EUROPEAN CURRICULUM VITAE FORMAT

PERSONAL INFORMATION

Name: **Fahimeh Masoumi**

Address: **Flexible Electronics Laboratory, Unibz, Via Bruno Buozzi 1, 39100, Bolzano, Italy**

EDUCATION AND TRAINING

• Dates (from – to): **01/2022 – 09/2025**

• Organization: **Free University of Bozen-Bolzano, Italy**

• Qualification: **PhD in Food Engineering and Biotechnology**

• Subjects:

- Thesis title: *Electrical Impedance Spectroscopy Techniques For Assessing Ageing, Mechanical Damage, And Chilling Injury In Fruit*

Summary

Developed contact and non-contact Electrical Impedance Spectroscopy (EIS) techniques for non-destructive fruit quality assessment. Investigated physiological changes related to ageing, mechanical damage, chilling injury, and ripening in nectarines, bananas, and avocados. Integrated equivalent circuit modeling and machine learning for accurate detection and classification. Demonstrated the potential of EIS for both precise laboratory analysis and scalable industrial applications. Contributed to sustainable, real-time postharvest quality monitoring solutions.

• Dates (from – to): **09/2017 – 09/2021**

• Organization: **Università Degli Studi Di Ferrara, Italy**

• Qualification: **Master of Science in Physics (Medical Physics)**

• Subjects:

- Thesis title*: Effect of Local Energy Distribution of X-ray Beams from Inverse Compton Scattering Sources on the Performance in Dual-energy Imaging*

Summary

The research studied the effects of photon energy distribution in inverse Compton scattering (ICS) and dual-energy K-edge subtraction (KES) for mammography. Simulations showed that spectral leakage and collimation angles impact image quality. An analytical framework was created to optimize X-ray beam parameters, suggesting future research on optimal energy pairs for improved imaging. The results were published in Applied Optics journal.

• Dates (from – to): **09/2010 – 06/2016**

• Organization: **University of Tabriz, Iran**

• Qualification: **Bachelor of Science in Physics (Solid State and Electronics)**

• Subjects:

- Thesis title: *Fabrication of Varistor (Voltage-Dependent Resistors) Using Zinc Oxide - Polyaniline - Epoxy Composite and Studying their Electrical Properties*

Summary

This thesis investigated the creation of varistors from a zinc oxide-polyaniline-epoxy composite and evaluated their electrical performance. The study aimed to enhance the material's effectiveness in voltage regulation and protection applications.

WORK EXPERIENCE

• Dates (from – to): **02/2025 – Current**

• Employer: **Free University of Bozen-Bolzano, Bozen-Bolzano, Italy**

• Position: **Research Assistant**

• Main activities:

- Fabrication and characterization of Sensors and TFTs on unconventional substrates including Vitrimer and wood.

• Dates (from – to)	**07/2022 – 06/2023**
• Employer	**BIOMETiC (MiCROTEC), Bressanone-Brixen, Italy**
• Position	**Research Internship**
• Main activities	• Prototyping of a lab-scale capacitive impedance analyzer • Validation of the developed system with present methods • Designing various experiments with different types of fruit and utilizing MATLAB for data analysis
• Dates (from – to)	**12/2016 – 06/2017**
• Employer	**Institute for Research in Fundamental Sciences, Tehran, Iran**
• Position	**Researcher**
• Main activities	• Conducted research on solid-state physics and materials science • Assisted in the development of experimental setups and data analysis
• Dates (from – to)	**07/2015 – 02/2016**
• Employer	**Sobh Parlar Asia Company, Tabriz, Iran**
• Position	**Junior Researcher and Technical Trainee**
• Main activities	• Assisted in the testing of composite materials for electronic components • Collaborated with senior engineers on projects focusing on the electrical properties of devices • Research on quality assurance and troubleshooting of electronic components to ensure optimal performance

PUBLICATIONS

[1] F. Masoumi et al., "Capacitive Impedance Analysis for Non-Contact Assessment of Fruit Quality and Ripening," 2023 IEEE Conference on AgriFood Electronics (CAFE), Torino, Italy, 2023, pp. 15-19.

[2] G. Paternò, P. Cardarelli, S. Fantoni, F. Masoumi, G. Mettivier, S. Cialdi, and A. Taibi, "Effect of the local energy distribution of x-ray beams generated through inverse Compton scattering in dual-energy imaging applications," Appl. Opt. 62, (2023).

[3] M. Ciocca et al., "3D bio-printed light-sensitive cell scaffolds based on polymer nanoparticles for bio-photonics applications," 2022 IEEE International Flexible Electronics Technology Conference (IFETC), Qingdao, China, 2022, pp. 1-2.

[4] F. Masoumi, A. Nijkoops, A. Carrasco-Pena, A. Van Bezooijen, N. Cohen, H. Maqsood, M. Haller, G. Cantarella, and N. Münzenrieder, "Natural Wood Substrates for Flexible Thin-Film Temperature Sensors," 2025 IEEE International Conference on Flexible and Printable Sensors and Systems (FLEPS), Singapore, 2025, pp. 1-4.

[5] H. Maqsood, A. Rasheed, S. Krik, F. Masoumi, F. Cacialli, P. Lugli, L. Petti, N. Münzenrieder, and G. Cantarella, "Thermal Sensors on Cellulose Based Substrate for Green Thin-Film Electronics," 2025 IEEE International Conference on Flexible and Printable Sensors and Systems (FLEPS), Singapore, 2025, pp. 1-4.

LANGUAGES

English	C1	**Persian**	C2	**Turkish**	C1
Italian	C1	**Arabic**	A1		
German	A1	**Azerbaijani**	First language		

COMPUTER SKILLS

MATLAB, COMSOL, Image Processing Software (ImageJ), and Wolfram Mathematical Calculation, Python

ADDITIONAL INFORMATION

Memberships and Roles:

- Organizing Committee, 3rd National Conference on Physical Plasma and Engineering
- Member of Physics Science Association
- Member of Astronomy Division, Northwestern Talents Organization
- Member of Science House

- Chief Secretary of Physics Students Association

Certifications and Workshops:

- Workshop: Simulation of the Electromagnetic Wave Propagation in Different Media with COMSOL
- Capacitor Modelling in COMSOL Multiphysics & FEMM (Udemy, 2023)
- Certified Training Course in Business Skills (Udemy, 2020)
- Google Digital Workshop: Fundamentals of Digital Marketing
- MATLAB Master Class