

Curriculum dell'attività didattica e scientifica del prof. Carlo Alberto Nucci

Aggiornato al giugno 2019

Notizie biografiche e carriera

Nato a Bologna nel 1956.

Laureato in Ingegneria elettrotecnica nel AA 1980/81 con lode e medaglia 'Luigi Donati'.

Abilitato alla professione di ingegnere nel 1982.

Ricercatore universitario nel 1983, professore associato nel 1992, straordinario nel 2000, ordinario dall'ottobre 2003, presso l'Università di Bologna.

Membro dell'Accademia delle Scienze dell'Istituto di Bologna (Corrispondente residente dal 2011, Benedettino dal 2017).

Attività didattica

Presso la Facoltà d'ingegneria dell'Università di Bologna: insegnamenti di

- Centrali elettriche dall'AA 1990-91 all'AA 1998-1999
- Sistemi elettrici per l'energia dall'AA 1998-1999 all'AA 2015-2016
- Elementi di sistemi elettrici per l'energia dall'AA 2001-2002 all'AA 2005-2006
- Elementi di Impianti e Sicurezza elettrica (per gli allievi Civili) dall'AA 2006-2007 all'AA 2013-2014
- *Electrical power system and smart grids* nell'A.A. 2015-16
- Impianti elettrici dall' A.A. 2016-17 ad oggi.
- Sistemi elettrici per l'energia (per gli Allievi Architetti) dall'AA 2016-17 ad oggi.

Docente di alcuni Master universitari:

- Master UniBo: "Innovazione della manutenzione e gestione dei patrimoni urbani ed immobiliari", nel 2003;
- Master UniBo: "Previsione, prevenzione e controllo del rischio industriale" nel 2004;
- "ENI Corporate Master: Progettazione di Impianti per lo Sviluppo di Campi Petroliferi Offshore" nel 2007;
- "ENI Corporate Master: progettazione di impianti oil & gas" nel 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015;
- Master SAIPEM "*Electrical Hazard*" nel 2011, 2012, 2013, 2014.
- Master Unibo "Sicurezza e prevenzione nell'ambiente di lavoro" negli anni 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.

Presso il Politecnico Federale di Losanna:

- docente del "Cours Post gradé Génie Electrique" dal 2001 al 2003.
- docente del corso "Distributed Generation from Renewables" nel 2013

Nell'associazione europea EES-UETP:

- docente di diversi corsi post laurea e *chairman* del Program Committee dal 2002 al 2007.

Attività Scientifica

Responsabile Scientifico del Laboratorio di Ingegneria dei sistemi elettrici di potenza (LISEP) del Dipartimento di Ingegneria Elettrica dal 1994.

Attività scientifica principalmente sui seguenti temi:

- analisi del comportamento dinamico degli impianti di produzione e dei sistemi elettrici di potenza con particolare riferimento alle condizioni di riavvio del sistema dopo un blackout;
- transitori elettromagnetici nei sistemi elettrici, e in particolare quelli provocati da scariche atmosferiche, ai fini del miglior coordinamento delle protezioni;
- *smart grid*, gestione delle reti di distribuzione in presenza di generazione distribuita, anche da fonte rinnovabile;
- caratterizzazione di batterie al piombo per veicoli elettrici;
- impianti per la vetrificazione 'in situ' dei rifiuti;
- strumenti di supporto alle decisioni dei produttori d'energia elettrica in un mercato elettrico competitivo.
- *Smart City e Local Energy Community*

Autore e/o coautore di oltre 300 lavori su riviste varie e su atti di conferenze nazionali ed internazionali, di sei capitoli di altrettanti volumi editi da IEE (2), Kluwer, Rumanian Academy of Science e WIT press, IEEE-Wiley, di due 'standard' della IEEE e di alcune *Technical brochure* della CIGRE.

Invited Keynote plenary speaker e lecturer a convegni internazionali (SIPDA 1997 – San Paolo, Brasile; ISH '01–Bangalore, India; ICHQP'06–Lisbona, Portogallo; PSCC 2008–Glasgow, UK; IPST'09 – Kyoto, Giappone; APECM'10 – Beijing, Cina; ISGT 20, IWEC'11 – Kyoto; IEEE International Forum Smart Grids for Smart Cities–Paris, 2016; RTSI'18–Palermo; MedPower '18–Dubrovnik; , SynEnergy Med '19–Cagliari; PowerTech'19 – Milano) e presso università straniere (Politecnico di Losanna, Università dell'Arizona, 'Bangalore Institute of Science', Università di San Paolo, Politecnico di Lisbona, Università Politecnica di Bucarest, Università Doshisa di Kyoto, Università di Siviglia, 'Seoul National University', Università di Budapest, Illinois Institute of Technology, Università Tsinghua di Pechino, Università di Lubiana).

Responsabile locale di diversi progetti PRIN, responsabile nazionale di due, e responsabile scientifico di numerosi contratti di ricerca tra il Dipartimento di afferenza ed altri enti di ricerca e/o istituti universitari italiani e stranieri su temi riguardanti il riavvio del sistema elettrico in seguito a 'black-out', il coordinamento dell'isolamento delle reti di distribuzione, le *smart grid* e gestione delle reti di distribuzione attive dell'energia elettrica con generazione distribuita, la protezione delle linee e degli aerogeneratori contro il fulmine, la protezione dei sistemi elettrici contro i disturbi elettromagnetici, la localizzazione dei guasti nelle reti di distribuzione.

Altre attività nell'Ateneo.

- Coordinatore della commissione per i servizi generali (1995-1999),
- Membro Commissione Finanziamenti della Facoltà di Ingegneria (2002-2006)
- Membro dell'Osservatorio della ricerca dell'Ateneo (dal 2004 al 2010)

- Vice Preside della Facoltà di Ingegneria dal novembre 2008 sino al termine.
- Coordinatore del Corso di Studio in Ingegneria dell'Energia Elettrica dall'A.A. 2012-13 per due mandati consecutivi.
- Coordinatore del Gruppo tematico di Ateneo 'Energy' dall'aprile 2017.
- Selezionato dall'Ateneo come membro del Comitato tecnico scientifico PER (Piano energetico regionale)

Attività istituzioni internazionali

Nell'International council on large electric systems (CIGRE):

- Membro di diversi gruppi di lavoro
- *Convener* del gruppo di lavoro "Lightning" sino al 2007
- *Chairman* dello Study Committee C4 "System technical performances" per il periodo 2006-2012.

Nella IEEE:

- Membro dei gruppi di lavoro "*Lightning performance of distribution lines*" e "*Distributed Resources: Modelling and Analysis*"
- *Chairman* dell'*International Steering Committee* della Conferenza internazionale PowerTech dal 2002 al 2007
- *Chairman* del *Italian PES Chapter* dal 2002 al 2007
- *Region 8 Representative* per la "IEEE PES Region 8 (Europe, Middle East and Africa)" e membro dell'IEEE PES Governing Board nel biennio 2009-2010
- Membro dello IEEE *Smart City Steering Committee* dal 2014.

Nell'EES-UETP:

- *Chairman* del *Technical Program Committee* nel periodo 2002-2007.

Attività istituzioni nazionali

- Presidente del Gruppo Universitario Nazionale dei docenti di Sistemi elettrici per l'energia (SSD ING/IND-33) dal gennaio 2013 al dicembre 2015.
- Presidente della Sezione AEIT dei Bologna dal maggio 2016 al gennaio 2019.
- Presidente del Comitato Tecnico 81 "Protezione contro i fulmini" dal luglio 2016.

Attività editoriali

- Regional editor dell'*Electric Power Research Journal (EPSR)*, Elsevier dal 2005
- Editor in Chief della stessa rivista dal 2010.
- Guest editor di varie "special issue della stessa rivista
- Membro dell'*Editorial Board* dell'*International Journal of Engineering Education* e del
- *Journal of International Council of Electrical Engineering (JICEE)*.

Riconoscimenti internazionali

- *Best paper award*, "CIGRE- IFAC International Symposium on Control of

- Power Plants and Power Systems”, Brussels, 2000 for the paper “The black-startup simulation of a repowered thermoelectric unit”, in cooperation with A. Borghetti, G. Migliavacca and S. Spelta
- Cigre *Technical Committe Award*, 2004
 - IEEE ed IET *Fellowship*, 2007
 - *Best paper award*, “Analysis of black-startup and islanding capabilities of a combined cycle power plant” in cooperation with A. Borghetti, M. Bosetti, M. Paolone, G. Ciappi, and A. Solari, 43rd Int. Universities Power Engineering Conference (UPEC), Padua, Sept. 1-4, 2008
 - *Laurea Honoris Causa* dall'Università Politecnica di Bucarest, 2008
 - ‘*Golde Award*’ della *International Conference on Lightning Protection*, 2012
 - *CIGRE Fellowship*, 2016

Appendice – pubblicazioni selezionate

Lavori su rivista

- [1] Influence of the Radial Electric Field Appraisal on Lightning-Induced Overvoltages Statistical Assessment. Tossani, F.; Napolitano, F.; Borghetti, A.; and Nucci, C., A. IEEE Transactions on Electromagnetic Compatibility, 61(3): 1-7. 2019.
- [2] O. Andrisano; I. Bartolini; P. Bellavista; A. Boeri; L. Bononi; A. Borghetti; A. Brath; G.E. Corazza; A. Corradi; S. de Miranda; F. Fava; L. Foschini; G. Leoni; D. Longo; M. Milano; F. Napolitano; C.A. Nucci; G. Pasolini; M. Patella; T. Salmon Cinotti; D. Tarchi; F. Ubertini; D. Vigo, “The Need of Multidisciplinary Approaches and Engineering Tools for the Development and Implementation of the Smart City Paradigm”, Proceedings of the IEEE, Volume: 106, Issue: 4, 2018.
- [3] Bak, C. L., A. Borghetti, J. Glasdam, J. Hjerrild, F. Napolitano, C. A. Nucci, and M. Paolone, "Vacuum circuit breaker modelling for the assessment of transient recovery voltages: Application to various network configurations", *Electr. Power Syst. Res.*, vol. 156: Elsevier B.V., pp. 35–43, 2018.
- [4] Borghetti, A., F. Napolitano, C. A. Nucci, and F. Tossani, "Response of distribution networks to direct and indirect lightning: Influence of surge arresters location, flashover occurrence and environmental shielding", *Electr. Power Syst. Res.*, vol. 153: Elsevier, pp. 73–81, dec, 2017.
- [3] Borghetti, A., F. Napolitano, C. A. Nucci, and F. Tossani, "Influence of the return stroke current waveform on the lightning performance of distribution lines", *IEEE Transactions on Power Delivery*, vol. 32, no. 4, pp. 1800-1808, Aug, 2017.
- [4] Tossani, F., A. Borghetti, F. Napolitano, A. Piantini, and C. A. Nucci, "Lightning Performance of Overhead Power Distribution Lines in Urban Areas", *IEEE Transactions on Power Delivery*, vol. PP, no. 99, pp. 1-1, 2017.
- [5] Borghetti, A., R. Bottura, M. Barbiroli, and C. A. Nucci, "Synchrophasors-based Distributed Secondary Voltage/VAR Control via Cellular Network", *IEEE Trans. Smart Grid*, vol. PP, no. 99, pp. 1, Jan 2017.
- [6] Tossani, F., F. Napolitano, and A. Borghetti, "New Integral Formulas for the Elements of the Transient Ground Resistance Matrix of Multiconductor Lines", *IEEE Trans. Electromagn. Compat.*, vol. PP, pp. 1–1, 2016.

- [7] Tossani, F., A. Borghetti, F. Napolitano, A. Piantini, and C. A. Nucci, "Lightning Performance of Overhead Power Distribution Lines in Urban Areas", IEEE Transactions on Power Delivery, vol. PP, no. 99, pp. 1-1, 2017.
- [8] Borghetti, A., F. Napolitano, C. A. Nucci, and F. Tossani, "Influence of the return stroke current waveform on the lightning performance of distribution lines", IEEE Trans. Power Deliv., vol. PP, no. 99, pp. 1–1, 2016.
- [9] Napolitano, F., F. Tossani, A. Borghetti, C. A. Nucci, M. L. B. Martinez, G. P. Lopes, G. D. J. G. Santos, and D. R. Fagundes, "Lightning performance of a real distribution network with focus on transformer protection", Electr. Power Syst. Res., Jan, 2016.
- [10] Napolitano, F., F. Tossani, C. A. Nucci, and F. Rachidi, "On the Transmission-Line Approach for the Evaluation of LEMP Coupling to Multiconductor Lines", Power Delivery, IEEE Transactions on, vol. 30, issue 2, 2015.
- [11] Napolitano, F., A. Borghetti, C. A. Nucci, M. L. B. Martinez, G. P. Lopes, and G. J. G. Dos Santos, "Protection against lightning overvoltages in resonant grounded power distribution networks", Electric Power Systems Research, vol. 113, pp. 121-128, 08/2014.
- [12] R. Bottura, A. Borghetti, F. Napolitano, C. A. Nucci, "ICT-power Co-simulation Platform for the Analysis of Communication-based Volt/Var Optimization in Distribution Feeders", Innovative Smart Grid Technologies Conference (ISGT), 2014 IEEE PES, Washington DC.
- [13] Necci, A., G. Antonioni, V. Cozzani, E. Krausmann, A. Borghetti, and C. A. Nucci, "A model for process equipment damage probability assessment due to lightning", Reliability Engineering & System Safety, vol. 115, pp. 91 - 99, 7/2013.
- [14] Bottura, R., D. Babazadeh, K. Zhu, A. Borghetti, L. Nordstrom, and C. A. Nucci, "{SITL and HLA co-simulation platforms: Tools for analysis of the integrated ICT and electric power system}", proc. Eurocon 2013.
- [15] Akbari, M., K. Sheshyekani, A. Pirayesh, F. Rachidi, M. Paolone, A. Borghetti, and C. A. Nucci, "Evaluation of Lightning Electromagnetic Fields and Their Induced Voltages on Overhead Lines Considering the Frequency Dependence of Soil Electrical Parameters", IEEE Transactions on Electromagnetic Compatibility, vol. 55, issue 6, pp. 1210 - 1219, 12/2013.
- [16] Borghetti, A., F. Napolitano, C. A. Nucci, and M. Paolone, "Effects of nearby buildings on lightning induced voltages on overhead power distribution lines", ELECTRIC POWER SYSTEMS RESEARCH, vol. 94: Elsevier B.V., pp. 38–45, 2013.
- [17] Napolitano, F., A. Borghetti, C. A. Nucci, F. Rachidi, and M. Paolone, "Use of the full-wave Finite Element Method for the numerical electromagnetic analysis of LEMP and its coupling to overhead lines", Electric Power Systems Research, vol. 94: Elsevier B.V., pp. 24–29, 2013.
- [18] Sarri, S., M. Paolone, R. Cherkaoui, A. Borghetti, F. Napolitano, and C. A. Nucci, "State Estimation of Active Distribution Networks: Comparison Between WLS and Iterated Kalman-Filter Algorithm Integrating PMUs", 2012 3rd IEEE PES Innovative Smart Grid Technologies Europe (ISGT Europe), Berlin, IEEE, pp. 267–268, 2012.
- [19] Belvedere, B., M. Bianchi, A. Borghetti, C. A. Nucci, M. Paolone, and A. Peretto, "A Microcontroller-Based Power Management System for Standalone Microgrids With Hybrid Power Supply", Sustainable Energy, IEEE Transactions on, vol. 3, no. 3, pp. 422 - 431, july, 2012.

- [20]F. Napolitano, M. Paolone, A. Borghetti, C.A. Nucci, A. Cristofolini, C. Mazzetti, F. Fiamingo, M. Marzinotto, "Models of Wind-Turbine Main-Shaft Bearings for the Development of Specific Lightning Protection Systems", IEEE Transactions on Electromagnetic Compatibility, Vol. 53, No. 1, Page(s): 99 – 107, 2011.
- [21]F. Napolitano, A. Borghetti, M. Paolone and M. Bernardi, Voltage transient measurements in a distribution network correlated with data from lightning location system and from sequence of events recorders, Electric Power Systems Research, Vol. 81, No. 2, pp. 237–253 201
- [22]Borghetti, C.A. Nucci, M. Paolone, G. Ciappi, A. Solari, A., "Synchronized Phasors Monitoring During the Islanding Maneuver of an Active Distribution Network", IEEE Transactions on Smart Grid, Vol. 2, No. 1, pp. 82 – 91, 2011.
- [23]Belvedere, M Bianchi, A Borghetti, CA Nucci, M Paolone, A Peretto, "A Microcontroller-Based Power Management System for Standalone Microgrids With Hybrid Power Supply", IEEE Transactions on Sustainable Energy, 3 (3), 422-431, 2012.
- [24]F. Napolitano, M. Paolone, A. Borghetti, C. A. Nucci, A. Cristofolini, C. Mazzetti, F. Fiamingo, M. Marzinotto, Models of Wind-Turbine Main-Shaft Bearings for the Development of Specific Lightning Protection Systems, «IEEE Transactions on EMC », 2011, 53, pp. 99 – 10
- [25]Borghetti, C.A. Nucci, M. Paolone, G. Ciappi, A. Solari, "Synchronized phasors monitoring during the islanding maneuver of an active distribution network". IEEE Transactions on Smart Grid. 2(1):82-91, 2011.
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- [27]Borghetti, M. Bosetti, C. A. Nucci, M. Paolone, A. Abur, Integrated Use of Time-Frequency Wavelet Decompositions for Fault Location in Distribution Networks: Theory and Experimental Validation, «IEEE Transactions on Power Delivery », 2010, 25(4), pp. 3139 – 3146
- [28]Borghetti, C.A. Nucci, M. Paolone, "Indirect-Lightning Performance of Overhead Distribution Networks With Complex Topology", IEEE Transactions on Power Delivery, Volume 24, Issue 4, Oct. 2009 Page(s): 2206 – 2213.
- [29]J. Schoene, M. A. Uman, V. A. Rakov, J. Jerauld, K. J. Rambo, D. M. Jordan, G. H. Schnetzer, M. Paolone, C.A. Nucci, E. Petrache, F. Rachidi, "Lightning Currents Flowing in the Soil and Entering a Test Power Distribution Line Via Its Grounding", IEEE Transactions on Power Delivery, Vol. 24, No. 3, July 2009, pp. 1095-1103.
- [30]Borghetti, A.S. Morched, F. Napolitano, C.A. Nucci, M. Paolone, "Lightning-Induced Overvoltages Transferred Through Distribution Power Transformers", IEEE Trans. on Power Delivery, Vol. 24, No. 1, pp. 360-372, Jan. 2009.
- [31]Borghetti, M. Bosetti, M. Di Silvestro, C. A. Nucci, M. Paolone, "Continuous-Wavelet Transform for Fault Location in Distribution Power Networks: Definition of Mother Wavelets Inferred From Fault Originated Transients", IEEE Trans. on Power Systems, Volume 23, Issue 2, May 2008, Page(s):380 – 388.
- [32]P. Kundur, C.A. Nucci, "Study Committee C4 on 'System Technical Performance': Current Activities and Future Plans", Electra, n. 232, June 2007.

- [33] Borghetti, M. Bosetti, M. Di Silvestro, C. A. Nucci, M. Paolone, L. Peretto, E. Scala, R. Tinarelli, "Assessment of Fault Location in Power Distribution Networks", *Electrical Power Quality and Utilization Journal*, Vol. 13, pp. 33 – 41, No. 1-2007.
- [34] N. Theethayi, R. Thottappilli, M. Paolone, C.A. Nucci, F. Rachidi, "External Impedance and Admittance of Buried Horizontal Wires for Transient Studies Using Transmission Line Analysis", *IEEE Transactions on Dielectrics and Electrical Insulations*, Vol. 14, No. 3, pp. 751-761, June 2007.
- [35] C.A. Nucci, F. Rachidi, M. Rubinstein, "An Overview of Field-to-Transmission Line Interaction", *Applied Computational Electromagnetics Society Newsletter*, Vol. 22, No. 1, pp. 9-27, March 2007.
- [36] Borghetti, C. A. Nucci, M. Paolone, "An Improved Procedure for the Assessment of Overhead Line Indirect Lightning Performance and its Comparison with the IEEE Std. 1410 Method", *IEEE Tr. on PWRD*, Vol. 22(1), pp. 684 – 692, Jan 2007.
- [37] Borghetti, S. Corsi, C.A. Nucci, M. Paolone, L. Peretto, R. Tinarelli, "On the Use of Continuous-Wavelet Transform for Fault Location in Distribution Power Networks", *Electrical Power & Energy Systems*, Volume 28, Issue 9, pp 608-617, November 2006.
- [38] Borghetti, A. Lodi, S. Martello, M. Martignani, C. A. Nucci, A. Trebbi, "An Optimization Problem in the Electricity Market", *A Quarterly Journal of Operations Research*, Springer Berlin / Heidelberg, pp. 247-259, July 21, 2006.
- [39] C.A. Nucci et al., "Lightning induced voltages on overhead power lines. Part III: Sensitivity Analysis", *WG C4.401, Electra*, pp. 27-30, October, 2005.
- [40] M. Paolone; Peretto, L.; Sasdelli, R.; Tinarelli, R.; Bernardi, M.; Nucci, C.A., "On the Use of Data From Distributed Measurement Systems for Correlating Voltage Transients to Lightning", *IEEE Trans. on Instrumentation and Measurement*, pp 1202 - 1208, Volume: 53, Issue 4, August 2004.
- [41] A. Borghetti, C. A. Nucci, M. Paolone, "Estimation of the statistical distributions of lightning current parameters at ground level from the data recorded by instrumented towers", *IEEE Transactions on Power Delivery*, pp 1400-1409 Volume: 19, Issue: 3 ISSN: 0885-8977, July 2004.
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- [43] M. Paolone, C.A. Nucci, E. Petrache, F. Rachidi, 'Mitigation of lightning-induced overvoltages in medium voltage distribution lines by means of periodical grounding of shielding wires and of surge arresters: modeling and experimental validation', *IEEE Trans. on PWRD*, 19-1, pp 423-341, 2004.
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- [45] Borghetti, A. Frangioni, F. Lacalandra, C.A. Nucci, "Lagrangian heuristics based on disaggregated Bundle methods for hydrothermal unit commitment", *IEEE Transactions on Power Systems*, Vol. 18 No. 1, pp. 313 -323, feb. 2003.
- [46] Borghetti, G. Migliavacca, C.A. Nucci, S. Spelta, "The black-startup simulation of a repowered thermoelectric unit", *Proc. IFAC Symposium on Control of Power Plants and*

Power Systems, Bruxelles, 26-29 aprile 2000. Control Engineering Practice, Vol. 9/7, pp 791-803, July 2001.

- [47] C.A. Nucci, S. Guerrieri, M.T. Correia de Barros, F. Rachidi, "Influence of corona on the voltages induced by nearby lightning on overhead distribution lines", IEEE Trans. on Power Delivery, Vol. 15, No. 4, pp. 1265-1273, October 2000.
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- [49] F. Rachidi, C.A. Nucci, M. Ianoz, "Transient analysis of multiconductor lines above a lossy ground", IEEE Transactions on Power Delivery, Vol. 14, No. 1, pp. 294-302, January 1999.
- [50] S. Guerrieri, C.A. Nucci, F. Rachidi, M. Rubinstein, "On the influence of elevated strike objects on directly measured and indirectly estimated lightning currents", IEEE Trans. on Power Delivery, Vol. 13, No. 4, pp. 1543-1555, Oct. 1998.
- [51] F. Rachidi, C.A. Nucci, M. Ianoz, C. Mazzetti, "Response of multiconductor power lines to nearby lightning return stroke electromagnetic fields", IEEE Trans. on Power Delivery, Vol. 12, pp. 1404-1411, July 1997.
- [52] Borghetti, R. Caldon, A. Mari, C.A. Nucci, "On Dynamic Load Models for Voltage Stability Studies", IEEE Trans. on Power Systems, Vol. 12, No. 1, pp. 293-303, Febr. 1997.
- [53] F. Rachidi, C.A. Nucci, M. Ianoz, C. Mazzetti, "Influence of a lossy ground on lightning-induced voltages on overhead lines", IEEE Trans. on Electromagnetic Compatibility, Vol. 38, No. 3, August 1996.
- [54] C.A. Nucci, F. Rachidi, "On the contribution of the electromagnetic field components in field-to-transmission line interaction", IEEE Trans. on Electromagnetic Compatibility, Vol. 37, no 4, pp. 505-508, November 1995.
- [55] Borghetti, C.A. Nucci, G. Pasini, S. Pirani, M. Rinaldi, "Tests on self-healing metallized polypropylene capacitors for power applications", IEEE Trans. on Power delivery, Vol. 10, No. 1, pp. 556-561, Jan 1995.
- [56] C.A. Nucci, F. Rachidi, M. Ianoz, C. Mazzetti, "Comparison of two coupling models for lightning-induced overvoltage calculations", IEEE Trans. on Power Delivery, January 1995.
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- [58] C.A. Nucci, S. Pirani, M. Rinaldi, "Pulse withstand capability of self-healing metalized polypropylene capacitors in power applications. An experimental investigation", IEEE Trans. on Electrical Insulation, Vol. EI-26, No. 1, pp. 146-155, Feb. 1991.
- [59] C.A. Nucci, F. Tarroni and D. Zanobetti, "Characteristics of dielectric fluids for medium-voltage power capacitors", IEEE Trans. on Electrical Insulation, Vol. EI-20, No. 2, pp. 423-426, April 1985.

Capitoli di libro

- [1] A. Borghetti, C.A. Nucci and M. Paolone, "Restoration processes after blackout", Handbook of Electrical Power System Dynamics: Modeling, Stability, and Control. Edited by Mircea Eremia and Mohammad Shahidehpour, The Institute of Electrical and Electronics Engineers, Inc. Published 2013 by JohnWiley & Sons, Inc.

- [2] C.A. Nucci, F. Rachidi, "Lightning protection of medium voltage lines", Chapter 13 in: Lightning Protection, LONDON, The Institution of Engineering and Technology-IET, 2010, pp. 635 - 680 (IET Power and Energy series 58)
- [3] C.A. Nucci, F. Rachidi, M. Rubinstein, "Derivation of telegrapher's equations and field-to-transmission line interaction", Chapter 1 of "Electromagnetic field interaction with transmission lines. From classic theory to HF radiation effects", WIT Press, Southampton, Boston, 2008.
- [4] C.A. Nucci, F. Rachidi, "Interaction of electromagnetic fields with electrical networks generated by lightning", Chapter 8 of "The Lightning Flash: Physical and Engineering Aspects", IEE Power and Energy series 34, IEE Press, London, 2003.
- [5] A. Borghetti, G. Gross, C.A. Nucci, "Auctions with explicit demand-side bidding in competitive electricity markets". Chapter 5 in the book "The next generation of unit commitment models", (B.F. Hobbs, M. Rothkopf, R.P. O'Neill e H.P. Chao editors), Kluwer Academic Press, Boston, 2001.
- [6] C.A. Nucci, C. Mazzetti, "Lightning-induced overvoltages", in "High Voltage Technique" (in Rumanian) edited by G. Dragan, Publisher: Academiei Romane, Bucarest, 2001.

IEEE Standards, CIGRE brochures/guides

- [1] IEEE Working Group on the Lightning Performance of Distribution Lines (incl. C.A. Nucci), "Guide for improving the lightning performance of electric power overhead distribution lines", IEEE Std 1410-2004, PES, New York, January 28, 2011.
- [2] CIGRE-CIRED Joint Working Group C4.402 (including C.A. Nucci), "Protection of MV and LV Networks against Lightning. Part I: Common Topics", CIGRE Technical Brochure No 287, December 2005, and "Part II: Lightning protection of Medium Voltage Networks", December 2010.
- [3] CIGRE Working Group C4.07 (including C.A. Nucci) "Power Quality Indices and Objectives", CIGRE, Technical Brochure No 26, October 2004.

Keynote Speeches, Tutorials e Invited Lectures

- [1] C.A. Nucci, "Transfer of Knowledge: a Guide to Publish Your Research", Plenary Session SS3 at Milan IEEE PES PowerTech 2019, 26 giugno 2019.
- [2] C.A. Nucci, "Smart Grids and Smart Districts for Smart Cities - the Potential of LEC", Keynote plenary session at Synenergy Med, 28 maggio 2019.
- [3] C.A. Nucci, "Smart grids as enablers for smart cities", Keynote plenary session at MedPower 2018, Dubrovnik, 12 novembre 2018.
- [4] A. Borghetti, G. M. Ferraz, F. Napolitano, C.A. Nucci, A. Piantini, F. Tossani, "Transient Response of a Double-Circuit Line to Direct and Indirect Lightning Strikes", VI Russian Conference on Lightning Protection, San Pietroburgo, 17 aprile 2018.
- [5] C.A. Nucci, "Lightning Performance of Distribution Lines due to Positive and Negative Indirect Lightning Flashes", invited lecture, The 11th International Symposium on EMC and Transients in Infrastructures and the 13th International Student Session, Kyoto, 21-XII-2017.
- [6] C.A. Nucci, "Positive and Negative Flashes: Their Impact on the Lightning Performance of Distribution Systems", Invited lecture, XIV SIPDA, International Symposium on Lightning Protection, 2-6 - X – 2017.
- [7] C.A. Nucci, Workshop – IEEE PES Careers & Scholarship Plus in Europe: an important opportunity for students of the Electrical Engineering Programs and for relevant

- Players. Coordinated by Carlo Alberto Nucci, University of Bologna, Italy, IEEE ISGT
- [8] C.A. Nucci, "An integrated traffic and power grid simulator enabling the assessment of e-mobility impact on the grid: a tool for the implementation of the smart grid/city concept", IEEE International Forum Smart Grids for Smart Cities, Paris, October 17, 2016.
 - [9] A. Borghetti, C.A. Nucci, M. Paolone, "Controlled islanding for blackout prevention and restoration processes after blackouts", PSCC 2016 panel on Power System Resilience to Major Disturbance, 19th PSCC, Genova, June 2016.
 - [10] C.A. Nucci, "Smart Grids for Smart Cities", IEEE Italy Section Schools on Future Energy Systems, Trento, Jan 26-30, 2015.
 - [11] F. Napolitano, F. Tossani, C.A. Nucci, F. Rachidi, "LEMP Response Of Multiconductor Lines - Focus on shielding and line lossess effect", presented by C.A. Nucci, XXII Sipda, Belo Horizonte, October 7-11, 2013.
 - [12] C.A. Nucci, "The energy policy and the infrastructures in Italy", (invited panel speech), First Global Resource Management Symposium, Kyoto Doshisha University, March 9, 2013
 - [13] C.A. Nucci, "Smart grids for Smart Cities. What type of progress in expected", (invited lecture), Italian Cultural Institute in New York, NY city, USA, to be delivered on February 25, 2013.
 - [14] C.A. Nucci, "Activities of Cigré and of Cigré Study Committee C4 'System Technical Performance' in Modern and Future Power System Development", (invited lecture), Tsinghua University, Beijing – China, Friday July 6th, 2012
 - [15] C.A. Nucci, P. Southwell, A. Negri, "The role of CIGRE IN Power System Component Efficiency and Energy Delivery Effectiveness for Minimal Environmental Impact", (invited panel speech), IEEE T&D conference, Orlando, May 7-10, 2012.
 - [16] C.A. Nucci, "The Electric Power Systems Laboratory of the University of Bologna: Recent Activities on Smart Grid Related Issues" (invited seminar), Illinois Institute of Technology, Chicago, february 2012
 - [17] C.A. Nucci, "The Electric Power Systems Laboratory of the University of Bologna: Recent Activities on Smart Grid Related Issues" (invited seminar), S&C, Chicago, february 2012
 - [18] P. Southwell, A. Negri, C.A. Nucci, "Power System Energy Efficiency: a CIGRE Technical Committee Project", (invited keynote speech), IWEC 2011 – Doshisa University, Kyoto – Japan, Monday November 28th, 2011.
 - [19] C.A. Nucci, "Transmission Line Electromagnetic Transients with special Reference to the Lightning Performance of Transmission and Distribution Lines", invited course at Univeristy of Sevilla, June 2011.
 - [20] C.A. Nucci, "A Survey on Cigré and IEEE Procedures for the Estimation of the Lightning Performance of Overhead Transmission and Distribution Lines", (Invited Keynote Speech), 2010 Asia-Pacific International Symposium on Electromagnetic Compatibility, APECM, Topical meeting on Lightning Protection, Beijing International Convention Center – Tuesday, April 13, 2010.
 - [21] C.A. Nucci, "A Two-Stage Scheduler of Distributed Energy Resources" (invited seminar), Tokyo Waseda University, June 2009.
 - [22] C.A. Nucci, F. Rachidi, M. Rubinstein, "Lightning-induced voltages: the effect of losses on their amplitude and wave-shape", (Invited Tutorial) "Electromagnetic Field Coupling with Transmission Lines from Classical Theory to Recent Enhancements", Kyoto, Japan, June 5, 2009.
 - [23] C.A. Nucci, "Power Systems Technical Performance: Activities within CIGRE", Invited Keynote speech, UPEC 2008 – Palazzo del Bo, Padova, Monday September 1st, 2008.

- [24] C.A. Nucci, "Inferring the Correlation Between Lightning Events and Voltage Dips in Distribution Networks", (Invited lecture), 9th SIPDA, IX International Symposium on Lightning Protection, 26th-30th November 2007 – Foz do Iguaçu, Brazil.
- [25] C.A. Nucci, "Lightning Protection of Power Distribution and Transmission Systems - Part 2: Distribution Systems", (Invited Tutorial), International CIGRÉ Symposium 2007, "Transient Phenomena in Large Electric Power Systems", Zagreb, Croatia, April 18-21, 2007.
- [26] R. Koch and C.A. Nucci, "CIGRE Activities in the field of Power Quality", (Invited Keynote address), 12th International Conference on Harmonics and Quality of Power Cascais, Portugal, October 1, 2006.
- [27] C.A. Nucci, "Lightning –Induced Voltages on Distribution Systems: Influence Of Ground Resistivity And System Topology", (Invited lecture), 8th SIPDA, VIII International Symposium on Lightning Protection, 21st-25th, São Paulo, Brazil, November 2005.
- [28] C.A. Nucci, "Effets Induits par la Foudre sur les Réseaux Electriques" - (Invited conference) at « Electricité Future », Supelec, Gif-sur-Yvette, Dec. 9, 2003.
- [29] Borghetti A., C.A. Nucci, M. Paolone, « Effect of tall instrumented towers on the statistical distributions of lightning current parameters and its influence on the power system lightning performance assessment », (Invited lecture), 7th SIPDA, VIII International Symposium on Lightning Protection, Curitiba, Brazil, 17th - 21st November 2003.
- [30] C.A. Nucci, "Modelling of Lightning Return Strokes and of Lightning Induced Effects in View of Overhead Line Protection", (Invited Keynote speech), Proc. 12th Int. Symposium on High Voltage Engineering, Bangalore, India, 20-24 August 2001.
- [31] C.A. Nucci, "Lightning-induced effects on transmission lines", (Invited Tutorial), Proc. 14th Int. Zurich Symposium on Electromagnetic Compatibility, Zurich, February 20-22, 2001.
- [32] C.A. Nucci, "The Lightning Induced Over-Voltage (LIOV) code", (Invited Minitutorial), Proc. Power Engineering Society Winter Meeting 2000. IEEE vol. 4 , pp: 2417 –2418, Jan 2000.
- [33] C.A. Nucci, "Lightning induced voltages on overhead distribution lines (with special reference to low-voltage networks)", (Invited lecture), Proc. 4th Int. Symp. on Lightning Protection, IV SIPDA, University of São Paulo, Brazil, 8 -12 September, 1997.