

PERSONAL INFORMATION



Concettina Buccella

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Gender Female | Nationality Italian

EDUCATION AND TRAINING

1982-1988 **Università degli Studi dell'Aquila**
Dott. Ing. in Ingegneria Elettrotecnica with 110/110

1991 - 1995 - (VI Cycle) **Università degli Studi di Roma "La Sapienza"**
Ph.D. in Electrical Engineering

WORK EXPERIENCE

1990 – **University of L'Aquila**
2020– Professor in Power Converters, Electric Machines and Drives (S.S.D. ING-IND/32)
2002 - 2020 Associate Professor in Electrotechnics (S.S.D. ING-IND/31)
1994 - 2002 Assistant Professor in Electrotechnics (S.S.D. ING-IND/31)
1991 - 1994 Employee, Technical area
1989 - 1990 Research Fellow

Teaching Duties (since 1992)

Electrotechnics (various courses addressed to ICT Engineering, Electronic Engineering, Electrical Engineering, Industrial Engineering)

Fundamentals of Energy Systems (M.Sc. Erasmus Mundus)

Modeling and Simulation of Electric and Power Electronics Systems

Academic Duties

2022– Chair of the B.Sc. Degree in ICT Engineering
2021– Member of Restricted Council of the Department of Information Engineering, Computer Science and Mathematics
2013– Member of the Ph.D. School in ICT
2010 - 2016 Member of the Ph.D. School in Ph.D. School in "Methods and systems for management of electrical and thermal energy produced by renewable and assimilable energy and for sustainable buildings"
1994 - 2010 Member of the Ph.D. School in Electrical and Information Engineering

2016 – **Harbin Institute of Technology, Harbin, P.R. China**
2022 - 2023 Temporary Professor
2021 - 2021 Temporary Professor
2016 - 2016 Visiting Professor

- 2007 – **DigiPower srl - Innovative PMI, 67100 L'Aquila**
2017 – Chief Scientific Officer (CSO)
2012 - 2017 Chief Executive Officer (CEO)
2007 - 2012 co-Founder and Member of the Administrative Council

1988 - 1989 **Italtel - Italian Society Technologies, Industrial District of L'Aquila**
Research Engineer, Defense Department

Engineering Association of Province of L'Aquila

1989 - 2010 Registered Professional Engineer

AWARDS

- 2023 IEEE Fellow
2013 IEEE: Best paper award for the IEEE Transactions on Industrial Informatics: "Digital Control of Power Converters – A Survey," vol. 8, no. 3, pp. 437-447, August 2012
2012 IEEE: Best paper award for the IEEE Transactions on Industrial Informatics: "Smart Grid Technologies: Communication Technologies and Standards," vol. 7, no. 4, pp. 529-539, November 2011

FULFILLMENT OF THE REQUIREMENTS FOR PARTICIPATION TO ANVUR (SOURCE: SCOPUS, AS 12/01/2023)

SECTOR 09/E2 requirements: Number of papers published during the last 10 years (2013-2023): 12 papers. Number of actual publications: 93

SECTOR 09/E2 requirements: Number of citations during the last 15 years: 456. Number of actual citations: 4997

SECTOR 09/E2 requirements: H-index during the last 15 years: 12. Actual H-index: 17

RESEARCH ACTIVITY AND PUBLICATIONS

Concettina Buccella has coauthored n. 152 papers indexed by Scopus (AuthorID:6701903594) receiving 4997 citations; her *H-index*=22. She has been the author of numerous other not indexed publications. One third of her publications are on top level journals such as: *IEEE Transactions on Industrial Electronics*, *IEEE Transactions on Power Electronics*, *IEEE Transactions on Industrial Informatics*, *IEEE Journal on Emerging and Selected Topics in Power Electronics*, *IEEE Industrial Electronics Magazine*, *Electric Power System Research* (Elsevier), *Intelligent Industrial Systems* (Springer), *Matcom - Mathematics and Computers in Simulation - Journal* (Elsevier), *Green Energy and Technology* (Springer), *Energies* (MDPI), the others are published on the proceedings of top conferences such as: IEEE ECCE, IEEE IECON, IEEE ISIE, IEEE ICIT, IEEE IAS Annual Meeting, IEEE Powertech, IEEE EPE-PEMC, SPEEDAM, ICCEP, ESARS and others. Many of them are joint publications with international authors. More in detail, Her research activity has dealt with the following topics:

Electromagnetic compatibility

Analysis of direct lightning strikes on structures; Analysis of the interaction between transient electromagnetic fields and reinforced concrete buildings; Analysis of direct lightning strike in containers containing flammable liquids; Active-controlled shields; Power line communications; Electromagnetic compatibility of radio communications with Ultra Wide Band technology)

Analytical and numerical methods for the study of electromagnetic fields

Analysis of the electric field in a pulsed power electrostatic precipitator; Electromagnetic characterization of materials; Electromagnetic analysis of anisotropic structures; Electromagnetic Interference of Ultra Wide Band signals with cables and composite, metal and plastic structures; Simulation of cable harnesses, circuital modeling of some typical faults and techniques for the identification and localization of them; Study of MEMS structures such as filters, oscillators, switches, antennas and delay lines; Detection of mobile phones on board aircraft; Models of biological systems with particular attention to the human eye; Combined electro-thermal models of electrical devices (lanar transformer and planar motor)

Applications of neural networks and wavelet transform

Wavelet decomposition and neural networks for the identification of fault conditions to the termination of a transmission line belonging to a multiconductor system; Ultra Wide Band study for medical field diagnosis: use of the wavelet decomposition for the identification and localization of malignant tissues within a healthy biological tissue.

Smart grids

General issues related to communications and smart grids, use of renewable energy systems, STATCOM

Modulation techniques for multilevel converters

SHE-SHM-PWM algorithms; SHE-SHM-PAM algorithms; SHE-PAWM algorithms (SHE= Selective Harmonics Elimination; SHM: Selective Harmonics)

EDITORIAL BOARD MEMBERSHIP

Associate Editor

2019 – *IEEE Systems Journal*
2014-2021 *IEEE Transactions on Industrial Electronics*

Guest Editor *IEEE Transactions on Industrial Electronics*

Special Section on “Methods and Systems for Smart Grids Optimization”
Special Section on “Recent Advances in Multilevel Inverters and their Applications”

Guest Editor *Energies (MDPI)*

Special Section on “Multilevel Power Converters Control and Modulation Techniques” MDPI
Energies

Reviewer Concettina Buccella has been a reviewer for main journals and conferences in her research area

SCIENTIFIC INSTITUTION MEMBERSHIPS

Institute of Electrical and Electronic Engineers (IEEE) (<http://www.ieee.org>)

2023 – Fellow
2003 -2022 Senior Member
1992-2002 Member

CONFERENCE AND SCIENTIFIC SOCIETIES BOARDS

2018-2019 Chair of the *Renewable Energy Committee*, Industrial Electronics Society
2010 – Member of the *Renewable Energy Committee*, Industrial Electronics Society

CONFERENCE BOARDS

Concettina Buccella has been member of *Technical Program Committees, Steering Committees, Advisory Boards* and *Track Chair* of major IEEE Industrial Electronics Society conferences such as IEEE IECON and IEEE ISIE since many years.

INVITED SPEAKER

Plenary Speaker of the following conferences: ECEEW 2013, Luanda (Angola), ICRERA 2018, Paris (France), DAS2020 Brasov (Romania), and took seminars at Harbin Institute of Technology, Harbin (China) and University of Hangzhou, HangZhou (China).

ADDITIONAL ACTIVITES

Expert evaluator Concettina Buccella has served as expert evaluator of international research institutions for evaluation of research projects, and promotions of associate and full professors.

TECHNOLOGICAL TRASFER, START-UP, SPIN-OFF

- 2007 – Founder of DigiPower srl, spin-off of the University of L'Aquila, located in L'Aquila. DigiPower has cooperated with small, medium and large enterprises, partecipated to competitive calls on R&D winning with two distinct projects PON-H2020 "Imprese e Competitività" supported by the Italian Ministry of Industrial Development with EC fundings (total funding for DigiPower: € 850.000). DigiPower is an Innovative PMI (according to D.M. 3/2015.)
- 2012-2013 Co-Founder of "NEXTION" (NEXT innovATIOn), supported by the City of Lanciano, Italy, aiming at developing an incubator for start-up and innovative companies.

ADDITIONAL INFORMATIONS

Digital competences

SELF-ASSESSMENT

Information Processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

[Digital competences - Self-assessment grid](#)

Mother tongue Italiano

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C1	C1	C1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

January 12, 2023