



UNIVERSITÀ DEGLI STUDI DELL'AQUILA

Prof. Concettina Buccella

Curriculum scientifico

(Aggiornato il 2023/11/23)

Curriculum of Concettina Buccella

Concettina Buccella (M'92?SM'03?F'23) received the M.Sc. degree in 1988 and the Ph.D. degree in Electrical Engineering in 1995 from the University of L'Aquila, Italy, and the University of Rome "La Sapienza", respectively. From 1988 till 1989 she has been a research engineer with Italtel SpA, L'Aquila. In 1991 she joined the University of L'Aquila, where she is Professor in Power Converters, Machines and Drivers. Her research interests deal with smart grids, power converters modulation techniques, renewable energy management, analytical and numerical modeling.

1 Editorial responsibilities

The main publishing activities are summarized below:

- 2009: Guest Editor of the IEEE Transactions on Industrial Electronics - Special Section on: "Methods and Systems for Smart Grids Optimization" (published in 2011)
- 2014-2021: Associate Editor of the IEEE Transactions on Industrial Electronics
- 2015: Guest Editor of the IEEE Transactions on Industrial Electronics - Special Section on: "Recent Advances in Multilevel Inverters and their Applications" (published in 2016)
- 2019: Member of the Editorial Board of the International Journal of Smart Grid (web site: www.ijSmartGrid.org)
- 2019: Guest Editor of the Special Issue "Multilevel Power Converters Control and Modulation Techniques" of the Energies magazine (MDPI).
- 2019: Associate Editor of the IEEE Systems Journal

Moreover, she has been reviewer for many journals and conferences including: IEEE Transactions on Industrial Electronics, IEEE Transactions on Power Electronics, IEEE Journal of Emerging and Selected Topics in Power Electronics, IEEE Transactions on Vehicular Technology, IEEE Transactions on Industrial Informatics, IEEE Transactions on Industry Applications, IEEE Transactions on Dielectrics and Electrical Insulation, IEEE Sensors Journal, IEEE Access, PIER & JEMWA Journals, Journal of Electrostatics, IET Science, Measurement & Technology, Bioelectromagnetics, Journal of Circuits, Systems, and Computers, Circuits and Systems-Scientific Research, Electric Power Systems Research, Energy Conversion and Management Elsevier, IEEE Transactions on Smart Grid, British Journal of Applied Science & Technology, Robotics and Computer-Integrated Manufacturing: an International Journal of Manufacturing, Product and

Process Development (Elsevier Editorial), International Journal of Hydrogen Energy, Energies, Industry Applications Society Annual Meeting, International Conference on Industrial Electronics (IECON), International Symposium on Industrial Electronics (ISIE), International Conference on Industrial Technology (ICIT), International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG), International Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM), International Conference on Clean Electrical Power (ICCEP), IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe), IEEE Energy Conversion Congress and Exposition (ECCE), 2019 ACEMP-OPTIM19, International Symposium on Environment-Friendly Energies and Applications (EFEA), AEIT International Annual Conference, and many others.

2 Scientific memberships

- since 1992: Member of the Institute of Electrical and Electronics Engineers (IEEE)
- since 2003: Senior Member of the Institute of Electrical and Electronics Engineers (IEEE)
- since 2023 (january 1): Fellow Member of the Institute of Electrical and Electronics Engineers (IEEE)
- 1998-2002: Member of the Electrostatic Process Committee of the IEEE Industry Applications Society
- Founding member of the Smart Grid Committee of the IEEE Industrial Electronics Society
- Member of the Power Electronic Committee of the IEEE Industrial Electronics Society
- Member of the Renewable Energy Systems Technical Committee of the IEEE Industrial Electronics Society
- 2016-2018: Chair of the IEEE Industrial Electronics Society Renewable Energy Systems Technical Committee.
- 2021: Expert nominated review for VQR 2015-2019 for GEV 09 SSD ING-IND/32 PE7_3 e PE7_2 (maggio 2021).

3 Awards

- STAR Reviewer Award for the IEEE Journal of Emerging and Selected Topics in Power Electronics (2019).
- Best 2013 Paper Award for the IEEE Transactions on Industrial Informatics, for the paper "Digital Control of Power Converters - A Survey," *IEEE Transactions on Industrial Informatics*, vol. 8, no. 3, pp. 437-447, Aug. 2012, co-authors: C. Cecati, H. Latafat.
- Best 2012 Paper Award for the IEEE Transactions on Industrial Informatics, for the paper "Smart Grid Technologies: Communication Technologies and Standards?," *IEEE Trans. on Industrial Informatics*, vol. 7, no. 4, pp.529-539, Nov. 2011, co-authors: V.C. Gungor, D. Sahin, T. Kocak, S. Ergut, C. Cecati and G.P. Hancke.
- Best Paper Award for for the 2020 IEEE International Power Electronics and Motion Control Conference (IPEMC-ECCE Asia), Nov 29 - Dec 2, 2020, Nanjing, China, for the paper "Super Twisting Sliding Mode Controller for PMSM fed with Multilevel Inverter for E-transportation?," Vidhi Patel, Stefano Di Gennaro, Concettina Buccella, Carlo Cecati.
- Best Paper Award for the 2018 International Conference on Smart Grids (icSmartGrids), December

4 -6, 2018, Prefectural Art Museum, Nagasaki, Japan, for the paper: "Mixed Harmonic Elimination Control for a Single-Phase 9-Level Grid-Connected Inverter"; co-authors: F. Viola, V. Castiglia, G. Scettino, C. Cecati, M. Cimatori, R. Miceli.

- Best 2012 Session Paper Award - IEEE International Conference on Industrial Electronics (IECON 2012), Montréal, Canada, October 25 - 28, 2012. Title of the paper: "Implementation of Digital PID and Fuzzy Control in a LLC Resonant Converter," co-authors: C. Cecati, H. Latafat, K. Razi.
- Best Student Paper/Best Symposium Paper Award from the 2007 IEEE Electromagnetic Compatibility Society International Symposium, Honolulu, USA, July 8-13, 2007. Title of paper: "Numerical Prediction of SAR and Thermal Elevation in a 0.25-mm 3-D Model of the Human Eye Exposed to Handheld Transmitters?," co-authors: V. De Santis, M. Feliziani.
- Second Best Paper at Bioelectromagnetic (BEMS) 28th Annual Meeting, Cancun, Mexico, June 11-15, 2006. Title of paper: "Investigation of Temperature Increase in Human Eyes Due to Different RF Sources?," co-authors: V. De Santis, M. Feliziani.

4 Technical Committees Activities

- 1997: Member of the Organizing Committee of the 3rd International Conference on Applied Electrostatics (97 ICAES) held in Shanghai, China, 14-16 November 1997.
- 1999: Member of the Organizing Committee of the 1999 Annual Meeting of the National Coordination Group of Electrical Engineering.
- 2000: Member of the Organizing Committee in the Conference IEEE Industry Applications Annual Meeting, Electrostatic Process Committee, Rome, October 2000.
- 2007: Member of the Design and Management Group of the Project Multi "Centres of Higher Education in the fields of Manufacturing and Services" (*POL_AF*) funded with POR Abruzzo money (cost of intervention: " 4,256,000).
- 2007: Member of the Organizing Committee of the Second Level Master "Energy Manager", of the Faculty of Engineering of the University of L'Aquila.
- 2013: Power Systems Track Chair of the 39th Annual Conference of the IEEE Industrial Electronics Society (IECON 2013), November 10-13, 2013, Vienna, Austria.
- 2013: Technical Program Committee Member of the 2013 IEEE International Workshop on Intelligent Energy Systems "Managing the Complexity in Energy Systems" (IWIES), November 14, 2013, Vienna, Austria.
- from 2013: Member of Scientific Committee of International Conference on Clean Electrical Power Renewable Energy Resources Impact (ICCEP).
- 2014: Technical Committee Member of IEEE International Conference titled "International Conference on Consumer Electronics" (ICCE), 7-10 September, 2014, Berlin.
- 2014: Program Committee Member of IEEE IWIES 2014 which will be held in conjunction with IEEE SMC 2014 (www.smc2014.org) on October 8, 2014 in San Diego, CA, USA.
- from 2014: Program Committee Member of International Symposium on Environment Friendly Energies and Applications, (EFEA).
- from 2014: Member of Scientific Committee of International Conference on Renewable Energy for Developing Countries (REDEC).
- 2014: Technical Committee Member of International Conference in Science, Engineering and

Management Research? (ICSEMR) from 27th November 2014 to 29th November 2014, Avadi, Chennai, Tamilnadu, India.

- 2014: Co-Chair of the session MoB8 "Power Converters, Control, and Energy Management for Distributed Generation at International Symposium on Industrial Electronics (ISIE), June 1-4, 2014, Istanbul, Turkey.
- 2015: Track Chair of the Power Electronics Track at International Symposium on Industrial Electronics (ISIE), June 3-5, 2015, Buzios-Rio de Janeiro, Brazil.
- 2015: Track Chair for "Power Systems" at the 41st Annual Conference of the IEEE Industrial Electronics Society (IECON), November 9-12, 2015, Yokohama, Japan.
- 2015: Technical Committee Member of International Conference on Fuzzy System and Data Mining (FSDM2015) which will be held in Shanghai, China, December 12-15, 2015.
- 2016: Treasurers at the 2016 Annual Conference of the IEEE Industrial Electronics Society.
- 2016: Power Systems Track Chair of the 42nd Annual Conference of the IEEE Industrial Electronics Society (IECON 2016), Oct. 24-27, 2016, Florence, Italy.
- 2017: Power Systems Track Chair of the 43rd Annual Conference of the IEEE Industrial Electronics Society (IECON), Oct. 29 - Nov. 1, 2017, Beijing, Cina.
- 2017: Organizing Committee Member of 2017 International Conference on Mechatronics, Automation & Intelligent Materials November 13-14, 2017, Paris, France.
- from 2017: Technical Program Committee Member at IEEE International Conference on Consumer Electronics Berlin (ICCE-Berlin).
- from 2018: Member of the International Scientific Committee of SPEEDAM, Symposium on Power Electronics, Electrical Drives, Automation and Motion, 20-22 June, Amalfi.
- 2018: Technical Track for "Renewable Energy Systems" ICIT'2018 - the 19th IEEE International Conference on Industrial Technology of the IEEE IES society will be held in Lyon, France, February 20-22, 2018.
- 2018: Organizing Committee Member (OCM) for 3rd International Conference on Power and Energy Engineering, June 18-19, 2018, at Rome, Italy.
- 2018: Committee Members for ENERGY 2018, the Eighth International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies, May 20 - 24, 2018 - Nice, France.
- 2018: Tutorial-Workshop Chairs at 5th International Symposium on Environment Friendly Energies and Applications (EFEA) 2018, Rome 24-26 September 2018.
- from 2018: Member of Steering Committee at the International Symposium on Environment Friendly Energies and Applications (EFEA).
- 2018: Technical Program Committee Member of AEIT Automotive Conference.
- 2018: Steering Committee Member at AEIT International Annual Conference.
- 2018: TPC Member for 3ICT'18 (International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies), Bahrain, 18-20 November, 2018.
- 2019: International Advisory Board Member at CPE/POWERENG Conference, Sønderborg, DK, 23-25 April 2019.
- 2019: Smart Grid Track Chair at CPE/POWERENG Conference, Sønderborg, DK, 23-25 April 2019.
- 2019: Track Co-Chair on Renewable Electric Energy Conversion, Processing and Storage for IEEE-ISIE, Vancouver, Canada.
- 2019: Advisory Committee Members at 2nd International Conference on Power and Embedded

Drive Control-2019 (ICPEDC-2019) during 21-23 August 2019 in association with IEEE Madras Section.

- 2019: Member of International Scientific Committee of 4th International Conference on Power Electronics and their Applications ICPEA 2019, which will be held on 25-27 September 2019 in Elazig, Turkey.
- 2019: TPC member for 23rd 2019 IEEE International Symposium on Consumer Technologies (ISCT), Ancona, Italy, 19th ? 21st June 2019.
- 2020: Special Session Chair in the IES-IEEE 14th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG2020), Setubal (Portugal), 8-10 July, 2020.
- 2020: Special Session Chair at the IEEE 2nd International Conference on Industrial Electronics for Sustainable Energy Systems (IESES), Cagliari, Sardinia, 20 Apr. 2020 - 22 Apr. 2020.
- 2020: Power Systems and Smart Grid Track Chair at the 29th IEEE International Symposium on Industrial Electronics (ISIE), Delft, the Netherlands, 17-19 June 2020.
- 2020: International Program Committee Member of IEEE-PES-ISGT-Europe-2020, 10th International Conference on Innovative Smart Grids Technologies, Delft University of Technology, The Netherlands, from 26-28 October 2020.
- from 2020: Technical Program Committee Member of Zooming Innovation in Consumer Technologies International Conference (ZINC).
- 2020: Members for the Human-Machine Interaction and User Experience (HMI)-Technical Stream Committee-IEEE Consumer Electronics Society (CESoc).
- 2020: Evaluator of research and professional activity of research-oriented institutes of the Czech Academy of Sciences for the period 2015?2019.
- 2021: Member of International Technical Committee of 4th International Conference on Energy, Electrical and Power Engineering (CEEPE 2021), Chongqing, China, April 23-25, 2021.
- 2021: Member of the Technical Board of IEEE 15th International Conference on Compatibility, Power Electronics and Power Engineering - CPE-POWERENG 2021, Florence, Italy, July 14-16, 2021.
- 2022: Member of Technical Program Committee at 13th Power Electronics and Drives, Systems and Technologies Conference (PEDSTC 2022), February 1-3, 2022, Shahid Beheshti University, Tehran.
- 2022: Technical Committee Member at 6th International Conference on Power Energy Systems and Applications (ICoPESA 2022), February 25-27 2022 at Singapore.
- 2022: Track Co-Chair of the track on Power Systems & Smart Grid, IEEE ISIE 2022 conference will take place in Anchorage, Alaska, USA, June 1-3, 2022.
- 2022: Technical Committee Member at Asia Power and Electrical Technology Conference (APET), Shanghai, China, November 11-13, 2022. (www.apet.net).
- 2022: Technical Committee Member at the 3rd International Conference on Power Engineering (ICPE 2022) in Sanya during Dec. 9-11, 2022. (www.icpe.net).
- 2023: Technical Committee Member at the International Conference on Power Science and Technology (ICPST 2023) is to be held in Kunming, Yunnan, China on May 5-7, 2023.
- 2023: Technical Committee Member at the 5th Asia Energy and Electrical Engineering Symposium, which will take place in Chengdu, China again from March 23 to 26, 2023.
- 2023: Steering Committee/ Technical Committee Member at the 2nd International Conference on Clean Energy Storage and Power Engineering (CESPE2023), December 15-16, 2023 in Xi'an, China.
- 2023: Technical Program Committee Member at the 2nd Asia Power and Electrical Technology

Conference Shanghai, China, December 28-30, 2023.

- 2024: Technical Committee Member at 8th International Conference on Power Energy Systems and Applications Hong Kong, March 1-3, 2024.
- 2024: Technical Committee Member at 2024 International Conference on Power Electronics and Energy System (ICPEES 2024) will take place in Kuala Lumpur, Malaysia during March 1-3, 2024.
- 2024: Programme Committee Member of the 8th edition of the IEEE International Conference on Control, Automation and Diagnosis ICCAD'24 which will take place in Paris-France from May 15 to 17, 2024.
- 2024: Committee Member for AIVR 2024, The First International Conference on Artificial Intelligence and Immersive Virtual Reality, scheduled to be April 14 - 18, Venice, Italy.
- 2024: Program Committee Member for the 2024 IEEE International Conference on Consumer Electronics (ICCE), 6-8 January 2024, Las Vegas, NV, USA.
- 2024: Technical Program Committee Member at IEEE MELECON 2024 ? Porto ? Portugal ? 25-27 June 2024.

5 Plenary speeches

- 2013: Plenary speaker for the International Conference of Energy and Water, September 25-27, 2013, Luanda, Angola. Title of presentation: "Standards for smart grids with emphasis on their realization in remote and rural areas" (invited by the Ministry of Energy and Water of Angola).
- 2018: Plenary speaker alla International Conference on Renewable Energy Research and Applications, (ICRERA-2018), Paris, France, October 14-17, 2018. Title: "Low switching frequency modulation techniques for renewable energy multilevel converters".
- 2020: Plenary speaker at 14th International Conference on Development and Application Systems (DAS 2020), May 24-26, 2020 - Suceava, Romania. Title: "Modulation Techniques for High Efficiency Power Converters".
- 2020: Lecture to celebrate the first century of Harbin Institute of Technology, Cina.

6 Tutorial instructor

- 2015: *Tutorial instructor* at Harbin Institute of Technology, China, "Modulation techniques applied to multilevel inverters".
- 2016: *Tutorial instructor* at Bohai University, Jinzhou Shi, China, "Fundamental frequency modulation algorithms".
- 2016: *Summer course teacher* for "Electrical Science" at Harbin Institute of Technology, China
- 2018: *Tutorial instructor* at the Petroleum Institute University and Research Center, Abu Dhabi: "Efficient modulation techniques for power converters".

7 Industrial research and technology transfer

- 2007: Founding Member of DigiPower Ltd., L'Aquila, Italy (<https://www.digipower.it>), a spin-off of the University of L'Aquila active in the field of industrial electronics, modeling and numerical

electromagnetic compatibility

- from 2012 to 2017: Chief Executive Officer at DigiPower Ltd., L'Aquila, Italy
- from 2017: Chief Scientific Officer at DigiPower Ltd., L'Aquila, Italy
- Founding Member of "NEXTION" project (NEXT innovatION model) (www.nextion.it) aimed at creating a modern center of excellence based on a new business model for innovation in the Abruzzo region.

8 PhD Thesis evaluator and Award Committee Member

2021: External Evaluator for a PhD Thesis submitted to the PhD program in "Ingegneria dell'Informazione" (Automation/Robotics, Biomedical, and ICT Engineering) at University of Pisa.

2020: IES-PhD Awards Italy Chapter Committee Member

2021: IES-PhD Awards Italy Chapter Committee Member

9 Activities at the department DISIM

- 24/06/2021: Teaching staff representative member of the departmental "giunta"
- 10/11/2021: President of the Didactic Area Council in Information and Communication Technologies (ICT)

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