Roberto Langella
Curriculum Vitæ et Studiorum
February 2021

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ONE PAGE CURRICULUM VITÆ

Personal information

- Born in Naples, Italy, on 20/03/1972
- Resident in Naples (Italy) in Via Cedronio 27, 80132.
- Married with Rosanna Veneziano and father of two daughters, Maria Francesca (05/05/2009) and Caterina (12/05/2012).
- Work address, Department of Engineering, University of Campania "Luigi Vanvitelli", Via Roma 29, 81031 Aversa (CE), Italy.
- Mobile phone number: +39 347 4773410
- E-mail: roberto.langella.ieee.org
- Skype address: robi_lang

Academic Position

- **Full Professor** in Electrical Power Systems at the University of Campania "Luigi Vanvitelli" since November 1-st 2018.

Other relevant information about the scientific and professional career

- **Designated by the Steering Committee of the** IEEE Power and Energy Society (PES) International Conference on Harmonics and Quality of Power to organize the 20th edition of the conference (**General Chair**), May 29th – June 2nd **2022**, Naples, Italy.
- **Editor** of IEEE Transactions on Power Delivery from **2020.**
- **Visiting professor** (September 2019 - December 2019), at the University of Canterbury (NZ).
- **Winner** of the competition to become Full Professor in June 2018.
- **Visiting professor** (September 2016 - February 2017), at the University of Canterbury (NZ).
- Elected **Chair in 2019** (and Vice-chair in 2016) **of the Italian Chapter of IEEE PES**.
- **National qualification** to become Full Professor (ASN 2013 and ASN 2014, art. 16 L. 240/2010).
- **Responsible** of the **local Research Unit of the EnSiEL** - Consortium of Italian Universities operating in the area of Energy and Power Systems since October 2012.
- **Member** of the **Board of Professors of the Ph.D. Course** in "Industrial and Information Engineering" of the SUN since 2012.
- **Chair** of the "**IEEE Task Force on Harmonic Modeling and Simulation**" of the "IEEE PES Harmonic Working Group Subcommittee" of the "T&D Committee" since **2013.**
- Elevated **IEEE Senior Member** in **2010.**
- **Member** of the **Board of Professors of the Ph.D. Course** in "Electric Energy Conversion" from 2001 to 2012.
- **Assistant Professor** and **Associate Professor** in Electrical Power Systems at the SUN, Italy, from **2000** and **2010**, respectively**.**
- **Ph. D in "Electric Energy Conversion"** at the Second University of Naples, Italy, in **2000.**
- **Degree** in **Electrical Engineering** with honors at the Univ. of Naples "Federico II" in Nov. **1996.**
- **Scientific Responsible of several research projects and industrial consultant contracts (overall total budget of about 2 M€)**.

Publications and bibliometric Indicators

- Author of more than 200 scientific publications.
- According to the data contained in the data-base **Scopus** - Elsevier (and in Google Scholar) updated in January 2021, the bibliometric indicators are:
  - Citations: **2239** (3110)
  - h-index: **23** (28)

FULL CURRICULUM VITÆ ET STUDIORUM

RESEARCH ACTIVITY

Prizes and Recognitions

- **Winner** of the **IEEE Italy Section Best Chapter Award 2020** as **Chair** of the Italian PES Chapter.
- **Winner** of the **Erskine Fellowship 2019** competition at University of Canterbury (New Zealand) for the academic year 2019.
- **Winner** of the **IEEE Italy Section Best Chapter Award 2018** as **Vice-chair** of the Italian PES Chapter.
- **Winner** of the **Erskine Fellowship 2016** competition at University of Canterbury (New Zealand) for the academic year 2016.
- Elevated **Senior Member** of the Institute of Electrical and Electronic Engineering - Power and Energy Society (IEEE - PES) in 2010.
- **Winner** of the **First Prize Award** "IEEE – Power Engineering Society Winter Meeting 2001 Student Poster Competition" with the poster "On the Processing of Interharmonic Distorted Signals in Electrical Power Systems".
- **Winner** of the "**Prize Paper of PMAPS 2008**" at the 10-th edition of the International Conference on Probabilistic Methods Applied to Power Systems, with the paper "A Markovian Approach to Size a Hybrid Wind-Diesel Stand Alone System".

Tutorship of Ph.D. Students

- Vincenzo Di Giorgio of the XXIX Cycle of the Ph.D. Course in Industrial and Information engineering from November 2018.
- Luigi Feola of the XXVII Cycle of the Ph.D. Course in Energy Conversion.
- Luigi Nugnes of the XXV Cycle of the Ph.D. Course in Energy Conversion.
- Adolfo Sollazzo of the XII Cycle of the Ph.D. Course in Electrical Energy Conversion.
- Juan Perez Torreglosa from Spain during his stay as visiting researcher at the Second University of Naples in the period from June 2012 to September 2012.
- Jan Slezingr from Czech Republic during his stay as visiting researcher at the Second University of Naples in the period from September 2011 to December 2011.

Scientific Responsibility for International and National Research Projects Financed on the basis of Peer Reviewed Competitive Calls

- **Project Leader** of the local research unit of the European research project " Optimal System-Mix Of flexibilities Solutions for European electricity - OSMOSE" (Project Budget: 20 M€, Local Budget: 35 k€).
- **Leader of the scientific and didactic contract** in the framework of the national project "PON01_02582 - SCADA systems for the operation, control and monitoring of electrical power generation, transmission and distribution in SmartGrids" between Consortium of Italian Universities operating in the area of Energy and Power Systems (Ensiel) and the Department of Industrial and Information Engineering of the Second University of Naples in **2013** (Contract budget 158 k€).

- **Project Leader** of the local research unit of the research project "DC and AC Hybrid Microgrids", funded by the Italian Ministry for the Production Activities (MAP) (Project Budget: 6.4 M€, Local Budget: 350 k€).
- **Project Leader** of the local research unit of the research project "Innovative solutions for preventive monitoring and diagnostic of railway infrastructures and vehicle fleet from remote sensing to increment the levels of availability, efficiency and safety of railway systems", funded by the Italian Ministry for the Production Activities (MAP) (Project Budget: 6.5 M€, Local Budget: 300 k€).
- **WP Leader** of the Work Package 3 (WP3) "Electrical Network Components Models " of the research project titled: "Archivio TeLemAtico per il riferimento Nazionale di reTI di Distribuzione Elettrica: ATLANTIDE", funded by the Italian Ministry for the Production Activities (MAP) (Project Budget: 2.2 M€, WP budget 450 k€).
- **Project Leader** of the research project titled "Distributed Monitoring of Power Quality by means of Low-cost Devices", funded by the Campania Region Scientific Research Department (Project Budget: 60k€).
- **Action Leader** of the action 2 of "Work Package 2 - Advanced Technologies for the Integration of Distributed Electric Energy Resources" funded by the Campania Region Scientific Research Department (Project budget: 2.9 M€).
- **WP Leader** of the Work Package 3 (WP3) "Monitoring of Conducted Disturbances in electrical Power Systems in Distribution Networks" of the research project "Realization of Center for the Monitoring and Analysis of Low Frequency Electro Magnetic Compatibility Problems in Electrical Power Systems", funded by the Italian Ministry for University and Scientific and Technology Research (MURST) (Project Budget: 1.3 M€, WP budget 380 k€).
- **WP Leader** of the Work Package 1 (WP1) "Interactions between the Supply Network and Innovative DC/DC and DC/AC Power Converters for Traction Applications" of the research project "Numerical and Experimental Analysis of Interactions between the Supply Network and Innovative Power Converters for Industrial and Traction Applications", funded by the Italian Ministry for University and Scientific and Technology Research (MURST) (Project Budget: 0.5 M€, WP Budget 160 k€).
- **Project Leader of the research project titled**: "On the Impact of Sub-synchronous Interharmonic Voltages on Power transformers", funded by the Department of Information Engineering of the Second University of Naples in 2006 and conducted in collaboration with the **Worchester Polytechnic Institute**, USA.
- **Project Leader of the research project**: "Disturbances in Electrical Power Systems in the Presence of Distributed Generation: Analysis and Compensation", funded by the Second University of Naples in 2010 (Project budget: 5 k€).
- **Project Leader of the research project titled**: "Disturbances in Electrical Power Systems: Analysis, Distributed Measurements and Compensation", funded by the Second University of Naples in 2009 (Project budget: 6 k€).

Scientific Responsibility of Research Contracts and Scientific Consultant Contracts

- **Leader of the consultant activity**: "Advanced Dispatching of the Italian Electrical System." between **Terna** Engineering (TSO) and the Department of Engineering of the University of Campania "Luigi Vanvitelli" in **2020** (Contract budget 55 k€).
- **Leader of the consultant activity**: "Definition of Technical Specification for the Monitoring and Analysis of Power Quality Produced by Small Size Distributed Energy Resources connected to the Distribution Network" between **ENEL** Engineering and the Department of Information Engineering of the Second University of Naples in **2009** (Contract budget 15 k€)

- **Consultant**, from May to July **2007**, with the Department of Electrical Engineering of the University of Naples "Federico II", for the "Determination of Background Harmonic Distortion in the Framework of International Standards for Experimental Laboratory Tests".
- **Consultant**, from May to July **2005**, with the Department of Engineering of the University of Sannio, for the "Analysis of the Risks Connected to the Specificity of the Electrical System of the Italian Aerospace Research Center".
- **Consultant**, from April to June **1997**, with the **Department of Industrial Engineering of the University of Cassino**, for the "Development of Algorithms for the Security Evaluation of High-Speed Trains".

International Scientific Collaborations

- Prof. Neville Watson of the University of Canterbury (**New Zealand**) on a research activity on Power Quality aspects in modern power systems since **2015**.
- Dr. Jan Meyer of the Technische Universität Dresden (**Germany**) on a research activity on modern electronic equipment harmonic and interharmonic distortion assessment since **2013**.
- Prof. Sasa Djokic of the Institute for Energy Systems of the University of Edinburgh (**Scotland, UK**) on a research activity on Reliability and Power Quality in Electrical Power Systems since **2013**.
- Prof. Igor Papič of the Faculty of Electrical Engineering of the University of Ljubljana (**Slovenia**) on a research activity on compensation devices for Light Flicker since **2012**.
- Prof. Jesus de la Casa Hernandez of the Department of Electrical Engineering of the Faculty of Engineering of the University of Jaen (**Spain**) on a research activity on the harmonic impact of large PV systems and on Energy Management Systems of "Stand-Alone Hybrid Wind-PV-Diesel Systems" since **2011**.
- Prof. Jiri Drapela of the Department of Electrical Engineering and Telecommunications of the Brno University of Technologies (**Czech Republic**) on a research activity on the effects of voltage fluctuations and Light Flicker since **2008**.
- Prof. A. Emanuel of the Worchester Polytechnic Institute (**USA**) to a research activity on the impact of sub-synchronous interharmonic voltages on power transformers since **2003**.
- Prof. G. W. Chang of the "Department of Electrical Engineering National Chung Cheng University" (**Taiwan**) on a research activity on Harmonic modeling and simulation in electrical power systems since **2009**.
- Prof. P.F. Ribeiro of Universidade Federal de Itajubá (**Brazil**) on a research activity on probabilistic modeling of harmonic distortion in electrical power systems since 2002.
- Prof. H. Dommel of the British Columbia University (**Canada**), on a research activity on the errors introduced by algorithms for the solution of differential equations, representing the operation of electrical systems in the presence of resonances from January **1999** to March **2002**.

International Research Visits

- **Visiting professor** (**February 2020),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Visiting professor** (**September 2019-December 2020**), at the University of Canterbury (**New Zealand**).
- **Visiting professor** (**February 2018),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Visiting professor** (**July 2017),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Invited visiting professor** (**February 2017**)**,** at the University of Wollongong **(Australia).**

- **Visiting professor** (**September 2016-February 2017**), at the University of Canterbury (**New Zealand**).
- **Visiting professor** (**April 2016),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- Visiting professor e visiting researcher (February 2015), at the Technische Universität Dresden (**Germany**).
- **Visiting professor** (**May 2014),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Invited Lecturer** at the University of Edinburgh's (**Scotland**) Innovative Learning Week, held from 17 to 21 **February 2014**.
- **Visiting professor** (**May 2013),** at the "Faculty of Electrical Engineering of the University of Ljubljana" (**Slovenia**).
- **Visiting professor** (**February 2012),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Visiting professor** (**June 2011)**, at the "Department of Electric Engineering of the University of Jaén" (**Spain**).
- **Visiting professor** (**November 2009)**, at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Visiting researcher** (**September 2006**), at the Worchester Polytechnic Institute (**USA**).
- **Visiting researcher** (**May 1999**) at the Staffordshire University (**UK**).

Participation to International Research Working Groups and Chapters of IEEE

- **Elected Chair** of the IEEE- Power and Energy Society Italian Chapter, PE31, in **2019**.
- **Member** since **2017** of the **CIGRÉ/CIRED JWG C4.42** "Continuous assessment of low-order harmonic emissions from customer installations".
- **Elected vice-chair** of the IEEE- Power and Energy Society Italian Chapter, PE31, in **2016**.
- **Member since 2001**, **Vice-chair** from 2010 and **Chair** from 2013 of the "**Task Force on Harmonic Modeling and Simulation**" of the "IEEE Harmonic Working Group Subcommittee" of the "Transmission and Distribution Committee".
- **Member** from **2013** to **2017** of the **CIGRÉ/CIRED JWG C4.24** "Power Quality and EMC Issues associated with future electricity networks".
- **Member** since **2009** of the "Non-Sinusoidal Situations Working Group" of the "Transmission and Distribution Committee".
- **Member** of the Executive Committee since **2002** and Secretariat from **2007** to **2016** of the Italian Chapter of the IEEE Power and Energy Society, PE31.
- **Member since 1999** of the "**Task Force on Probabilistic Aspect of Harmonics**" of the "IEEE Harmonic Working Group Subcommittee" of the "Transmission and Distribution Committee".
- **Active participant since 1999** to the works of the IEEE "**Voltage Flicker Task Force**" of the "IEEE Harmonic Working Group Subcommittee" of the "Transmission and Distribution Committee".
- **Active participant since 1999** to the works and Member since 2004 of the IEEE "**Task Force on Light Flicker**" of the "IEEE Harmonic Working Group Subcommittee" of the "Transmission and Distribution Committee".

Editorial and Standardization Activity

- **Editor** of IEEE Transactions on Power Delivery since **2020.**
- **Member** of the "IEEE Std 1453 Working Group" for the preparation of the IEEE Recommended Practice for Analysis of Fluctuating Loads on Power Systems ", IEEE, September 2015 (ISBN 978-

0-7381-9845-3) and responsible for the section on "Impact of interharmonic voltages on light flicker".

- **Member** of the "Non-Sinusoidal Situations Working Group" for the preparation of the "IEEE Standard Definitions for the Measurement of Electric Power Quantities Under Sinusoidal, Non-sinusoidal, Balanced, or Unbalanced Conditions", January 2010 (ISBN - 978-0-7381-6059-7).
- **Member** of the "Voltage Flicker Task Force WG" for the preparation of the "IEEE Recommended Practice— Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC)—Testing and measurement techniques—Flickermeter— Functional and design specifications", October 2011 (ISBN - 978-0-7381-6796-1).
- **Member** of the "Voltage Flicker Task Force WG" for the preparation of the "IEEE Guide— Adoption of IEC/TR 61000-3-7:2008, Electromagnetic compatibility (EMC)— Limits— Assessment of emission limits for the connection of fluctuating installations to MV, HV and EHV power systems", July 2012 (ISBN - 978-0-7381-7391-7).
- **Member** of the **Technical Review Committee** of the International Conference "**IEEE Power Tech**" since 2003.
- **Member** of the **Technical Review Committee** of the International Conference "IEEE International Conference on Harmonics and Quality of Power (**ICHQP**)" since **2004**.
- **Member of the Technical Program Committee** of the 2020 AEIT International Annual Conference**.**
- **Member of the Technical Program Committee of the** International Conference AEIT AUTOMOTIVE 2020.
- **Reviewer** of Electric Power System Research since 2005.
- **Reviewer** of IEEE Transaction on Power Delivery since 2008.
- **Reviewer** of European Transaction on Power Systems since 2008.
- **Reviewer** of IEEE transaction on Instrumentation and Measurement since 2010.
- **Reviewer** of IET Renewable Power Generation since 2012.

Chairmen and Organizer of Panel Sessions

- **Chairmen and organizer** together with Jan Mayer of the panel sessions titled "Aggregate modelling techniques for harmonic studies in distribution networks" sponsored by the Transmission and Distribution Committee at the **2019** IEEE PES General Meeting (Atlanta USA).
- **Chairmen and organizer** together with Xavier Yang of the panel sessions titled "Harmonic modeling and power quality assessment issues for isolatable systems" sponsored by the Transmission and Distribution Committee at the **2019** IEEE PES General Meeting (Atlanta, USA).
- **Chairmen and organizer** together with Xiongfei Wang of the panel sessions titled "Harmonic Modeling and Stability of Renewable Energy Systems" sponsored by the Transmission and Distribution Committee at the **2018** IEEE PES General Meeting (Portland, USA).
- **Chairmen and organizer** together with Igor Papič of the panel sessions titled "Methods for online customer harmonic emission assessment - theory, modeling, simulation, implementation" sponsored by the Transmission and Distribution Committee at the **2018** IEEE PES General Meeting (Portland, USA).
- **Chairmen and organizer** together with Alfredo Testa of the panel sessions titled "New Challenges and Issues Related to Interharmonic Distortion" at the International Conference on Harmonics and Quality of Power (**ICHQP 2018**), Ljubljana, Slovenia.
- **Chairmen and organizer** together with A. Testa of the panel sessions titled "New Challenges and Issues Related to Interharmonic Distortion Modeling and Simulation" sponsored by the Transmission and Distribution Committee at the **2017** IEEE PES General Meeting (Chicago, USA).

- **Chairmen and organizer** of the Panel Session titled "Modeling and measurement of network and equipment impedance for harmonic studies" sponsored by the Transmission and Distribution Committee at the **2016** IEEE PES General Meeting (Boston, USA).
- **Chairmen and organizer** of the Panel Session titled "Harmonics from 2 kHz to 150 kHz: Immunity, Emission, Assessment and Compatibility" sponsored by the Transmission and Distribution Committee at the **2015** IEEE PES General Meeting (Denver, USA).
- **Chairmen and organizer** of the Panel Session titled "New Harmonic Sources in Modern Buildings: Characterization and Modeling" sponsored by the Transmission and Distribution Committee at the **2014** IEEE PES General Meeting (Washington, USA).
- **Chairmen,** together with Dr Sasa Djokic of the Panel Session titled "Power Quality in Smart Grids: A Customer's Perspective" at the ISGT (**IEEE ISGT 2013**), Copenhagen, Denmark, October **2013**.
- **Chairmen,** together with prof. A. Testa, of the Panel Session titled "Time-Varying and Probabilistic Methods for Harmonics Aggregation Analysis in a Smart Grid Context" sponsored by the Transmission and Distribution Committee at the 2013 IEEE PES General Meeting (Vancouver, Canada).
- **Chairmen,** together with prof. G.W. Chang of the panel session titled "Theories, Experiences, and Practices on Waveform Distortion in Power System" sponsored by the Transmission and Distribution Committee at the 2012 IEEE Power and Energy Society General Meeting (**IEEE PES GM 2012**), San Diego, USA, July **2012**.

Chairmen at Scientific International Conferences

- Session titled "Session 4c" at the International Conference on Harmonics and Quality of Power (**ICHQP 2020**), Virtual.
- Session titled "Power Quality" at the 2020 AEIT International Annual Conference (**AEIT 2020**), Virtual.
- Session titled "Ancillary Services for Grids with High RES Penetration", International Conference on CLEAN ELECTRICAL POWER (**ICCEP 2019**), Otranto, Italy, **2019, (**together with prof. Sasa Djokic)**.**
- Session titled "Modeling and Monitoring Harmonics in Power Systems", 2019 IEEE Milan Powertech.
- Session titled "Sources of Disturbance" at the International Conference on Harmonics and Quality of Power (**ICHQP 2018**), Ljubljana, Slovenia.
- Session titled "Power Quality" at the International Workshop on Applied Measurements for Power Systems (**IEEE AMPS 2017**), Liverpool, England, September **2017**.
- Panel sessions titled "New Challenges New Challenges and Issues Related to Interharmonic Distortion", **2017** IEEE PES General Meeting, Chicago, USA (together with Alfredo Testa).
- Session titled "Harmonic Generation and Propagation" at the International Conference on Harmonics and Quality of Power (**ICHQP 2014**), Bucharest, Romania.
- Session titled "Measurements for Railway Systems" at the International Workshop on Applied Measurements for Power Systems (**IEEE AMPS 2013**), Aachen, Germany, September **2013**.
- Session titled "Power system state and mode estimation" at the International Workshop on Applied Measurements for Power Systems (**IEEE AMPS 2012**), Aachen, Germany, September **2012**.
- Session titled "Storage equipment and systems for Future Energy Grids and Systems" at the 2012 IEEE International Energy Conference and Exhibition (**IEEE Energycon 2012**), Florence, Italy, September **2012**.
- Session titled "Power distribution control and optimization" at the the 2012 IEEE International Energy Conference and Exhibition (**IEEE Energycon 2012**), Florence, Italy, September **2012**.
- Session titled "Power Quality Case Studies" at the International Conference on Harmonics and Quality of Power (**ICHQP 2010**), Bergamo, Italy, September **2010**.

- Session titled “Interharmonics and other non-harmonic distortion I” at the International Conference on Harmonics and Quality of Power (**ICHQP 2008**), Wollongong, Australia, September **2008**.
- Session titled “Voltage Sag Analysis” at the International Conference on Harmonics and Quality of Power (**ICHQP 2006**), Cascais, Portugal, October **2006**.
- session titled “Power Quality and Reliability” at the International Conference on Power Systems (**ICPS 2004**), Kathmandu, Nepal, November **2004**.

Invitations at IEEE PES General Meeting Panel Sessions

1. “Aggregate modelling techniques for harmonic studies in distribution networks” at the 2019 IEEE PES General Meeting (Atlanta, USA), and presentation together with other colleagues titled “Aggregation of multiple devices in frequency domain for steady-state harmonic studies”.
2. “Harmonic Modeling and Stability of Renewable Energy Systems” at the 2018 IEEE PES General Meeting (Portland, USA), and presentation titled “Harmonic Modeling of Power Electronic Devices by Means of Frequency Coupling Matrices”.
3. “New Challenges and Issues related to interharmonic distortion modeling and simulation” at the 2017 IEEE PES General Meeting (Chicago, USA), and presentation together with J. Drapela titled “Toward new Flickermeters to account for different lamp technologies”.
4. “Flicker Standards: Application and Advancements” at the 2017 IEEE PES General Meeting (Chicago, USA), and presentation together with A. Testa titled “Interharmonics produced by Renewables (Wind and PV systems)”.
5. “Modeling and measurement of network and equipment impedance for harmonic studies” at the 2016 IEEE PES General Meeting (Boston, USA), and presentation together with A. Testa titled “Statistical and theoretical considerations on network harmonic impedance assessment”.
6. “Harmonics from 2 kHz to 150 kHz: Immunity, Emission, Assessment and Compatibility” at the 2015 IEEE PES General Meeting (Denver, USA), and presentation together with A. Testa titled " High Frequency Waveform Distortion: theoretical and modeling considerations".
7. “New Harmonic Sources in Modern Buildings: Characterization and Modeling” at the 2014 IEEE PES General Meeting (Washington, USA), and presentation together with A. Testa titled “Switching Power Supplies: Analysis of Waveform Distortion and Absorbed Powers”.
8. “New Harmonic Sources in Modern Buildings: Characterization and Modeling” at the 2014 IEEE PES General Meeting (Washington, USA), and presentations together with A. Testa “Lighting Systems (CFLs, LED, ….)” and with J. Drapela "Lighting systems Light sources in modern buildings: characterization, modeling and simulations".
9. “Time-Varying and Probabilistic Methods for Harmonics Aggregation Analysis in a Smart Grid Context” at the 2013 IEEE PES General Meeting (Vancouver, Canada), together with A. Testa with the presentation “Probabilistic Approach”.
10. “Time-Varying and Probabilistic Methods for Harmonics Aggregation Analysis in a Smart Grid Context” at the 2013 IEEE PES General Meeting (Vancouver, Canada) with the paper “Case-Studies on Harmonic Impact of Large PV Plants”.
11. “Theories, Experiences, and Practices on Waveform Distortion in Power System” at the 2012 IEEE PES General Meeting (San Diego, USA) with the papers “Behavior of MV Lines from 2.5 to 100 kHz” and " Power Definitions for Circuits with Nonlinear and Unbalanced Loads – The IEEE Standard 1459 – 2010".
12. “Power Quality Issues Related to New Means of Distributed Generation and Loads” at the 2011 IEEE PES General Meeting (Detroit, USA) with the paper “Harmonic Distortion During the 2010 FIFA World Cup”.
13. “Measuring Techniques and Experiences on Harmonics, Interharmonics and Voltage Fluctuations” at the 2010 IEEE PES General Meeting (Minneapolis, USA) with the paper “Limiting Low Frequency Interharmonic Distortion and Voltage Fluctuations”.

14. “Measuring Techniques and Modeling Issues of Electric Arc Furnaces” at the 2008 IEEE PES General Meeting (Pittsburgh, USA) with the paper “On the Use of Flickermeter and DFT Based Techniques for the Assessment of Light Flicker and Interharmonic Distortion Produced by Arc Furnaces”.
15. “Impact of Television Viewing on the Utility Grid Harmonic Distortion” at the 2007 IEEE PES General Meeting (Tampa, USA) with the paper “Harmonic Pollution in Italian Distribution Networks in Coincidence with Important Sport Events”.
16. “Advanced Topics of Harmonics Modeling & Simulation” at the 2005 IEEE PES General Meeting (San Francisco, USA), with the paper “Power System Subharmonics”.
17. “An Overview of Probabilistic Aspects of Harmonics” at the 2005 IEEE PES General Meeting (San Francisco, USA) with the paper “Interharmonics from a Probabilistic Perspective”.
18. “Methodologies for Harmonic Modeling and Simulation” at the 2003 IEEE PES General Meeting (Toronto, Canada) with the paper “Considerations on Probabilistic Harmonic Voltages”.
19. “Harmonic Measurement Methods” at the 2002 IEEE PES General Meeting (Chicago, USA) with the paper “Interharmonic Measurement in IEC Framework”.
20. “Probabilistic Aspects of Harmonics” at the 2002 IEEE PES General Meeting (New York, USA) with the paper “Probabilistic Aspects of Harmonic Impedances”.

Invitations at International Scientific Workshops

- **“**On Power Definitions and Measurements under Non-Sinusoidal Conditions” (7-th edition) held in Cagliari, Italy in July **2006** with the paper “Amplitude and Phase Modulation Effects of Waveform Distortion in Power Systems”.
- **“**On Power Definitions and Measurements under Non-Sinusoidal Conditions” (6^{-th} edition) held in Milan, Italy, in October **2003** with the papers “Interharmonics. Part 1: Aspects Related to Modeling and Simulation”, “Interharmonics. Part 2: Aspects Related to Measurement and Limits” and ”Is it Always Possible to Separately Analyze Different Power Quality Phenomena? The Case of the Voltage Peak”.
- **“**On Power Definitions and Measurements under Non-Sinusoidal Conditions” (5^{-th} edition) held in Milan, Italy in October **2000** with the paper “Self-tuning Harmonic and Interharmonic Processing Technique”.

Organization of International Conferences

- **Designated by the Steering Committee of the** IEEE Power and Energy Society (PES) International Conference on Harmonics and Quality of Power to organize the 20th edition of the conference (**General Chair**), May 29th – June 2nd 2022, Naples, Italy.
- **Member** of the **International Steering Committee** of the "International Scientific Conference on Electric Power Engineering (EPE)".
- **Member** of the **International Steering Committee** of the "International Conference on CLEAN ELECTRICAL POWER (ICCEP)".
- **Responsible of the Scientific Secretariat** of the 7-th edition of the International Conference "Probabilistic Methods Applied to Power Systems (PMAPS 2002)" held in Naples, Italy in September 2002.

Member of Research Units of Research Projects

- “SMILE -SEEM- Smart Energy in E-Mobility: Technical, Metrological, Juridical and Economical challenges”, funded by the University of Campania in the framework of the Program VALERE **2019** (Project budget: 257 k€).

- “Smart GRID with Distributed POLIgeneration systems (POLIGRID)”, funded by the Campania Region in the framework of FSE **2007/2013** (Project budget: 200 k€).
- “Low Cost WEB Sensors for the monitoring and control of quality in electrical power systems - **PRIN 2009**”, funded by the Italian Ministry of University and Scientific Research (MIUR) (Project budget: 60 k€).
- "SMART GRIDS" funded in the biennium **2008-2009** by Enel Research and Innovation conducted in collaboration with different Italian Universities (Bologna, Genoa, Pisa e Padova) (Project budget: 100 k€).
- "Distributed Generation from Traditional and Renewable Resources: Engineering- Juridical - Economical and Environmental Aspects”, funded by the Second University of Naples in **2009** (Project budget: 110 k€).
- “Static and Dynamic Characterization of Fuel Cells and their impact in Electrical Networks by means of experimental measurements”, funded by the Campania Region Scientific Research Department in **2005** (Project budget: 30 k€).
- “Risk and Quality Management in the Liberalized Energy Market - PRIN **2002**”, funded by the Italian Ministry of University and Scientific Research (MIUR) in collaboration with different Italian Universities (Napoli "Federico II", Bologna, Genoa, Bari, L'Aquila, Cassino, Milano, Pavia, Reggio Calabria, Palermo, Cosenza) (Project budget: 500 k€).
- "Research activities on techniques to analyze harmonic distortion due to modern AC Rails and investigation of X/R ratio of realistic 25kV equipment", in the framework of the project "TRAIN" funded by the **European Union** "Human Capital and Mobility - Access to Large-Scale Facilities”.
- "Research activities on probabilistic techniques to analyze harmonic distortion: modeling and testing of an ac rail", in the framework of the project " Hosting and Training of Researchers and Testing of Components and Systems for Urban and Rail Electrical Transport" funded by the European Union "Human Capital and Mobility - Access to Large-Scale Facilities”.

Faculty and Department Positions

- **Elected member** of the **Engineering Faculty Board** on behalf of assistant professors from 2005 to 2009.
- **Elected member** of the **Engineering Faculty Board** on behalf of assistant professors from 2003 to 2005.
- **Secretary** of the **Teaching Course Council** in Information Engineering from 2011 to 2014.
- **Member** of the Engineering Faculty of the SUN didactic **commission** from 2006 to 2008.
- **Member** of the Department of Industrial and Information Engineering **commission** "Quality od Didactic" since 2015.
- **Person in Charge** for the Research and Safety of the **Laboratory** SUN-EMC-LAB of the Department of Industrial and Information Engineering of the SUN.

NATIONAL AND INTERNATIONA TEACHING ACTIVITY

International Teaching Activity

- **Visiting professor** (**February 2020),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Lecturer** in the course "Voltage Fluctuations: origin, effects and assessment", during the 4-th term of the academic year **2019** at the University of Canterbury (**New Zealand**).
- **Visiting professor** (**May 2019),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Lecturer** in the course " Voltage Fluctuations: origin, effects and assessment " during the 4-th term of the academic year **2016** at the University of Canterbury (**New Zealand**).
- **Visiting professor** (**April 2016),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Visiting professor** (**February 2015**), at the Technische Universität Dresden (**Germany**).
- **Visiting professor** (**May 2014),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Invited Lecturer** at the University of Edinburgh's (**Scotland**) Innovative Learning Week, held from 17 to 21 **February 2014**.
- **Visiting professor** (**May 2013),** at the "Faculty of Electrical Engineering of the University of Ljubljana" (**Slovenia**).
- **Visiting professor** (**February 2012),** at the "Department of Electrical Power Engineering and Communication of the BRNO University of Technology" (**Czech Republic**).
- **Visiting professor** (**June 2011)**, at the "Department of Electric Engineering of the University of Jaén" (**Spain**).

Tutorial

- **Organizer** and Speaker of the Tutorial "Voltage Fluctuations and Light Flicker in Modern Electrical Power Systems: New Findings and Challenges", together with Alfredo Testa and Jiri Drapela at the IEEE PES International Conference on Harmonics and Quality of Power (**ICHQP 2018**), Ljubljana, Slovenia.

National Teaching Activity at the University of Campania "Luigi Vanvitelli"

He has been responsible of the following courses at the Faculty of Engineering:

- "Industrial Electrical Systems" (60 hours) Course in Electronic Engineering - AA.AA. 2000/2001, 2001/2002, 2002/2003, 2003/2004.
- "Industrial Electrical Systems": (5 CFU) Course in Electronic Engineering – AA.AA. 2002/2003, 2003/2004, 2004/2005, 2005/2006, 2006/2007, 2007/2008.
- "Electrical Power Systems": (3 CFU) Course in Mechanical Engineering – A.A. 2002/2003.
- "Industrial Electrical Systems 1 e 2": (6 CFU) Course in Mechanical Engineering - AA.AA. 2003/2004, 2004/2005, 2005/2006, 2006/2007, 2007/2008.
- "Power Electronic Systems": (3 CFU) Course in Mechanical Engineering - AA.AA. 2004/2005, 2005/2006, 2007/2008.
- "Electrical Power Systems": (3 CFU) Course in Civil Engineering – A.A. 2005/2006.
  "Industrial Electrical Systems": (6 CFU) Course in Mechanical Engineering – AA.AA. 2006/2007, 2007/2008, 2008/2009.
- "Industrial Electrical Systems": (6 CFU) Course in Electronic Engineering– AA.AA. 2006/2007, 2007/2008, 2008/2009, 2009/2010.

- “Electrical Power Systems”: (6 CFU) Course in Electronic Engineering– AA.AA. 2010/2011, 2011/2012, 2012/2013, 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2018/2019, 2019/2020, 2020/2021.
- “Industrial Electrical Systems”: (3 CFU) Course in Mechanical Engineering– AA.AA. 2010/2011, 2011/2012, 2012/2013, 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2018/2019, 2019/2020, 2020/2021.
- “Electrical Systems and Machines”: (3 CFU) Course in Mechanical Engineering – AA.AA. 2010/2011, 2011/2012.
- "Principles of Electrical Safety”: (3 CFU) Course in Electronic Engineering– 2011/2012, 2012/2013, 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2017/2018, 2018/2019, 2019/2020, 2020/2021.
- "Electrical Power Generation from Traditional and Renewable Sources”: (9 CFU) Course in Energy and Environment Engineering–2020/2021.

International Ph.D. Thesis Jury Member

- **Member** of the International jury for the final Ph.D. dissertation in Electrical Power Systems at the Technical University of Liberec (CZ) and Université Toulouse III—Paul Sabatier (F), February **2018**.
- **Member** of the International jury for the final Ph.D. dissertation in Electrical Power Systems at the Lula University of (SV), April 2015.
- **Member** of the International jury for the final Ph.D. dissertation in Electrical Power Systems at the University of Jaen (ES), December **2012**.

Bilateral Agreement Responsibility In the Framework Of The Socrates/Erasmus Program

- Faculty of Engineering of the Technical University of Dresden (**Germany**) from 2015.
- Faculty of Electrical Energy Systems of the Eindhoven University of Technology (**Netherland**) from 2013.
- Faculty of Electrical Engineering of the University of Ljubljana (**Slovenia**) from 2010.
- Faculty of Electrical Power Engineering and Communication of the BRNO University of Technology (**Czech Republic**) from 2009.
- Faculty of Engineering of the University of Jaen (**Spain**) from 2005.

ONE PAGE DESCRIPTION OF THE SCIENTIFIC PROFILE

The scientific activity of the candidate has covered issues related to Electrical Power Systems. In what follows reference is made, for the sake of convenience, to the traditional division in the areas of "PRODUCTION", "TRANSMISSION", "DISTRIBUTION" and "UTILIZATION" of electrical energy. This has created the fragmentation of some lines of research, which instead need a unitary vision, such as, for example, the harmonic and interharmonic analysis in the framework of Power Quality studies.

The research activity on the "PRODUCTION" subsystem addressed the problem of the development of reliability models and advanced techno-economical techniques aimed at sizing of "Stand-Alone Hybrid Wind-PV-Diesel Systems" and at the development of forecasting methods for wind and PV production. Some of the results have obtained the award: "PMAPS Prize Paper of 2008" at the 10-th edition of the International Conference on "Probabilistic Methods Applied to Power Systems" and the establishment of a scientific collaboration with the Department of Electrical Engineering of the Faculty of Engineering of the University of Jaen (Spain), through staff exchange visits and scientific publications.

The research activity on the "TRANSMISSION" subsystem is basically divided into two sub-themes: the first, theoretical, is aimed at analyzing the errors introduced by algorithms for the solution of differential equations, representing the operation of electrical systems in the presence of resonances and the second, both theoretical and experimental, is focused on the study of the effects of sub-synchronous interharmonic voltages on power transformers. The first activity was carried out in collaboration with prof. H. Dommel University of British Columbia (Canada) and the second was conducted in collaboration with prof. Alexander Emanuel of Worcester Polytechnic Institute (USA).

The research activity on the "DISTRIBUTION" subsystem is basically divided into three sub-themes: the first is aimed at evaluating the harmonic and interharmonic distortion in electric power systems through a probabilistic approach; the second is aimed at the deterministic modeling in the frequency domain of double-stage AC/DC/AC converters; and the third is aimed at the prediction of the expected life of medium and low voltage electrical components in the presence of electric stress.

The research activity related to the first sub-theme was the subject of the Ph.D thesis of the candidate and has enabled the candidate to join since 1999 the "Task Force on Probabilistic Aspect of Harmonics" of the "Harmonic IEEE Working Group Subcommittee". The research activity related to the second sub-theme has enabled the candidate to join since 2001 the "Task Force on Harmonic Modeling and Simulation" of the "Harmonic IEEE Working Group Subcommittee" and to become Vice-Chair in 2010 and elected Chair from the month of January 2013.

The research activity on the "UTILIZATION" subsystem is based on the theoretical and experimental analysis of electrical signals in the presence of harmonic and interharmonic pollution in electrical power systems; it is basically divided into three sub-themes: the first, both theoretical and experimental, refers to the signal processing of electrical signals affected by interharmonic as well as harmonic distortion; the second, refers to the problem of voltage fluctuations and Light Flicker; and, finally, the third is related to reliability aspects. It is clear that these sub-themes have an overriding interest in the Utilization subsystem, but their interest is more general and also applies to subsystems of Production, Transmission and Distribution.

The research activity related to the first sub-theme has allowed to win the first prize in the "IEEE - Power Engineering Society Winter Meeting 2001 Student Poster Competition". The research activity related to the second and third sub-themes has allowed to become part of the "Task Force on Voltage Flicker" of the "Harmonic IEEE Working Group Subcommittee"; contribute to the publication of four IEEE Standards and to the establishment of a scientific relationship with the Universities of Brno (Czech Republic), Ljubljana (Slovenia), Edinburgh (Scotland), Dresden (Germany) and Christchurch (New Zealand) through staff exchange visits and scientific publications.

LIST OF PUBLICATIONS

IEEE Standards and CIGRE' Brochures (S)

[L 1] R. Langella, et alii, "IEEE Std 1459 - IEEE Standard Definitions for the Measurement of Electric Power Quantities Under Sinusoidal, Non-sinusoidal, Balanced, or Unbalanced Conditions", IEEE, January 2010 (ISBN 978-0-7381-6059-7).

[L 2] R. Langella, et alii, "IEEE Std 1453 - IEEE Recommended Practice— Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC)—Testing and measurement techniques—Flickermeter— Functional and design specifications", IEEE, October 2011 (ISBN 978-0-7381-6796-1).

[L 3] R. Langella, et alii, "IEEE Std 1453.1 - IEEE Guide— Adoption of IEC/TR 61000-3-7:2008, Electromagnetic compatibility (EMC)— Limits—Assessment of emission limits for the connection of fluctuating installations to MV, HV and EHV power systems", IEEE, July 2012 (ISBN 978-0-7381-7391-7), pp. 78.

[L 4] R. Langella, et alii, " IEEE Std 519 - IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems", IEEE, June 2014 (ISBN 978-0-7381-9006-8), pp. 29.

[L 5] R. Langella, et alii, " IEEE Std 1453 - IEEE Recommended Practice for Analysis of Fluctuating Loads on Power Systems ", IEEE, September 2015 (ISBN 978-0-7381-9845-3), pp. 74.

[L 6] R. Langella together with JWG C4.24/CIRED, "TB 719: Power Quality and EMC Issues with Future Electricity Networks", CIGRE', March 2018 (ISBN 978-2-85873-421-4), pp. 215.

Book Chapters (CL)

[CL 1] R. Langella, A. Testa, "Summation of Random Harmonic Currents" in "Time-Varying Waveform Distortions In Power Systems", Willey UK/IEEE, July 2009.

[CL 2] R. Langella, A. Testa, "Probabilistic Modeling of Single High-Power Loads" in "Time-Varying Waveform Distortions In Power Systems", Willey UK/IEEE, July 2009.

[CL 3] R. Langella, A. Testa, "Probabilistic Analysis of Harmonic Impedances" in "Time-Varying Waveform Distortions In Power Systems", Willey UK/IEEE, July 2009.

[CL 4] R. Langella, A. Testa, "Harmonics and Interharmonics on Adjustable Speed Drives" in "Time-Varying Waveform Distortions In Power Systems", Willey UK/IEEE, July 2009.

[CL 5] R. Langella, T. Manco, A. Testa, "Markovian Approaches to Model Wind Speed of a Site and Power Availability of a Wind Turbine" in "Wind Turbines", INTECH, April 2011 (ISBN 978-953-307-221-0).

International Journals (RI)

[RI 1] R. Langella and IEEE Probabilistic Aspect Task Force of the Harmonic Working Group of the Transmission and Distribution Committee, "Time Varying Harmonics: Part II – Harmonic Summation and Propagation", ***IEEE Transaction on Power Delivery,*** Volume 17 N. 1, January 2002 pp. 279 -285.

[RI 2] D. Gallo, R. Langella, A. Testa, "A Self tuning Harmonic and Interharmonic Processing Technique", ***European Transaction on Electrical Power***, Vol. 12, No. 1, January/February 2002, pp. 25-31.

[RI 3] R. Carbone, H. W. Dommel, R. Langella, A. Testa, "Analysis and Estimation of Truncation Errors in Modelling Complex Resonant Circuits with the EMTP", *International* ***Journal of the Electrical Power & Energy Systems***, Vol. 24/4, March 2002, pp. 295-304.

[RI 4] F. De Rosa, R. Langella, A. Sollazzo, A. Testa, "Waveform Distortion Caused by High Power Adjustable Speed Drives Part I: High Computational Efficiency Models", ***European Transaction on Electrical Power***, Vol. 13, No. 6, November/December 2003.

[RI 5] D. Castaldo, F. De Rosa, R. Langella, A. Sollazzo, A. Testa, "Waveform Distortion Caused by High Power Adjustable Speed Drives Part II: Probabilistic Analysis", ***European Transaction on Electrical Power***, Vol. 13, No. 6, November/December 2003.

[RI 6] D. Gallo, R. Langella, A. Testa, "On the Processing of Harmonics and Interharmonics: Using Hanning Window in Standard Framework", ***IEEE Transaction on Power Delivery***. Vol. 19, N. 1, Jan. 2004.

[RI 7] D. Gallo, R. Langella, A. Testa, "Desynchronized Processing Technique for Harmonic and Interharmonic Analysis", ***IEEE Transaction on Power Delivery***. Vol. 19, N. 3, Jul. 2004.

[RI 8] D. Gallo, C. Landi, R. Langella, A. Testa, "Implementation of a Test System for Advanced Calibration and Performance Analyses of Flickermeters", ***IEEE Transaction on Instrumentation and Measurement***. Vol. 53, N. 4, Aug. 2004.

[RI 9] R. Carbone, F. De Rosa, R. Langella and A. Testa, "A New Approach for the Computation of Harmonics and Interharmonics Produced by Line Commutated AC/DC/AC Converters", ***IEEE Transaction on Power Delivery***, Vol. 20, N. 3, July 2005, pp. 2227- 2234.

[RI 10] F. De Rosa, R. Langella, A. Sollazzo, and A. Testa: "On the Interharmonic Components Generated by Adjustable Speed Drives", ***IEEE Transaction on Power Delivery***, Vol. 20, N. 4, Oct. 2005, pp. 2535- 2543.

[RI 11] E. Fiorucci, D. Gallo, C. Landi, R. Langella, "Light Flicker: Theoretical and Metrological Aspects", ***Transactions on Systems, Signals & Devices***, Vol.1, N. 4, June 2006, pp. 343-360.

[RI 12] R. Langella, A. Testa, "Amplitude and Phase Modulation Effects of Waveform Distortion in Power Systems", ***Electrical Power Quality and Utilization Journal***, Volume XIII, N° 1, 2007, pp. 25-32.

[RI 13] A. Bracale, G. Carpinelli, R. Langella, A. Testa, "Accurate Methods for Signal Processing of Distorted Waveforms in Power Systems" ***EURASIP Journal on Advances in Signal Processing***, Volume 2007 Article ID 92191, ISSN 1687-6172.

[RI 14] R. Langella, A. Testa and IEEE Task Force on Harmonics Modeling and Simulation, "Interharmonics: Theory and Modeling", ***IEEE Trans. on Power Delivery***, Vol. 22, N. 4, 2007, pp. 2335-2348.

[RI 15] R. Langella, A. Testa, A. Emanuel, "On the Effects of Subsynchronus Interharmonic Voltages on Power Transformers: Single Phase Units", ***IEEE Transactions on Power Delivery***, Vol. 23, N. 4, 2008, pp. 2480-2487.

[RI 16] R. Langella, A. Testa and A. Emanuel, "On the Effects of Subsynchronus Interharmonic Voltages on Power Transformers: Three Phase Units", ***IEEE Transactions on Power Delivery***, Vol. 23, N. 4, 2008, pp. 2461-2471.

[RI 17] D. Gallo, R. Langella, C. Landi and A. Testa, "On the Use of the Flickermeter to Limit Low Frequency Interharmonic Voltages", ***IEEE Transactions on Power Delivery***, Vol. 23, N. 4, 2008, pp. 1720-1727.

[RI 18] R. Langella, A. Sollazzo, A. Testa, "A New Approach for the Computation of Harmonics and Interharmonics Produced by AC/DC/AC Conversion Systems with PWM Inverters", ***European Transactions on Electrical Power***, Vol. 20, No. 1, January 2010, pp. 68-82.

[RI 19] R. Langella, T. Manco and A. Testa, "Unifying Supply Reliability and Voltage Quality in the Representation of an Electrical System Node", ***IEEE Transactions on Power Delivery***, Vol. 25, N. 2, 2010, pp. 1172-1181.

[RI 20] R. Langella, A. Testa, "The Effects of Integration Intervals on Recursive RMS Value and Powers Measurement in Non-Sinusoidal Conditions", ***IEEE Transaction on Instrumentation and Measurement***, Vol. 60, N. 9, 2011, pp. 3047 - 3057.

[RI 21] V. Carpentiero, R. Langella, A. Testa, "Hybrid wind-diesel stand-alone system sizing accounting for component expected life and fuel price uncertainty", ***Electric Power Systems Research***, Vol. 88, 2012, pp. 69 - 77.

[RI 22] A. Emanuel, R. Langella, A. Testa, "Unbalance Definition for Electrical Power Systems in the Presence of Harmonics and Interharmonics", ***IEEE Trans. on Instrumentation and Measurement***, Vol. 61, N. 10, 2012, pp. 2622 - 2631

[RI 23] L. Feola, R. Langella, A. Testa, *"*On the Effects of Unbalances, Harmonics and Interharmonics on PLL Systems*"*, ***IEEE Tran. on Instrumentation and Measurement***, Vol. 62, N. 9, Sept. 2013, pp. 2399 - 2409.

[RI 24] A. Carpinone, M. Giorgio, R. Langella, A. Testa, "Markov Chain Modelling for Very-Short-term Wind Power Forecasting", ***Electric Power Systems Research****, Volume 122, May 2015, Pages 152-158.*

[RI 25] L. Feola, R. Langella, A. Testa, *"*A new frequency approach for light flicker evaluation in electric power systems*", **EURASIP Journal on Advances in Signal Processing***, Volume 85: 2015, ISSN 1687-6172.

[RI 26] P. García, J. P. Torreglosa, L. M. Fernández, F. Jurado, R Langella, A.Testa, "Energy management system based on techno-economic optimization for microgrids", ***Electric Power Systems Research***, Vol. 131, February 2016, Pages 49-59.

[RI 27] R. Langella, D. Proto, A. Testa: *"*Solar Radiation Forecasting, Accounting for Daily Variability", ***Energies*** 2016, *9*(3), 200.

[RI 28] R. Langella, A. Testa, J. Meyer, F. Möller, R. Stiegler, S. Z. Djokic, "Experimental Based Evaluation of PV Inverters Harmonic and Interharmonic Distortion due to Different Operating Conditions," ***IEEE Trans. on Instrumentation and Measurement***, Volume: 65, Issue: 10, Oct. 2016, pp. 2221 - 2233.

[RI 29] J. Drapela, R. Langella, J. Slezingr and A. Testa, "A Tunable Flickermeter to Account for Different Lamp Technologies", ***IEEE Tran. on Power Delivery***, Volume: 32, Issue: 2, April 2017, pages 872 - 880.

[RI 30] X. Xu, A. J. Collin, S. Z. Djokic, S. Yanchenko, F. Möller, J. Meyer, R. Langella, A. Testa, "Analysis and Modelling of Power-Dependent Harmonic Characteristics of Modern PE Devices in LV Networks", ***IEEE Trans. on Power Delivery***, Spec. Issue on Contemp. Issues in Power Quality, Volume: 32, Issue: 2, April 2017, pp. 1014 - 1023.

[RI 31] R. Langella, A. Testa, J. Meyer, F. Möller, R. Stiegler, S. Z. Djokic, "On Evaluation of Power Electronic Devices Efficiency for Non-Sinusoidal Voltage Supply and Different Operating Powers," ***IEEE Trans. on Instrumentation and Measurement***, Volume: 66, Issue: 9, Sept. 2017, pages 2216 - 2224.

[RI 32] S. K. Rönnberg, M.H.J. Bollen, R. Langella, F. Zavoda, J.P. Hasler, P. Ciufo, V. Cuk, J. Meyer, "The expected impact of four major changes in the grid on the power quality – a review", ***Cigre' Science & Engineering***, N°8 June 2017 (ISSN: 1286-1146).

[RI 33] J. Drapela, R. Langella, J. Slezingr and A. Testa, "Generalized Lamp Model for Light Flicker Studies", ***Electric Power Systems Research***, 2018, Vol. 154, pp. 413-422.

[RI 34] L. Feola, R. Langella, A. Testa and I. Papic, "Selective Interharmonic Compensation to Improve Statcom Performance for Light Flicker Mitigation,", ***IEEE Trans. on Power Delivery***, Volume: 33, Issue: 5, Oct. 2018, pages 2442 - 2451, Digital Object Identifier: 10.1109/TPWRD.2018.2810333.

[RI 35] I. Papič, D. Matvoz, A. Špelko, *W.* Xu, *Y.* Wang, *D.* Mueller, *C.* Miller, *P.* F. Ribeiro, *R.* Langella, and A. Testa,"A Benchmark Test System to Evaluate Methods of Harmonic Contribution Determination", ***IEEE Trans. on Power Delivery***, available online, Digital Object Identifier: 10.1109/TPWRD.2018.2817542.

[RI 36] S. Djokic, R. Langella, A. Testa , X. Xu , A. Collin, "Operating Cycle Performance, Lost Periodicity and Waveform Distortion of Switch-Mode Power Supplies", ***IEEE Trans. on Instrumentation and Measurement***, Volume: 67, Issue: 10, Oct. 2018, pages 2434 - 2443, Digital Object Identifier: 10.1109/TIM.2018.2813761.

[RI 37] D. Gallo, R. Langella, M. Luiso, A. Testa , N. Watson, "A New Test Procedure to Measure Power Electronic Devices' Frequency Coupling Admittance", ***IEEE Trans. on Instrumentation and Measurement***, Volume: 67, Issue: 10, Oct. 2018, pages 2401 - 2409, Digital Object Identifier: 10.1109/TIM.2018.2819318.

[RI 38] A. Collin, D. Gallo, A. Delle Femine, R. Langella, M. Luiso, " Compensation of Current Transformers' Non-Linearities by Tensor Linearization", ***IEEE Trans. on Instrumentation and Measurement*** 2019, Digital Object Identifier: 10.1109/TIM.2019.2905908.

[RI 39] A. Collin, S. Djokic, J. Drapela, R. Langella, A. Testa, " Proposal of a Desynchronized Processing Technique for Assessing High Frequency Distortion in Power Systems", ***IEEE Trans. on Instrumentation and Measurement*** 2019, Digital Object Identifier: 10.1109/TIM.2019.2907755.

[RI 40] A. J. Collin, S. Z. Djokic, J. Drapela, R. Langella and A. Testa, "Light Flicker and Power Factor Labels for Comparing LED Lamp Performance," in ***IEEE Transactions on Industry Applications***, vol. 55, no. 6, pp. 7062-7070, Nov.-Dec. 2019, doi: 10.1109/TIA.2019.2919643.

[RI 41] A. J. Collin, A. D. Femine, C. Landi, R. Langella, M. Luiso and A. Testa, "The Role of Supply Conditions on the Measurement of High-Frequency Emissions," in ***IEEE Transactions on Instrumentation and Measurement***, vol. 69, no. 9, pp. 6667-6676, Sept. 2020, doi: 10.1109/TIM.2020.2992824.

[RI 42] Collin, A.J.; Z. Djokic, S.; Drapela, J.; Guo, Z.; Langella, R.; Testa, A.; Watson, N.R. "Analysis of Approaches for Modeling the Low Frequency Emission of LED Lamps", ***Energies*** 2020, 13, 1571.

[RI 43] M. Zou, D. Fang, S.Z. Djokic, V. Di Giorgio, R. Langella, A. Testa, "Evaluation of wind turbine power outputs with and without uncertainties in input wind speed and wind direction data", ***IET Renewable Power Generation***, Volume 14, Issue 15, p. 2801 –2809, DOI: 10.1049/iet-rpg.2020.0113.

[RI 44] J. C. Hernández, R. Langella, A. Cano, A. Testa, "Unbalance characteristics of fundamental and harmonic currents of three-phase electric vehicle battery chargers", ***IET Generation, Transmission & Distribution***, available online: 22 December 2020, DOI: 10.1049/iet-gtd.2020.1030.

Proceedings of International Conferences (CI)

[CI 1] M. Baret, P. Caramia, R. Carbone, M. Fracchia, R. Langella, R. E. Morrison, L. Pierrat, S. B. Tennakoon, A. Testa, P. Varilone, P. Verde, "Research activities on probabilistic techniques to analyze harmonic distortion: modeling and testing of an AC rail", *Final Technical Scientific Meeting of the Project "Hosting and Training of Researchers and Testing of Components and Systems for Urban and Rail Electrical Transport"*, Napoli, Italia, June 1997, pp. 151-167.

[CI 2] R. Langella, P. Marino, F. Ruggiero, A. Testa, "Summation of random harmonic vectors in presence of statistic dependences", *5th International Conference on Probabilistic Methods Applied to Power Systems*, Vancouver, Canada, September 1997.

[CI 3] A. Cavallini, R. Langella, F. Ruggiero, A. Testa, "Gaussian Modeling of Harmonic Vectors in Power Systems", *8th IEEE International Conference on Harmonics and Quality of Power*, Atene, Grecia, Oct. 1998, vol.2 pp.1010-1017.

[CI 4] R. Carbone, D. Castaldo, R. Langella, P. Marino, A. Testa, "Network Impedance Uncertainty in Harmonic and Interharmonic Distortion Studies", *IEEE International Conference Power Tech '99*, Budapest, Hungery, August/September 1999.

[CI 5] D. Gallo, G. Iuliano, R. Langella, S.B. Tennakoon, A. Testa, A. Wixon, C. Xie, "Report on Techniques to analyze harmonic distortion due to modern AC Rails", *Final User Meeting of the Project "TRAIN"*, Napoli, Italia, November 1999.

[CI 6] P. Caramia, G. Carpinelli, D. Gallo, G. Iuliano, R. Langella, P. Tamburrini, A. Testa, P. Varilone, P. Verde, "Report on investigation of X/R ratio of realistic 25kV equipment", *Final User Meeting of the Project "TRAIN"*, Napoli, Italia, November 1999.

[CI 7] D. Gallo, R. Langella, A. Testa, "On The Processing Of Harmonics And Interharmonics In Electrical Power Systems", *IEEE Power Engineering Society Winter Meeting 2000*, Singapore, January 2000.

[CI 8] R. Carbone, R. Langella, A. Testa, "EMTP Errors in Modelling Resonant Circuits", International Conference on *Electric Power Systems at the Beginning of the Third Millennium*, Capri, Italia, May 2000.

[CI 9] D. Gallo, R. Langella, A. Testa, "New Harmonic and Interharmonic Processing Techniques", International Conference on *Electric Power Systems at the Beginning of the Third Millennium*, Capri, Italia, May 2000.

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[CI 13] R. Carbone, D. Castaldo, R. Langella, A. Testa, "Probabilistic Modeling of Industrial Systems for Voltage

Distortion Analyses", *9th IEEE International Conference on Harmonics and Quality of Power*, Orlando, USA, October 2000.

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[CI 17] R. Carbone, F. De Rosa, R. Langella and A. Testa, "A New Approach to Model AC/DC/AC Conversion Systems," *IEEE Summer Power Meeting 2001*, Vancouver, Canada, July 2001, then improved and published in [RI 10].

[CI 18] D. Gallo, R. Langella, A. Testa, "Interharmonic Analysis Utilizing Optimized Harmonic Filtering", *3rd IEEE International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives*, Gorizia, Italia, September 2001.

[CI 19] R. Carbone, D. Castaldo, F. De Rosa, R. Langella, A. Testa, "Monte Carlo Simulation of AC/DC/AC Power Converter Distortion", *IEEE Porto Power Tech 2001*, Porto, Portugal, September 2001.

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