



Carlo Alberto Nucci

Date of birth: Born: 21 October 1956

Diploma: MD in Electrical Engineering (AY 1980-81) University of Bologna

Academic title: Full Professor in Electrical Power Systems (2000)

Employer: University of Bologna

Research activity:

Head of the Power Systems Laboratory of the Department of Electrical, Electronic and Information Engineering “Guglielmo Marconi”, University of Bologna. Responsible of several research projects financed by the Italian Ministry of Research, by the Italian Science Foundation (C.N.R.), by European Commission and of several research contracts financed by Italian and foreign companies and universities. Author/co-author of more than 370 scientific articles published in peer-reviewed journals or international conference proceedings and of 13 chapters of internationally distributed books on the following topics: lightning interaction with power systems, restoration processes after blackouts, power systems dynamics, smart grids, smart cities and renewable energy communities. Supervisor and co-supervisor of some 20 PhD thesis in the last 30 years. Prof. Nucci is a Life Fellow of the IEEE, Fellow of the International Council on Large Electric Systems (CIGRE), of which he is also an Honorary member, and Fellow of the Chinese Society of Electrical Engineering, CSEE. He has received some best paper/technical international awards, including the CIGRE Technical Committee Award and the ICLP Golde Award. Chairman of the International Steering Committee of the IEEE PES PowerTech Conference (2002-2007), Chairman of the CIGRE Study Committee C4 System Technical Performance (Jan 2006 - Sept 2012), Region 8 Representative for “IEEE PES Region 8 (Europe, Middle East and Africa)” and member of IEEE PES Governing Board (2009 and 2010), Member of IEEE Smart Cities Initiative for PES (2012-2014), Chair, Technical Program Committee, IEEE Smart Grids World Forum 2012, Panel member (Systems and Communication Engineering) for the EU ERC Advanced Grants Call 2015, 2017, 2019 and 2020 evaluations, Member of the IEEE-PES Fellow Committee from 2014 to 2018, Member of the IEEE Fellow Committee for the years 2022 and 2023. Has served as chair of panel of the 2022 Call for Exploratory Research Projects under the MIT Portugal Program. Prof. Nucci has also served as Editor-in-Chief of the Electric Power Systems Research journal (Elsevier) from 2010 to 2021. He has served as Deputy Dean of the Faculty of Engineering from 2008 to 2012, as the President of the Italian Group of the University Professors of Electrical Power Systems (GUSEE) from 2012 to 2015, and as Coordinator of the Bachelor and Master programs in Electrical Energy Engineering from the AY 2012-13 for two consecutive terms (until the 2017-18 AY). He is presently serving as the Italian Representative in the Horizon Europe Mission “Climate-Neutral and Smart cities”. He is also serving as the Chair of the International Conference on Lightning Protection, ICLP, as co-chair of the International Conference on Power Systems Transients, IPST and as co-chair of the Executive Board of the Power Systems Computation Conference, PSCC. Prof. Nucci is Doctor Honoris Causa of the University Politehnica of Bucharest, a member of the Academy of Science of the Institute of Bologna and a member of the Istituto Lombardo - Science Academy of Milan. He is also distinguished invited Professor at Tsinghua University, Beijing (2023-2026). Invited Keynote plenary speaker and lecturer at some 40 international conferences. Total number of citations (Scopus: 8133, h-index: 46. Google Scholar: 13945, H index: 60) – Feb 2025

Journal publications in the last 5 years

- [1] Borghetti, Alberto; Harighi, Tohid; Lilla, Stefano; Napolitano, Fabio; Nucci, Carlo Alberto; Prevedi, Andrea; Tossani, Fabio; Graditi, Giorgio, Comunità energetiche e nuova gestione della distribuzione dell'energia elettrica, «ANNALES. PROCEEDINGS OF THE ACADEMY OF SCIENCES OF BOLOGNA. CLASS OF PHYSICAL SCIENCE», 2024, 2024, pp. 113 - 123
- [2] Tossani F.; Napolitano F.; Borghetti A.; Nucci C.A.; Tong C., Estimating flashover occurrence in distribution lines: A novel approach focused on the current-peak-to-distance ratio, «ELECTRIC POWER SYSTEMS RESEARCH», 2024, 230, pp. 1 – 9
- [3] Moraes, Luana Batista; Piantini, Alexandre; Shigihara, Miltom; Borghetti, Alberto; Napolitano, Fabio; Nucci, Carlo Alberto; Tossani, Fabio, Overvoltages caused by direct lightning strokes to a hybrid overhead line, «ELECTRIC POWER SYSTEMS RESEARCH», 2024, 229, pp. 1 - 10
- [4] Giovanni Leoni, Andrea Borsari, Guya Bertelli, Michele Roda, Dario Costi, Gabriele Lelli, Carlo Alberto Nucci, Roberto Menozzi, Gianluigi Ferrari, Sergio Duretti, Francesco Leali, Francesco Pasquale, Marko Bertogna, Research Finding and Directions Identified by the Smart City 4.0 Sustainable LAB, in: Smart City: A Critical Assessment, Cham, Springer, 2024, pp. 77 - 102 (THE CITY PROJECT)
- [5] Longo D.; Turillazzi B.; Roversi R.; Lilla S.; Nucci C.A.; Piccinini A.; Costa A., URBAN DIGITAL TWIN AND ENERGY MODELING Experiences and case study analyses|GEMELLO DIGITALE URBANO E MODELLAZIONE ENERGETICA Esperienze e analisi di casi d'uso, «AGATHÓN», 2024, 15, pp. 160 - 169 [articolo]
- [6] Li Q.; Azadifar M.; Rubinstein M.; Rachidi F.; Nucci C.A.; Wang J.; He J., A review of the modeling approaches of the lightning M-component with special attention to their current and electric field characteristics, «ELECTRIC POWER SYSTEMS RESEARCH», 2023, 215, pp. 108977 – 108989
- [7] Napolitano F.; Tossani F.; Borghetti A.; Nucci C.A., Evaluation of lightning-originated stress on distribution class surge arresters☆, «ELECTRIC POWER SYSTEMS RESEARCH», 2023, 223, Article number: 109593, pp. 1 - 7
- [8] Ishimoto K.; Tossani F.; Napolitano F.; Borghetti A.; Nucci C.A., LEMP and ground conductivity impact on the direct lightning performance of a medium-voltage line, «ELECTRIC POWER SYSTEMS RESEARCH», 2023, 214, pp. 108845 - 108853
- [9] K. Ishimoto, Tossani, F., Napolitano, F., Borghetti, A., Nucci, C.A., Direct Lightning Performance of Distribution Lines with Shield Wire Considering LEMP Effect. DOI:10.1109/TPWRD.2021.3053620. pp.76-84. In IEEE TRANSACTIONS ON POWER DELIVERY – 2022, ISSN:0885-8977 vol. 37 (1)
- [10] Seyed Soroush Karimi Madahi, Hossein Askarian Abyaneh, Carlo Alberto Nucci, Mohammad Parpaei, “A new DFT-based frequency estimation algorithm for protection devices under normal and fault conditions”, Electrical Power and Energy Systems 142 (2022) 108276.
- [11] Cappellaro, Francesca; D'Agosta, Gianluca; De Sabbata, Piero; Barroco, Felipe; Carani, Claudia; Borghetti, Alberto; Lambertini, Luca; Nucci, Carlo Alberto, Implementing energy transition and SDGs targets throughout energy community schemes, «JOURNAL OF URBAN ECOLOGY», 2022, 8, pp. 1 – 9
- [12] F. Tossani, F. Napolitano, K. Ishimoto, A. Borghetti, C.A. Nucci, “A New Calculation Method of the Lightning Electromagnetic Field Considering Variable Return Stroke

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- [14] A. Borghetti, Ishimoto, K., Napolitano, F., Nucci, C.A., Tossani, F., “Assessment of the Effects of the Electromagnetic Pulse on the Response of Overhead Distribution Lines to Direct Lightning Strikes”, DOI:10.1109/OAJPE.2021.3099596. pp.522-531. In IEEE OPEN ACCESS JOURNAL OF POWER AND ENERGY - ISSN:2687-7910 vol. 8, 2021
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