

Federico Alimenti

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- Associate Professor of Electronics (ING-INF/01), University of Perugia, Department of Engineering; teaching classes:
 1. “Radio Frequency Integrated Circuits (RFIC) Design with lab.”
 2. “Power Electronics”
 3. “Logic Networks and Microcontroller with lab.”
- National Scientific Qualification (ASN) 03/2018: Full Professor of Electronics (09/E3)

SUMMARY

Federico Alimenti was born in Foligno, Italy, in 1968. He received the Laurea degree (magna cum laude) and Ph.D. degree in “Electronic Engineering” from the University of Perugia, Italy, in 1993 and 1997, respectively. In 1993 he held an internship at Daimler-Benz Aerospace, Ulm, Germany. In 1996 he was recipient of the URSI Young Scientist Award and Visiting Scientist at the Technical University of Munich, Germany. Since 2001 he has been with the Department of Engineering at the University of Perugia, teaching the class of Telecommunication Electronic, Microwave Electronic, Radio Frequency Integrated Circuit Design, Logic Networks and Microcontrollers, Power Electronics. Between 2006 and 2010 he was a member of the Academic Senate in the same university. Between 2011 and 2014 he was the scientific coordinator of the ARTEMOS project, ENIAC/ECSEL call 3, 2010. In 2012 he won the “Element 14 Medical Design Award” by proposing a disposable clinic thermometer on a band aid. In 2013 he has been the recipient of the IET Premium (Best Paper) Award and he was the Technical Program Committee (TPC) Chair of the IEEE Wireless Power Transfer (WPT) Conference. In the summer 2014 he was Visiting Professor at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland, recipient of a best conference paper award (IEEE RFID Technology and Applications Conference, Tampere, Finland, September 2014) and co-recipient of a best student paper award (IEEE Wireless Power Transfer Conference, Jeju, Korea, May 2014). In 2017 he was keynote lecturer at the Summer School held at Infineon Austria AG, Villach, one of the major microelectronic industry in Europe. In 2018 he got the qualification as “full professor” and won the “Mario Sannino” Award for the best research in the field of microwave electronics. He is member of the Microwave Engineering Center for Space Applications (MECSA) and Senior Member of IEEE. He has authored 3 European patents and more than 200 papers in journals conferences and books. The H-index of Federico Alimenti is 23 with more than 2000 citations (Scopus); 26 with more than 2800 citations (Google Scholar)

Federico Alimenti has directed PhD theses, M.Sc. theses and has been tutor of research grants and scholarships. Federico Alimenti has been conducting, since the beginning, research in the fields of electronic, microwaves and radio-frequency integrated circuit design, with a particular focus to the CMOS and to the SiGe BiCMOS technologies.

He has developed works in several areas, producing a great number of contributions in the leading electronic and microwave journals, mostly from IEEE. In particular his work includes: 1) the design of miniaturized radar and radiometric sensors for environmental and industrial applications; 2) the development of the first avalanche noise source integrated in a commercial CMOS and SiGe BiCMOS technologies; 3) the design of miniaturized, high data-rate transceivers and radio-science packages for Cubesats and space-based platforms; 4) the modeling and characterization of microwave electronic circuits; 5) the study of power amplifiers for wireless communications; 6) the development of circuits-on-cellulose, a completely new paradigm in order to reduce the pollution

associated to the electronic waste; 7) the study and design of novel RFID systems; 8) the remote sensing of forest fires using a passive microwave radiometers.

VISITING SCIENTIST

- July – August 2014: visiting professor at the Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland. Research topic: avalanche noise sources in CMOS technologies.
- May – July 1996: visiting scientist at the Technical University of Munich, Germany. Research topic: solution of the Maxwell equations through Finite Difference Time Domain (FDTD) algorithms combined with Wavelet function expansion.

AWARDS AND RECOGNITIONS

- 2021: Associate Professor of Electronics at the University of Perugia, Perugia, Italy.
- 2018: National Scientific Qualification as Full Professor of Electronics.
- 2018: “Mario Sannino” Award for the best research in the field of microwave electronics.
- 2017: “Finanziamento Individuale delle Attività Base di Ricerca”. National MIUR award, Italian law 232/2016, 2.5 k€.
- 2014: IEEE Wireless Power Transfer Conference Best Student Paper Award. Chiara Mariotti, Federico Alimenti, Marco Virili, Giulia Orecchini, Paolo Mezzanotte, Luca Roselli, “Harmonic Chipless Sensor Exploiting Wireless Autonomous Communication and Energy Transfer”, in Proceedings of the IEEE Wireless Power Transfer Conference. p. 24-27, IEEE, Jeju, Korea, 8-9 May 2014, doi: 10.1109/WPT.2014.6839619.
- 2014: IEEE RFID Technology and Applications (RDID-TA) Conference Best Paper Award. Marco Virili, Apostolos Georgiadis, Kyriaki Niotaki, Ana Collado, Federico Alimenti, Paolo Mezzanotte, Luca Roselli, Nuno Borges Carvalho; “Design and Optimization of an Antenna with Thermo-Electric Generator (TEG) for Autonomous Wireless Nodes”, in Proceedings of the IEEE RFID Technology and Applications Conference. p. 21-25, IEEE, Tampere, Finland, 8-9 September 2014, doi: 10.1109/RFID-TA.2014.6934194.
- 2013: IET Premium (Best Paper) Awards 2013: Each year the IET awards a prize to the authors of the best paper published within the last two years in each of the IET’s journals. Pubblicazione: Giulia Orecchini, Federico Alimenti, Valeria Palazzari, Amin Rida, Manos M. Tentzeris, Luca Roselli, “Design and Fabrication of Ultra-Low Cost Radio Frequency Identification Antennas and Tags Exploiting Paper Substrates and Inkjet Printing Technology”, IET Microwave, Antennas and Propagation, Volume 5, Issue 8, 2011, pp. 993-1001.
- 2012: Element 14 Medical Design Award. Valeria Palazzari, Federico Alimenti, Luca Roselli, “Termometro clinico monouso realizzato su cerotto intelligente”.
- 1996: Young Scientist Award of the XXV General Assembly of U.R.S.I. (Union Radio Scientifique Internationale), Lille, France, August – September 1996.

SCIENTIFIC PROJECTS

(as a coordinator, principal investigator or research unit responsible)

- 2019-present: PRIN-2017 ENTERPRISING: “intEractions between hydrodyNamics flow and bioTic communities in fluvial Ecosystems: advancement in dischaRge monitoring and understanding of Processes Relevant for ecosystem sustalnability by the development of novel technologieS with fIeld observatioNs and laboratory testinG”; budget 163 k€.
- 2019-present: Principal Investigator. “Integrated Noise Built-In Test Equipment and Receivers Calibration”; the project is funded by Infineon Technologies Austria (IFAT); budget 150 k€.
- 2017-present; Unit Responsibility. ESA-ITT (ARTES 5.1, activity reference code 5E.001): “Miniaturised Ka-band FSS transponder for small satellites”. The study was commissioned by PicoSaTs s.r.l., Trieste, Italy, to the University of Perugia; budget 103 k€.
- 2011-2014; Unit Responsibility. ECSEL/ENIAC-MIUR, CALL 3 2010, ARTEMOS: “Agile RF Transceivers and Front-Ends for Future Smart Multi- Standard COmmunications ApplicationS”; budget 370 k€.
- 2007; Unit Responsibility. Network of Excellence (NoE), TARGET: “Top Amplifier Research Group in a European Team”; budget 61 k€.

EDITORIAL BOARDS

- MDPI Sensor (EISSN 1424-8220). Guest Editor of the Special Issue on: “New Generation Sensors Enabling and Fostering IoT”, Vol. 17, N. 10, August 2017.
- IEEE Transaction on Microwave Theory and Techniques (ISSN 0018-9480). Guest Editor of the Special Issue on "Wireless Power Transfer", Vol. 62, N. 4, April 2014, Part II.
- Technical Program Committee (TPC) Chair of the "IEEE Wireless Power Transfer (WPT) Conference, 2013.
- Steering committee member of the “7th Workshop on Computational Electromagnetics in Time Domain CEM-TD” sponsored by IEEE, Perugia from 15 – 17 October 2007.

REFEREE ACTIVITY

- IEEE Transaction on Circuits and Systems I. Referee, 2018 to present.
- Scientific Reports, Nature Publishing Group. Referee, 2015 to present.
- MDPI Electronics. Referee, 2015 to present.
- MDPI Sensors. Referee, 2011 to present.
- IEEE Transaction on Microwave Theory and Techniques. Referee, 2002 to present
- IEEE Microwave and Wireless Component Letters. Referee, 2002 to present

INVITED TALKS AND LECTURES

- 2020: “Sustainable Electronics for IoT”, International Centre for Theoretical Physics (ICTP), Trieste, Italy.
- 2017: “Measuring the microwave noise. From circuits to stars”, Summer School 2017, Infineon Austria AG, Villach, Austria, keynote lecture, 1/9/2017.

- 2015: “Design of RF circuits with ADS” Selex Sistemi Integrati S.p.A., Campi Bisenzio, Firenze, lecture, 29/10/2015.
- 2014: “Green Electronic: a New Technology for the Internet of Things”, Ecole Polytechnique Fédérale de Lausanne (EPFL) - ESPLAB, Institute of Microengineering, Neuchâtel, Switzerland, invited talk, 16/07/2014.
- 2012: “Massive Scale Electronics for Internet of Things Applications”, University of Westminster, London, UK (sponsored by IEEE Circuits and Systems and Instrumentation and Measurement Societies, co-sponsored by the IEEE Solid-State Circuits Society - UK & Republic of Ireland Chapter), invited talk, 08/03/2012.
- 2011: “Wireless Sensors & Remote Sensing: Comprehensive Approach and Perspectives”, Ecole Polytechnique Fédérale de Lausanne (EPFL) - ESPLAB, Institute of Microengineering, Neuchâtel, Switzerland, invited talk, 22/08/2011.
- 2009: “Wireless Sensing: Comprehensive Approach and Perspectives”, Tyndall National Institute, Cork, Ireland (sponsored by IEEE Solid State Circuits Society - Ireland Chapter), invited talk, 09/07/2009.
- 2007: “Development of Low-Cost Microwave Radiometers for Fire Detection”, University of Duisburg-Essen, Duisburg Germany, invited talk, 26/07/2007.

TEACHING

- 2022 – present: professor of “Power Electronics”
- 2021 – present: professor of “Logic Networks and Microcontrollers”
- 2017 – present: professor of "Radio Frequency Integrated Circuit Design", University of Perugia.
- 2011 – 2016: professor of "Microwave Electronics".
- 2002 – 2010: professor of "Telecommunication Electronics".
- Ph.D. and Master students advisor.

ERASMUS+

- Responsible, for the University of Perugia, of the Erasmus agreement with the University College Cork (UCC), Cork, Ireland
- Responsible, for the University of Perugia, of the Erasmus agreement with the Universitat Politècnica de Catalunya (UPC), Barcelona, Spain.

BIBLIOMETRY

- Google Scholar. H-index: 26; Citations: 2800.
- Scopus. H-index: 23; Citations: 2000.

PATENTS

- 02/05/2012
Italian Patent N. RM2012A000190, "*Sistema di codifica, decodifica e ricetrasmisione senza fili di dati sensoriali*". Inventors: Alimenti, Federico; Roselli, Luca. Applicant: University of Perugia.

- 03/06/2015
European Patent N. EP2660755 B1, "*System for coding, decoding and wireless transmission of sensor data*". Inventors: Alimenti, Federico; Roselli, Luca. Applicant: University of Perugia.
- 08/06/2018
Italian Patent N. 102018000006163, "*Rete di ripartizione a radiofrequenza riconfigurabile*". Inventors: Palazzi, Valentina; Mezzanotte, Paolo; Alimenti, Federico; Roselli, Luca. Applicant: University of Perugia.
- 29/06/2020
Italian Patent N. 10202000015595, "*Tenuta meccanica sensorizzata*". Inventors: Borasso, Massimiliano; Cagnoni, Marco; Alimenti, Federico; Mattoli, Cesare. Applicant: Meccanotecnica Umbra s.p.a., Campello sul Clitunno (PG), via G. Agnelli 7.
- 22/04/2021
European Patent N. 21169960.8, "*Dispositivo Ricevitore a Microonde*". Inventors: Fragiacomò, Mario; Federico, Dogo, Alimenti, Federico; Mezzanotte, Paolo; Palazzi, Valentina; Roselli, Luca. Applicant: Picosats s.r.l., Area Science Park, 34149 Trieste, Italy.
- 04/06/2021
Italian Patent N. 102021000014681, "*Trasduttore per la misurazione delle vibrazioni di un corpo e relativo apparato di misurazione delle vibrazioni*". Inventors: Alimenti, Federico; Mezzanotte, Paolo; Palazzi, Valentina; Roselli, Luca. Applicant: University of Perugia.

Perugia, 30/08/2022