26-30 (6), (2016).
- [26] **Marwa Selmi**, Fraj. Echouchene, Mohamed Hichem Gazzah, and Hafedh. Belmabrouk, “Flow Confinement Enhancement of Heterogeneous Immunoassays in Microfluidics”. *IEEE Sensors Journal*. Vol. 15, Issue, 12, pp: 7321-7328, (2015).
- [27] **Marwa Selmi**, Fraj. Echouchene, and Hafedh. Belmabrouk, “Numerical Investigation of Microfluidic flow under AC applied electric field: Enhanced of binding reaction for a biosensor”, *IEEE Conference Publications*, 2014.
- [28] **Marwa Selmi**, Fraj. Echouchene, and Hafedh. Belmabrouk, “Numerical Investigation of Electrothermal flow Instability in Microchannel” *International Journal of Mechanics and Energy (IJME)* Vol. 2, Issue 2, pp. 59-62, 2014.
- [29] **Marwa Selmi**, Fraj. Echouchene, Houcine Mejri, and Hafedh. Belmabrouk, “Numerical modeling of microfluidic flow through a channel with sensitive membrane” *International Journal of Mechanics and Energy (IJME)* Vol. 1 , Issue 4 , pp. 172 -176, 2013.

7. Conferences:

Oral presentation

- [1] Yosra Saad, **Marwa Selmi**, Mohamed Hichem Gazzah, Hafedh Belmabrouk. Numerical Modeling of Surface Plasmon Resonance Response of Fiber Optic Sensors. *ICEMIS'2017*, May 08-10, Monastir, Tunisia.
- [2] **Marwa Selmi**, Randa. Khemiri, Fraj. Echouchene, and Hafedh. Belmabrouk, “Effects of Electrothermal and Flow Confinement on Kinetic Reaction of Immunoassay for A Microfluidic Biosensor”, November 19-21, 2015, Erfoud, MOROCCO.
- [3] **Marwa Selmi**, Fraj. Echouchene, and Hafedh. Belmabrouk, “Numerical Investigation of Microfluidic flow under AC applied electric field: Enhanced of binding reaction for a biosensor”, (IREC), March 25-27, 2014, Hammamet, TUNISIA.
- [4] **Marwa Selmi**, Fraj. Echouchene, and Hafedh. Belmabrouk, “Numerical Investigation of Electrothermal flow Instability in Microchannel”, (ICME), March 18-20, 2014, Monastir, TUNISIA.
- [5] **Marwa Selmi**, Fraj. Echouchene, Houcinen Mejri, and Hafedh. Belmabrouk, “Numerical Modeling of Microfluidic Flow through a Channel with Sensitive Membrane”, *International Symposium on Computational and Experimental Investigations on Fluid Dynamics CEFD*, March 18-20, 2013, Sfax, TUNISIA.
- [6] **Marwa Selmi**, Fraj. Echouchene, Houcinen Mejri, and Hafedh. Belmabrouk, “Simulation of microfluidic flow in a channel under ac electric field”, *International Symposium on*

Computational and Experimental Investigations on Fluid Dynamics CEFD, March 18-20, 2013, Sfax, TUNISIA.

Poster presentation

- [1] **Marwa Selmi**, Ahmed Mansour Almansour, Yousif Mohamed Y. Abdallah, Hafedh Belmabrouk. Computer investigation of breast cancer tumor treatment using microwave ablation (MWA). 5th International Conference on Radiation Medicine, ICRM, 11-15 February 2018, Riyadh, KSA
- [2] Yosra Saad, **Marwa Selmi**, Mohamed Hichem Gazzah, Hafedh Belmabrouk. Modélisation de capteur SPR à fibre optique pour la détection biomoléculaire. International Conference of Bioanalysis Health and Environment, 25 April 2017, Mahdia-Tunisia.
- [3] **Marwa Selmi**, Fraj. Echouchene, Houcine Barhoumi, and Hafedh. Belmabrouk, “Enhancement of microfluidic immunoassay chips efficiency by means of fluid flow engineering”, 9^{èmes} JOURNEES MAGHREB-EUROPE, Matériaux et Applications Aux Dispositifs et Capteurs (MADICA), Novembre 05-07, 2014, Mahdia TUNISIA.
- [4] **Marwa Selmi**, Fraj. Echouchene, and Hafedh. Belmabrouk, “Simulation of binding kinetic reaction protein: CRP through a microchannel”, Second International Conference on “Research to Application & Markets”, June 28-30, 2013, Sousse, TUNISIA.
- [5] **Marwa Selmi**, Fraj. Echouchene, and Hafedh. Belmabrouk, “Numerical analysis of the ac electric field on the performance of a microfluidic biosensor”, Second International Conference on “Research to Application & Markets”, June 28-30, 2013, Sousse, TUNISIA.

7. Prizes:

- جائزة الباحث المميز , مركز العلوم الطبية التطبيقية , جامعة المجمععة , المملكة العربية السعودية 2018

- **Prize of the best presentation.** International Symposium on Computational and Experimental Investigations on Fluid Dynamics CEFD, March 18-20, 2013, Sfax, TUNISIA