Marco Simone

Electronic Engineer, Ph.D.

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Experience

2023.06-current **Assistant Professor**, *University of Catania*
- RESTART project

2023.02-03 **Academic Tutor**, *University of Cagliari*, Italy
- Pervasive Wireless System

2022.07-08 **Research Scholarship**, *University of Cagliari, Italy*
- 5G antennas design in PCB technology
- Algorithms for file metadata extraction

2020.07–2022.01 **Technologist**, *University of Cagliari, Italy*
- 5G antennas design in PCB technology
- Blockhain
- RF fingerprinting technique for counting mobile devices in a limited area, *Project title: Moni5G*

2020.05-07 **Academic Tutor**, *University of Cagliari*, Italy
- Electromagnetic Fields

2019.11–2020.06 **Research Scholarship**, *University of Cagliari, Italy*
Characterization and integration of radar prototypes for the detection of drones: SDR transceiver managing for signal capturing and signal processing.

2019.10-11 **Academic Tutor**, *University of Cagliari*, Italy
- Pervasive Electromagnetics

2019.08-10 **Research Scholarship**, *University of Cagliari, Italy*
Automatic design and optimization of antennas, IOT antennas design, 5G antennas design: stacked patch antenna

2019.03-07 **Research Scholarship**, *University of Cagliari*, Italy
Automatic design and optimization of antennas, 5G antennas design: stacked patch antennas

2019.03-06 **Academic Tutor**, *University of Cagliari*, Italy
- Electromagnetic Compatibility
- Electromagnetic Fields

2018.09–2019.02 **Consultant at CNIT**, *Consorzio Nazionale Interuniversitario per le Telecomunicazioni*
- 5G antennas design

2017.12–2018.08 **Research Scholarship**, *University of Cagliari*, Italy
- Analisys and design of electromagnetic field sensors
- Co-linear transitions for Q-band horns
- Smart Distribution Network antennas
- 5G Antennas

2016.01–2017.06 **Postdoctoral Research Assistant**, *Queen Mary, University of London, UK, Antennas & Electromagnetics Research Group*,
Transformation Optics and its applications to lens antennas (Luneburg Lens, Rotman Lens) , *Project title: Isotropics*

2015.04-10 **Visiting Student**, *Queen Mary, University of London, UK, Antennas & Electromagnetics Research Group*,
EBG-based metaferrites: design and optimization

2012.04-10 **Apprenticeship**, *Vitrociset S.p.A. – Sardinia Plants - poligono interforze del salto di Quirra - Villaputzu (CA), Italy* ,
Radar Systems, Radar Signal and Data Processing on a research project about the development of an RF receiver.

Courses

2013-2015 **PhD**, *University of Cagliari, Department of Electrical and Electronic Engineering (DIEE)*

Mathematical Methods applied to optimization of devices for microwave engineering:

- Particle Swarm Optimization
- Finite Difference Frequency Domain Methods

Thesis: Optimization of microwave devices

Education

2007.10-2011.12 **Master's degree - Electronic Engineering (110/110)**, *University of Cagliari, Department of Electrical and Electronic Engineering (DIEE)*

Electromagnetism and microwave engineering, Telecommunication Systems, Digital Systems, Analog Microelectronics, Organic electronic devices, Optoelectronics and Photonics, Numerical Calculation , Automatic.

Thesis: Analysis of radiating slot waveguide with dielectric cover.

2003.10-2007.12 **Bachelor's degree - Electronic Engineering (102/110)**, *University of Cagliari, Department of Electrical and Electronic Engineering (DIEE)*

Mathematics, Physics, Solid State Physics, Electrical Circuits, Electronic Devices, Analog and Digital Electronics, Electronic computers and processors, Electromagnetic fields, Signal Theory, Systems Theory, Reliability and diagnostics of electronic devices.

Computer Skills

MATLAB

ANSYS Electronics Desktop

CST Microwave Studio

GNU Radio

NI AWR Design Environment

Marco Simone - Publications

M. Simone, S. C. Pavone, M. B. Lodi, N. Curreli, G. Muntoni, A. Fanti, G. Sorbello and G. Mazzarella, *Design of a Low-Profile Dual Linearly Polarized Antenna Array for mm-Wave 5G*, in IEEE Access,vol. 11, pp. 40645-40656, 2023

G. Muntoni, G. Montisci, A. Melis, M. B. Lodi, N. Curreli, M. Simone, G. Tedeschi, A. Fanti, T. Pisanu, I. Kriegel, A. Athanassiou, and G. Mazzarella, *A Curved 3D-Printed S-Band Patch Antenna for Plastic CubeSat*, in IEEE Open Journal of Antennas and Propagation, vol. 3, pp. 1351-1363, 2022

M. Simone, M. B. Lodi, G. Muntoni, N. Curreli, A. Fanti, T. Pisanu, G. Valente, G. Montisci, and G. Mazzarella, *Two Co-Linear Transitions for Q-Band Horn Waveguide Dense Cluster*, 2022 16th European Conference on Antennas and Propagation, Madrid, Spain; 27th March - 01 April 2022 (EuCAP 2022); pp. 1-4

M. Simone, M. B. Lodi, N. Curreli, S. C. Pavone, C. Macció, E. Marongiu, L. Mariani, G. Muntoni, G. Mazzarella, and A. Fanti, *A Deep Space Ka-band Antenna for CubeSat: Design and Multiphysics Analysis*, 2022 16th European Conference on Antennas and Propagation, Madrid, Spain; 27th March - 01 April 2022 (EuCAP 2022); pp. 1-5

G. Muntoni, A. Fedeli, M. B. Lodi, M. Simone, A. Randazzo, G. Mazzarella, and A. Fanti, *Designing a Microwave Moisture Content Sensor for Carasau Bread: A Feasibility Study* , 2022 16th European Conference on Antennas and Propagation, Madrid, Spain; 27th March - 01 April 2022 (EuCAP 2022); pp. 1-5

C. Macciò, M. B. Lodi, N. Curreli, L. Mariani, A. Melis, M. Simone, G. Muntoni, G. Mazzarella, M. Bozzi, and A. Fanti, *Preliminary Design of a Double Ridge Waveguide Device for Monitoring the Complex Permittivity of Carasau Bread Doughs*, 2022 16th European Conference on Antennas and Propagation, Madrid, Spain; 27th March - 01 April 2022 (EuCAP 2022); pp. 1-5

M. Simone, M. B. Lodi, N. Curreli, S. C. Pavone, G. Mazzarella, and A. Fanti, *Optimized Design and Multiphysics Analysis of a Ka-Band Stacked Antenna for CubeSat Applications*, in IEEE Journal on Multiscale and Multiphysics Computational Techniques, vol. 6, pp. 143-157, 2021

L. Cocco, K. Mannaro, R. Tonelli, L. Mariani, M. B. Lodi, A. Melis, M. Simone, and A. Fanti, *A Blockchain-Based Traceability System in Agri-Food SME: Case Study of a Traditional Bakery*, in IEEE Access, vol. 9, pp. 62899-62915, 2021

M. Simone, A. Fanti, and G. Mazzarella, *5G Wideband Stacked Patch Antennas*, 2021 15th European Conference on Antennas and Propagation (EuCAP), 22-26 March 2021, Virtual Conference, pp. 1-5

M.Simone, A. Fanti, M. B. Lodi, T. Pisanu, and G. Mazzarella, *An in-line coaxial-to-waveguide transition for Q-band single-feed-per-beam antenna systems*, Applied Sciences, 11(6), 2524, 2021.

M. Simone, A. Fanti, and G. Mazzarella, *A Wideband Patch Antenna for 5G*, 2020 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting, Montréal, Québec, Canada, 5-10 July 2020 (IEEE AP-S/URSI 2020), pp. 61-62

M. Baire, A. Melis, M. B. Lodi, P. Tuveri, C. Dachena, M. Simone, A. Fanti, G. Fumera, T. Pisanu and G. Mazzarella, *A wireless sensors network for monitoring the Carasau bread manufacturing process*, Electronics, 8(12), 1541, 2019

M. Simone, *An automatic design of 5G antennas through PSO and CST*, 23th International Conference on Applied Electromagnetics and Communications 2019 (ICECOM 2019) in Dubrovnik, Croatia, Sept 30 - Oct 2, 2019

G. Muntoni, L. Schirru, G. Montisci, T. Pisanu, G. Valente, P. Ortu, R. Concu, A. Melis, E. Urru, A. Saba, F. Gaudiomonte, and M. Simone, *The New Space Debris Dedicated Receiving Chain of the Sardinia Radio Telescope*, 23th International Conference on Applied Electromagnetics and Communications 2019 (ICECOM 2019) in Dubrovnik, Croatia, Sept 30 - Oct 2, 2019

M. Simone, A. Fanti, L. Boccia, G. Amendola, and G. Mazzarella, *A Dual Polarized Stacked Antenna for 5G Mobile Devices*, PhotonIcs & Electromagnetics Research Symposium (PIERS 2019), Rome, Italy, June 17–20, 2019

E. Ghiani, A. Serpi, V. Pilloni, G. Sias, M. Simone, G. Marcialis, G. Armano and A. Pegoraro, *A Multidisciplinary Approach for the Development of Smart Distribution Networks*, Energies Vol. 11, No. 10, 2018

M. Simone, A. Fanti, G. Valente, G. Montisci, R. Ghiani, and G. Mazzarella, *A Compact In-Line Waveguide-to-Microstrip Transition in the Q-Band for Radio Astronomy Applications*, Electronics Vol. 7, No. 2, 2018

A. Fanti, M. Simone, and L. Deias, *Analysis and Optimization of Elliptic Ridged Waveguide with FDFD Technique and PSO Algorithm*, ACES Journal, Vol. 31, No.8, August 2016

M. Simone, A. Fanti, G. Montisci , Giovanni G. A. Casula, and G. Mazzarella, *Combined PSO-FDFD Optimization of Rectangular Ridged Waveguides*, ACES Journal, Vol. 31, No. 2, February 2016

A. Fanti, S. Casu, F. Desogus, G. Montisci, M. Simone, G. A. Casula, P. Maxia, G. Mazzarella, and R. Carta, *Evaluation of a microwave resonant cavity as a reactor for enzyme reactions*, Journal of Electromagnetic Waves and Applications, Volume 29, Issue 17, November 2015, pages 2380-2392

N. Curreli, C. Puddu, G. Muntoni, M. Simone, and A. Fanti, *Evaluation of a Buckypaper's Electromagnetic Shielding Efficiency in X Band*, Progress In Electromagnetics Research Symposium, Prague, Czech Republic, July 6–9, 2015 (PIERS 2015)

M. Simone, A. Fanti, and G. Mazzarella, *Ridge waveguide optimization with PSO algorithm*, Journal of Electromagnetic Waves and Applications, Volume 29, Issue 2, 22 January 2015, Pages 199-209

M. Simone, and N. Curreli, *Design of a Multiband WLAN Antenna*, 2014 Loughborough Antennas and Propagation Conference, Loughborough, Leicestershire, UK, 10-11 November 2014 (LAPC 2014), Pages 746-750

M. Simone, A. Fanti, G. Mazzarella, and G. Montisci, *Band Optimization of Ridge Waveguides Using PSO*, Proceedings of IEEE, The 30th Annual Review of Progress in Applied Computational Electromagnetics, ACES 2014, March 23 – 27, 2014, Jacksonville, Florida

M. Simone, A. Fanti, and G. Mazzarella, *Optimization of rectangular ridge waveguides using PSO*, 2013 Loughborough Antennas and Propagation Conference,Loughborough, Leicestershire, UK, 11-12 November 2013 (LAPC 2013), Pages 400-403

A. Fanti, M. Simone, and G. Mazzarella, *High Order FDFD computation of all waveguide modes using a single grid*,2013 Loughborough Antennas and Propagation Conference,Loughborough, Leicestershire, UK, 11-12 November 2013 (LAPC 2013), Pages 74-77

A. Fanti, M. Simone, and G. Mazzarella,*High order FD computation of TE and TM modes in single grid*, Progress in Electromagnetics Research Symposium, Stockholm; Sweden; 12-15 August 2013 (PIERS 2013); Pages 1224-1227