



Emanuele Cardillo

Curriculum Vitae

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Personal information

Date of birth 28/11/1987
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Education

May 2018 Ph.D in “Ingegneria Civile, Ambientale e della Sicurezza – Curriculum: “Scienze e Tecnologie, Materiali, Energia e Sistemi Complessi per il Calcolo Distribuito e le reti” – XXX ciclo, S.S.D. ING-INF/01 - University “Mediterranea” of Reggio Calabria, judgment: excellent. Thesis title: “Microwave radars for short-range applications: from the transistor characterization to the system development”. Tutor: Prof. Alina Caddemi.

July 2015 Engineering License – Sez. A – Information Engineering.

November 2013 Master degree: Electronic Engineering – University of Messina - grade: 110/110. Thesis title: “Modeling and design of circuits with GaN HEMT for X-band power-radar”.

March 2010 Bachelor degree: Electronic Engineering - University of Messina - grade: 106/110. Thesis title: “Development of oscillating circuits for the electronic characterization of Surface Acoustic Wave (SAW) devices”.

Research and professional experience

- 01/02/2018 – current job* Post-doctoral researcher: "Electrical and noise measurement on advanced electronic devices", Department of Engineering - University of Messina. Resp.: Prof. Carmine Ciofi.
- 03/11/2014 – 31/10/2017* Research activity within the Ph.D course: Ingegneria Civile, Ambientale e della Sicurezza – Curriculum: "Scienze e Tecnologie, Materiali, Energia e Sistemi Complessi per il Calcolo Distribuito e le reti – XXX cycle, S.S.D. ING-INF/01. Tutor: Prof. Alina Caddemi. The PhD course has been focused on the microwave electronics field, mainly on:
- Design of active and passive planar hybrid microwave integrated circuits (HMIC).
 - Linear and noise modeling of microwave transistors.
 - Linear and noise microwave measurements (1 - 50GHz).
 - Design of micro-radar systems.
 - Realization of HMIC circuits and systems.
- 26/05/2014 – 15/10/2014* Freelance researcher: "Design and development of microwave circuits" - P.O.N. "Ricerca e Competitività" 2007-2013 - Asse I - Ob. Oper. 4.1.1.4, Az. I, PON01_01322: "Packaging based on nanomaterials for compact receivers and exciters. Radar applications with beam scanning antenna (PANREX)" - University of Messina. Resp. Prof. Alina Caddemi.
- 10/01/2015 – 09/06/2015*
- 25/11/2010 – 02/11/2014* Electronic technician, company: C.G.T. S.r.l. (Palermo).

Teaching experience

- 02/05/2017 – 26/10/2017* Mentor of Physics for engineers.
- 04/11/2015 – current* Expert of "Wireless Technologies" (S.S.D. ING-INF/01), master degree in Engineering and Computer.
- 2015 - current* Research assistant for the following degree thesis:
- La compatibilità elettromagnetica: analisi e misure su sistemi elettrici ed elettronici.
 - Analisi e simulazione di un riflettometro vettoriale.
 - Progetto e simulazione di un sistema radar short-range.
 - Caratterizzazione di micro-radar per applicazioni a microonde.
 - Misure di compatibilità elettromagnetica per emissioni condotte.
 - Progetto e simulazione di un sistema radar Doppler ad impulsi.
 - Progettazione e analisi di circuiti per Energy Harvesting.

- Effetti dell'esposizione a radiazione laser di HEMT a microonde.
- Caratterizzazione di GaAs HEMT pseudomorfici ad onde millimetriche.
- Analisi elettromagnetica di strutture SIW a microonde.
- Analisi elettromagnetica delle prestazioni di un low-noise amplifier in banda X.
- Effetti dell'esposizione laser di LNA HMIC per microonde.
- Progetto e simulazione di un radar FMCW in banda S.
- Caratterizzazione di board radar in banda K.

International conferences as a speaker

- [1] E. Cardillo and A. Caddemi, "A virtual test-bench for noise figure measurements of mismatched devices," *IEEE International Workshop on Metrology for Aerospace*, Jun. 2018.
- [2] A. Caddemi, E. Cardillo, and G. Crupi, "HEMT Sensitivity to Optical Radiation: Distinguishing Microwave Noise Aspect," *The 12th International Symposium on SiO₂ Advanced Dielectrics and Related Devices*, pp. 52-53, Jun. 2018 (**Keynote speaker**).
- [3] A. Caddemi and E. Cardillo, "Optical control of gain amplifiers at microwave frequencies," *Computing and Electromagnetics International Workshop (CEM)*, Barcelona, Spain, pp. 51-52, Jun. 2017.
- [4] A. Caddemi and E. Cardillo, "A study on dynamic threshold for the crosstalk reduction in frequency-modulated radars," *Computing and Electromagnetics International Workshop (CEM)*, Barcelona, Spain, pp. 29-30, Jun. 2017.
- [5] V. Di Mattia, A. Caddemi, E. Cardillo, G. Manfredi, A. De Leo, P. Russo, L. Scalise, and G. Cerri, "A Feasibility Study of a Compact Radar System for Autonomous Walking of Blind People," *2016 IEEE 2nd International Forum on Research and Technologies for Society and Industry Leveraging a better tomorrow (RTSI)*, Bologna, Italy Sept. 2016, 3 p.
- [6] E. Cardillo and A. Caddemi, "Flexible CAD methodology for UWB filter with a tailored notch," *IEEE Mediterranean Microwave Symposium (MMS)*, Lecce, Italy, Dec. 2015.
- [7] N. Boukortt, A. Caddemi, E. Cardillo, G. Crupi, B. Hadri, and S. Patanè, "Inverse Modeling of an AlGaAs/GaAs HEMT from DC and Microwave Measurements Illumination," *IEEE International Conference on Advanced Technologies, Systems and Services in Telecommunications (TELSIKS)*, Niš, Serbia, Oct. 2015.
- [8] A. Caddemi, E. Cardillo, G. Crupi, and G. Salvo, "Performance Analysis of a Microwave Low-Noise Amplifier under Laser Illumination," *IEEE International Conference on Advanced Technologies, Systems and Services in Telecommunications (TELSIKS)*, Niš, Serbia, Oct. 2015.
- [9] A. Meazza, G. Sivverini, A. Colzani, M. Fumagalli, A. Traversa, and E. Cardillo, "A New Methodology to Estimate E-band pHEMT Linearity Optimum Load from Low Microwave Frequency Load Pull Measurements" *IEEE International Workshop on Integrated Nonlinear Microwave and Millimeter-wave Circuits (INMMiC)*, Taormina, Italy, 3 p., Oct. 2015.

Awards

- "IEEE Sensors Journal Best Student Paper Award" 2017/2018.
- "IEEE Microwave Theory and Techniques (MTT-S) award" 2018.

Peer review activity

- IEEE Sensors Journal.
- IET Microwaves, Antennas & Propagation.
- IET Electronics Letters

Participation to conference committees

Member of the organizing committee of the: "IEEE International Workshop on Integrated Nonlinear Microwave and Millimeter-wave Circuits (INMMiC)", Taormina (Italy), 01-02/10/2015.

Member of the scientific committee of the: "The First International Conference on Microelectronic, Devices and Technologies (MicDAT).

International and national society affiliations

2018 - current IEEE Sensors Council

2015 - current IEEE Microwave Theory and Techniques Society (MTT-S)
Member

2018 - current IEEE Member

2015 - 2017 IEEE Student Member

2016 - current Associazione Società Italiana di Elettronica (SIE)

Current research interests

- Design of active and passive planar hybrid microwave integrated circuits (HMIC).
- Linear and noise modeling of microwave transistors.
- Linear and noise microwave measurements (1 - 50GHz).
- Design of micro-radar systems.
- Realization of HMIC circuits and systems