



**MASSIMO MITOLO, Knight OMRI, Ph.D., P.E., P. Eng., CFEI, FIET,  
FIEEE, IEEE-HKN  
SENIOR CONSULTANT  
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Dr. Massimo Mitolo is a Senior Consultant for ESi within the Fire, Process, and Electrical Practice. Over the course of over 30 years of professional experience, Dr. Mitolo has developed and applied an analytical approach for the calculations of prospective and effective touch voltages in electrical systems. He is an internationally recognized expert in the fields of the design of low-voltage electrical installations, power systems analysis, bonding and grounding of power systems, electrical safety engineering, and electrical accident reconstruction.

Sir Massimo has been awarded the Knighthood in the Order of Merit of the Italian Republic in recognition of his scientific work.

He is a Fellow of IEEE “for contributions to the electrical safety of low- voltage systems”, and a Fellow of the Institution of Engineering and Technology (IET) of London (UK).

Dr. Mitolo’s background includes a tenured professorship in *Electrical Technology* in the U.S., and extensive experience as a consultant engineer and expert witness in court. He has performed analysis of accidents caused by failure of protective measures against electric shock and direct contact with live parts. Dr. Mitolo is a registered Professional Engineer (P.E.) in California and in Italy, a licensed firefighter in New Jersey, and a Certified Fire and Explosion Investigator (CFEI).

Dr. Mitolo has authored over 170 journal papers and the books “*Electrical Safety of Low-Voltage Systems*” (McGraw-Hill), “*Laboratory Manual for Introduction to Electronics: A Basic Approach*” (Pearson), “*Analysis of Grounding and Bonding Systems*” (CRC Press), “*Electrical Safety Engineering of Renewable Energy Systems*” (John Wiley & Sons), and “*Simulation-based Labs for Circuit analysis*” (River Publishers).

He is the editor of the book series Power, River Publishers. He is active within the Industrial and Commercial Power Systems Department of the IEEE Industry Applications Society (IAS) in numerous committees and working groups.

The recipient of the IEEE Region 6 2015 *Outstanding Engineer Award*, Dr. Mitolo has earned nine *Best Paper Awards*, numerous recognitions, among which are the IEEE *Ralph H. Lee I&CPS Department Prize Award*, the IEEE I&CPS 2015 Department Achievement Award, and the *James E. Ballinger Engineer of the Year 2013 Award* from the Orange County Engineering Council.

## **Areas of Specialization**

Failure Analysis of Electrical Equipment  
Electrical Safety  
Power System Analysis  
Design of Electrical Systems

Arc Flash Incident Energy Analysis  
Bonding and Grounding of Power Systems  
Electrical Safety Assessment

September 2023



## Education

Ph.D., Electrical Engineering, University of Naples “Federico II,” Italy, 1990

## Licensed Professional Engineer (P.E.)

State of California ..... License No. E-21463

Italy ..... License No. PZ 981

## Professional Affiliations

### Institute of Electrical and Electronic Engineers (IEEE)

**Fellow**, class 2020, with the motivation: “*For contributions to the electrical safety of low-voltage systems.*”

**Senior Member** since 2003.

**Member** of the IEEE Industry Applications Society (IAS).

2019-2022 **Deputy Editor-in-Chief** of the IEEE Transactions on Industry Applications.

2019-2022 **Chair**, Special Issues Committee, Council of the IEEE Industry Applications Society (IAS).

**Associate Editor** for the IEEE Transactions on Industry Applications.

**Technical Committee Paper Review Chair** for the IEEE Transactions on Industry Applications.

2017-2018 **Member** of the IEEE Industry Applications Society Council.

2017-2018 **Vice-Chair (papers)** of the IEEE IAS I&CPS Department.

2016-2017 **IAS Prominent Lecturer**.

2016-2017 **Past Chair**, IEEE Orange County Section, CA.

2014-2015 **IAS Distinguished Lecturer**.

2014-2015 **Chair** of IEEE Orange County Section, CA.

2014-2015 **Treasurer** of the IEEE Industry Applications Society (IAS), and member of the Society Executive Board.

2014-2015 **Chair**, *Financial Planning Committee*, IEEE Industry Applications Society (IAS) Council.

2015-2016 **Secretary** of the *Industrial & Commercial Power Systems Department* of the IEEE Industry Applications Society (IAS).

2012-2015 **Chair**, *Power Systems Engineering (PSE) Main Technical Committee, Industrial & Commercial Power Systems Department*, IEEE Industry Applications Society.

**Past Chair**, *Power Systems Analysis Subcommittee, Industrial & Commercial Power Systems Department*, IEEE Industry Applications Society.

**Past Chair**, *Power Systems Grounding Subcommittee, Industrial & Commercial Power Systems Department*, IEEE Industry Applications Society.

**Chair** of the IEEE Standard P3003.2 “Recommended Practice for Equipment Grounding and Bonding in Industrial and Commercial Power Systems”; Published August 2014.

**Chair** of the IEEE P3003.1 “Recommended Practice for the System Grounding of Industrial and Commercial Power Systems”; Published June 2019.

**Member** of the IEEE P3002.2 “Recommended Practice for Conducting Load-Flow Studies of Industrial and Commercial Power Systems”. Published November 2018.

**Member** of the IEEE P3002.3 “Recommended Practice for Conducting Short-Circuit Studies of Industrial and Commercial Power Systems”.

**Member** of the IEEE P3001.3 “Recommended Practice for the Design of Industrial and Commercial Power Systems: Voltage Considerations.”

#### **The Institution of Engineering and Technology (IET) (UK)**

**Fellow** of the UK Institution of Engineering and Technology (FIET)

**Higher education advisor / liaison officer** of the Main Committee of the IET Southern California Local Network.

#### **Editorship of IEEE Journals and Book Series**

**Editorial Board Member** of the “Distributed Generation & Alternative Energy Journal.” River Publishers (ISSN: 2156-3306).

**Guest Editor** of the Special Issue “*Safety, Security and Reliability of Electrical Power Systems: Latest Advances and Prospects*,” MDPI Applied Sciences (ISSN 2076-3417).

**Guest Editor** of the Special Issue “*Fast, Super-Fast and Ultra Super-Fast Intelligent and Smart Charging Solutions for Electric Vehicles*.” IEEE Transactions on Industry Applications, Sept/Oct 2022.

**Editor** of the book series Power, River Publishers.

**Editor** of the Special Issue “*Innovative Solutions for the Electrical Industry*.” “Electronics” (MDPI) (2021).

**Editor** of the Special Issue “*Electrical Safety Engineering of Complex Systems*.” “Applied Sciences – Energy” (MDPI) (2021).

**Editor** of the Special Issue “*Multilevel Converter applications in the area of Renewable Energy, More Electric Propulsion, Electric Vehicles and Power Grid integration*.” The IEEE Transactions on Industry Applications (Jan/Feb 2021).

**Deputy Editor-in-Chief** of the IEEE Transactions on Industry Applications (2019-2022).

**Editor** of the Special Issue “*Energy Efficiency, Building Automation, Metering and Microgrids in Industrial and Commercial Power Systems*.” IEEE Transactions on Industry Applications, Vol. 55, No. 6 Nov/Dec 2019.

**Editor** of the Special Issue “*Grounding Systems*.” IEEE Transactions on Industry Applications, Vol. 51, No. 6 Nov/Dec 2015.

#### **Positions Held**

##### **Engineering Systems Inc., Irvine, CA**

Senior Consultant, 2015 - Present

##### **Eaton Corporation, Advanced Power Systems Engineering Group, Irvine, CA**

Advisory Engineer, 2013-2015

##### **ETAP (Electrical Transient Analyzer Program), Irvine, CA**

Senior Principal, 2012 - 2013

##### **CHU & GASSMAN Consulting Engineers, Middlesex, NJ**

Head of the Electrical Department, 2002-2011



## Teaching Experience

- Full Professor** of Electrical Technology at the School of Integrated Design, Engineering & Automation of the Irvine Valley College (IVC), Irvine, CA, from 2016 to date.
- Adjunct Professor** of “Intro to Circuit Analysis & Circuit Analysis Laboratory” at Raritan Valley Community College in NJ from 2010 to 2011.
- Full Professor** of “Electrotechnics and Applications” at the “Ferrari” State Technical Institute (Italy) from 1991 to 2001.

## Continued Education

2023

- LinkedIn Certificate of Completion: Leveraging Generative AI for Project Management.
- LinkedIn Certificate of Completion: Next Generation AI: An Intro to GPT-3.
- LinkedIn Certificate of Completion: Introduction to Artificial Intelligence.
- LinkedIn Certificate of Completion: Get Ready for Generative AI.
- LinkedIn Certificate of Completion: Streamlining Your Work with Microsoft Bing Chat.
- LinkedIn Certificate of Completion: Generative AI: The Evolution of Thoughtful Online Search.
- LinkedIn Certificate of Completion: What Is Generative AI?
- LinkedIn Certificate of Completion: Occupational Safety and Health: Hazard Communication.
- [LinkedIn Certificate of Completion: Public Speaking for Non-Native English Speakers.
- LinkedIn Certificate of Completion: Nano Tips for Using ChatGPT for Business with Rachel Woods.
- LinkedIn Certificate of Completion: How to Research and Write Using Generative AI Tools.
- KPA Certificate of Completion: Back Safety.
- KPA Certificate of Completion: Driver Safety - Defensive Driving.
- KPA Certificate of Completion: Electrical Awareness Safety.
- KPA Certificate of Completion: Ergonomics.
- KPA Certificate of Completion: Fire Safety.
- KPA Certificate of Completion: Hazard Communications: GHS.
- KPA Certificate of Completion: Walking Working Surfaces.

2022

- OSX 952 - OSHA 502 - Update for Construction Industry Outreach Trainers. OSHA Training Institute Education Center. California State University Dominguez Hills. 11-28, 29; 12-5, 2022.
- LinkedIn Certificate of Completion: Foundations of the Fourth Industrial Revolution (Industry 4.0).
- LinkedIn Certificate of Completion: Nano Tips for Using Excel with Miss Excel.

2021

- The International Association of Arson Investigators: Photovoltaic Cells & Systems.
- LinkedIn Certificate of Completion: Understanding Personal Protective Equipment (PPE).
- LinkedIn Certificate of Completion: Occupational Safety and Health Slips Trips and Falls.
- The International Association of Arson Investigators: Introduction to Appliances.
- The Institution of Engineering and Technology (IET): Raising Standards, Saving Lives - the role of the Building Safety Manager.
- LinkedIn Certificate of Completion: Learning Arduino: Foundations.
- 2021 Kevin Mitnick Security Awareness Training.
- The Institution of Engineering and Technology (IET): Foundation Earthing and Lightning Protection.



- The International Association of Arson Investigators: Electric & Hybrid Vehicle Design Basics.  
The Institution of Engineering and Technology (IET): Responsibilities for those in an electrical installation design role. 2020
- LinkedIn Certificate of Completion: Excel: Pivot Tables for Beginners.  
LinkedIn Certificate of Completion: Excel Conditional Formatting for Beginners.  
The Institution of Engineering and Technology (IET): RCDs: Selection, Types and Testing.  
The Institution of Engineering and Technology (IET): The Importance of Firestopping for Electrical Installations.  
The Institution of Engineering and Technology (IET): Emergency Lighting Systems and Safety Services for Practicing Electricians.  
The Institution of Engineering and Technology (IET): Electric Shock Prevention.  
The Institution of Engineering and Technology (IET): UPS Systems and Generators.  
LinkedIn Certificate of Completion: Construction Estimating: Specifications and CSI MasterFormat.  
LinkedIn Certificate of Completion: Construction Industry: Safety.  
Irvine Valley College Certificate: Pedagogy for Online Learning.  
LinkedIn Certificate of Completion: Construction Management: Reading Drawings & Specifications (PMI).  
LinkedIn Certificate of Completion: Electrical Systems: Reading Drawings and Schematics.  
LinkedIn Certificate of Completion: Learning Excel What-If Analysis 2019
- LinkedIn Certificate of Completion: The Student-Centered Funding Formula (By California Community Colleges) 2018
- OSHA 500 - Trainer Course in Occupational Safety & Health Standards for the Construction Industry.  
OSHA 510 - OSHA Standards for the Construction Industry. 2017
- LinkedIn Certificate of Completion: Learning Canvas 2017  
CALCTP Certificate: 50-hours California Advance Lighting Controls Train-the-Trainer Program  
Irvine Valley College: Introduction to Online Teaching with Canvas (4-week on-line program)  
UC Davis: Lighting Foundations.  
Lighting Control Association: EE 102. Switching Control - Section 2: Load Scheduling Control – Technology.  
Lighting Control Association: EE102: SWITCHING CONTROL Load Scheduling Control, Part 1: Technology.  
National Council on Qualifications for the Lighting Professionals: EE 102. Switching Control - Section 1: Occupancy Sensors – Technology.  
Lighting Control Association: EE102: OCCUPANCY SENSORS, Part 2: Application.  
Lighting Control Association: EE 101. Introduction to Lighting Control.  
Lighting Control Association: EE 101. Introduction to Lighting Control Equipment. 2016
- The International Association of Arson Investigators: Arc Mapping Basics  
The International Association of Arson Investigators: Basic Electricity  
The International Association of Arson Investigators: Electrical Safety

2015

Eaton Corp.: Global Data Protection	
Eaton Corp.: Global Trade Management	
OSHA (Occupational Safety and Health Administration): Slips, Trips, and Falls	
OSHA (Occupational Safety and Health Administration): Hearing Conservation	
OSHA (Occupational Safety and Health Administration): Heat and Cold stress	
OSHA (Occupational Safety and Health Administration): Personal Protective Equipment	
OSHA (Occupational Safety and Health Administration): Hazard Communication	
OSHA (Occupational Safety and Health Administration): Fire Safety	
OSHA (Occupational Safety and Health Administration): Confined Spaces	
OSHA (Occupational Safety and Health Administration): Industrial Ergonomics	
OSHA (Occupational Safety and Health Administration): Bloodborne Pathogens.	
OSHA (Occupational Safety and Health Administration): Fall Protection	
OSHA (Occupational Safety and Health Administration): Hand Safety	
Eaton Corp.: Graduated Field Service Certification (GFSC) - Level 2	
OSHA (Occupational Safety and Health Administration): Electrical Safety	
OSHA (Occupational Safety and Health Administration): Lock-out Tag-out.	
OSHA (Occupational Safety and Health Administration): Hand and Power Tools.	2013
ETAP 115N Power System Engineering I (emphasis on DC systems)	2012
ETAP 115 Power System Engineering I	2010
OSHA (Occupational Safety and Health Administration): 10-hour Construction Safety and Health.	2009
MTA Long Island Railroad: Roadway Protection Training (49 CFR part 214 Sub part C).	2005
Basler Electric: Relay Application School (6-Day course)	

## Peer Reviewer

IEEE Industry Applications Transactions  
IEEE Industry Applications Magazine

## Books Published

**M. Mitolo** “*Simulation-based Labs for Circuit analysis.*” River Publishers, 2024.

**M. Mitolo**, K. B. Prakash, S. Padmanaban: “*Smart and Power Grid Systems: Design Challenges and Paradigms,*” River Publishers, 2022. ISBN: 978-8770226721.

**M. Mitolo**, R. Araneo: “*Electrical Safety Engineering of Renewable Energy Systems*,” John Wiley & Sons, Inc., 2021. ISBN: 978-1119624981.

**M. Mitolo**: “*Analysis of Grounding and Bonding Systems*,” CRC Press Taylor & Francis Group, 2020. ISBN: 978-0367341251.

**M. Mitolo**, F. Freschi: “*Laboratory Manual for Introduction to Electronics: A Basic Approach*,” Pearson Education, 2013. ISBN-10: 0-13-295478-8.

**M. Mitolo**: “*Electrical Safety of Low-Voltage Systems*,” McGraw-Hill, 2009. New York, NY. ISBN: 007150818X / 9780071508186.

## Publications

**M. Mitolo**, V. Cirimele, F. Freschi: “I charge, therefore I drive - Current State of Electric Vehicle Charging Systems,” IEEE Power & Energy Magazine, Nov-Dec 2023.

S. Favuzza, **M. Mitolo**, S. Moradi, R. Musca and G. Zizzo, “A General Methodology for Short-circuit Calculations in Hybrid AC/DC Microgrids,” in IEEE Transactions on Industry Applications, vol. 59, no. 3, pp. 2742-2749, May-June 2023, DOI: 10.1109/TIA.2023.3234232.

S. K. Yadav, N. Mishra, B. Singh, P. Sanjeevikumar, F. Blaabjerg and **M. Mitolo**, “A Minimal Drift MPPT Technique for Solar Grid-Tied Multilevel Converter by Multiobjective Swarm,” in IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 11, no. 3, pp. 2641-2649, June 2023, DOI: 10.1109/JESTPE.2022.3232848.

S. Karamdel, X. Liang, S. O. Faried and **M. Mitolo**, “Optimization Models in Cyber-Physical Power Systems: A Review,” in IEEE Access, vol. 10, pp. 130469-130486, 2022, DOI: 10.1109/ACCESS.2022.3229626.

**M. Mitolo et al.**, “Fast, superfast, and ultra-superfast Intelligent and Smart Charging Solutions for Electric Vehicles,” in IEEE Transactions on Industry Applications, 2022, DOI: 10.1109/TIA.2022.3187675.

M. A. Igder, X. Liang and **M. Mitolo**, “Service Restoration Through Microgrid Formation in Distribution Networks: A Review,” in IEEE Access, vol. 10, pp. 46618-46632, 2022, DOI: 10.1109/ACCESS.2022.3171234.

Ali Moghasssemi, Shayan Ebrahimi, Sanjeevikumar Padmanaban, **Massimo Mitolo**, Jens Bo Holm-Nielsen, “Two fast metaheuristic-based MPPT techniques for partially shaded photovoltaic system,” International Journal of Electrical Power & Energy Systems (IJEPES), Volume 137, May 2022, 107567, doi.org/10.1016/j.ijepes.2021.107567.

Jain, V., Chakrabarti, P., **Mitolo, M.** et al., “A Power-Efficient Multichannel Low-Pass Filter Based on the Cascaded Multiple Accumulate Finite Impulse Response (CMFIR) Structure for Digital Image Processing,” in Circuits Syst Signal Process (February 2022). <https://doi.org/10.1007/s00034-022-01960-5>.

- M. Mitolo**, G. Zizzo, C. Fox and T. Bajzek, "Safety Protocols for Forensic Inspections in the Time of COVID-19: An Approach to Protect Practitioners," in IEEE Industry Applications Magazine, vol. 28, no. 1, pp. 26-30, Jan.-Feb. 2022, DOI: 10.1109/MIAS.2021.3114658.
- M. Mitolo**, E. Pons and G. Zizzo, "A Methodology for Protection of Trees Against Lightning Strikes as a Measure to Prevent Fires and Loss of Human Life," in IEEE Transactions on Industry Applications, vol. 57, no. 4, pp. 3538-3544, July-Aug. 2021, DOI: 10.1109/TIA.2021.3084122.
- M. Mitolo** et al., "Improved Perturb and Observation Maximum Power Point Tracking Technique for Solar Photovoltaic Power Generation Systems," in IEEE Systems Journal, vol. 15, no. 2, pp. 3024-3035, June 2021, DOI: 10.1109/JSYST.2020.3003255.
- P. Sanjeevi Kumar and **M. Mitolo**, "Multilevel Converter Applications in the Area of Renewable Energy, More-Electric Propulsion, Electric Vehicles and Power Grid Integration," in IEEE Transactions on Industry Applications, vol. 57, no. 3, pp. 3050-3051, May-June 2021, DOI: 10.1109/TIA.2021.3050137.
- R. Araneo and **M. Mitolo**, "Insulation Resistance and Failures of a High-Power Grid-Connected Photovoltaic Installation: A Case Study," in IEEE Industry Applications Magazine, vol. 27, no. 3, pp. 16-22, May-June 2021, DOI: 10.1109/MIAS.2020.3024490.
- M. Mitolo** et al.: "Systematic Approach for State-of-the-Art Architectures and System-on-Chip Selection for Heterogeneous IoT Applications," in IEEE Access, vol. 9, pp. 25594-25622, DOI: 10.1109/ACCESS.2021.3055650.
- N. C. Lenin, S. Padmanaban, M. S. Bhaskar, **M. Mitolo** and E. Hossain, "Ceiling Fan Drives – Past, Present and Future," in IEEE Access, DOI: 10.1109/ACCESS.2021.3052899.
- A. Moghassemi, S. Padmanaban, V. K. Ramachandaramurthy, **M. Mitolo** and M. Benbouzid, "A Novel Solar Photovoltaic Fed TransZSI-DVR for Power Quality Improvement of Grid-Connected PV Systems," in IEEE Access, vol. 9, pp. 7263-7279, 2021, DOI: 10.1109/ACCESS.2020.3048022.
- S. R. Khasim, D. C. S. Padmanaban, J. B. Holm-Nielsen and **M. Mitolo**, "A Novel Asymmetrical 21-Level Inverter for Solar PV Energy System With Reduced Switch Count," in IEEE Access, vol. 9, pp. 11761-11775, 2021, DOI: 10.1109/ACCESS.2021.3051039.
- R. Candela, A. Gattuso, **M. Mitolo**, E. R. Sanseverino and G. Zizzo, "A Comparison of Special Bonding Techniques for Transmission and Distribution Cables Under Normal and Fault Conditions," in IEEE Transactions on Industry Applications, vol. 57, no. 1, pp. 101-109, Jan.-Feb. 2021, DOI: 10.1109/TIA.2020.3032947.
- X. Liang, C. Andalib-Bin-Karim, W. Li, **M. Mitolo** and M. N. S. K. Shabbir, "Adaptive Virtual Impedance-Based Reactive Power Sharing in Virtual Synchronous Generator Controlled Microgrids," in IEEE Transactions on Industry Applications, vol. 57, no. 1, pp. 46-60, Jan.-Feb. 2021, DOI: 10.1109/TIA.2020.3039223.
- M. Mitolo** et al.: "Survey of DC-DC Non-isolated Topologies for Unidirectional Power Flow in Fuel Cell Vehicles," in IEEE Access, vol. 8, pp. 178130-178166, 28-09-2020, DOI: 10.1109/ACCESS.2020.3027041.

- R. Candela, A. Gattuso, **M. Mitolo**, E. R. Sanseverino and G. Zizzo, "A Model for Assessing the Magnitude and Distribution of Sheath Currents in Medium and High-Voltage Cable Lines," in IEEE Transactions on Industry Applications, vol. 56, no. 6, pp. 6250-6257, Nov.-Dec. 2020, DOI: 10.1109/TIA.2020.3025516.
- M. Mitolo** et al.: "Small Signal Stability Analysis for Microgrids under Uncertainty Using MALANN Control Technique," in IEEE Systems Journal, DOI: 10.1109/JSYST.2020.3020509.
- M. Mitolo** et al.: "Implementation of Designed PV Integrated Controlled Converter System," in IEEE Access, vol. 8, pp. 100905-100915, 2020, DOI: 10.1109/ACCESS.2020.2997405.
- M. Mitolo** et al.: "Review of Health Prognostics and Condition Monitoring of Electronic Components," in IEEE Access, vol. 8, pp. 75163-75183, 2020, DOI: 10.1109/ACCESS.2020.2989410.
- Thayumanavan, Porselvi, Deepa Kaliyaperumal, Umashankar Subramaniam, Mahajan S. Bhaskar, Sanjeevikumar Padmanaban, Zbigniew Leonowicz, and **Massimo Mitolo**. 2020. "Combined Harmonic Reduction and DC Voltage Regulation of a Single DC Source Five-Level Multilevel Inverter for Wind Electric System" Electronics 9, no. 6: 979. <https://doi.org/10.3390/electronics9060979>.
- G. D. Lorenzo, R. Araneo, **M. Mitolo**, A. Niccolai and F. Grimaccia, "Review of O&M Practices in PV Plants: Failures, Solutions, Remote Control, and Monitoring Tools," in IEEE Journal of Photovoltaics, vol. 10, no. 4, pp. 914-926, July 2020, doi: 10.1109/JPHOTOV.2020.2994531.
- G. Ala, S. Favuzza, **M. Mitolo**, R. Musca and G. Zizzo, "Forensic Analysis of Fire in a Substation of a Commercial Center," in IEEE Transactions on Industry Applications, vol. 56, no. 3, pp. 3218-3223, May-June 2020, DOI: 10.1109/TIA.2020.2971675.
- M. Mitolo**: "Thoughts on Electrical Safety." IEEE Industry Applications Magazine, May-June 2020. Volume: 26, Issue: 3. DOI: 10.1109/mias.2020.2971071.
- Karthikeyan, M., R. Elavarasu, P. Ramesh, C. Bharatiraja, P. Sanjeevikumar, Lucian Mihet-Popa, and **Massimo Mitolo**. 2020. "A Hybridization of Cuk and Boost Converter Using Single Switch with Higher Voltage Gain Compatibility" Energies 13, no. 9: 2312. <https://doi.org/10.3390/en13092312>
- M. Mitolo**, P. Dehghanian, B. Wang, S. Wang: "Electrical Safety Considerations in Large-Scale Electric Vehicle Charging Stations." IEEE Transactions on Industry Applications, Volume 55, No.6; November/December 2019. Pages: 6603-6612. DOI: 10.1109/TIA.2019.2936474.
- M. Mitolo**, P. Dehghanian, R. Araneo: "Electrical Safety in Academic Laboratories." IEEE Transactions on Industry Applications, Volume 55, No.6; November/December 2019. Pages: 5613-5620. DOI: 10.1109/TIA.2019.2934940.
- M. Mitolo**, L. Martirano: "Guest Editorial: Energy Efficiency, Building Automation, Metering, and Microgrids in Industrial and Commercial Power Systems." IEEE Transactions on Industry Applications, Volume 55, No.6; November/December 2019. Pages: 6997-6998. DOI: 10.1109/TIA.2019.2940868.

- M. Mitolo**, G. Zizzo, R. Musca: “Electrical Safety Analysis in the Presence of Resonant Grounding Neutral.” IEEE Transactions on Industry Applications, Volume: 55, No.6: 5; Sept.-Oct. 2019. Pages: 4483-4489. DOI: 10.1109/TIA.2019.2926236
- M. Mitolo**, R. Araneo: “A brief history of Maxwell’s Equations”. IEEE Industry Applications Magazine, May-June 2019. Volume: 25, Issue: 3. DOI: 10.1109/MIAS.2019.2898096. Pages: 8 - 13
- M. Mitolo**, G. Zizzo, R. Musca: “A Cost-effective Solution for Clearing High-Impedance Ground-Faults in Over-Head Low-Voltage Lines”. IEEE Transactions on Industry Applications, Volume: 55, No. 2; March/April 2019. Pages: 1208-1213. ISSN: 0093-9994. DOI: 10.1109/TIA.2018.2884927.
- M. Mitolo**, R. Araneo: “A brief history of Electromagnetism”. IEEE Industry Applications Magazine; March/April 2019. Volume 25, Issue 2. DOI: 10.1109/MIAS.2018.2884753. Pages: 7-11.
- M. Mitolo** et al.: “Energy Analysis in an Italian Opera House and Energy Savings Strategies”. IEEE Industry Applications Magazine; March/April 2019. Volume 25, Issue 2. DOI: 10.1109/MIAS.2018.2875132. Pages: 45-51.
- M. Mitolo** et al.: “On the Interconnections of HV–MV Stations to Global Grounding Systems”; IEEE Transactions on Industry Applications, Volume: 55, No. 2; March/April 2019. Pages: 1126-1134. ISSN: 0093-9994. DOI: 10.1109/TIA.2018.2875383.
- M. Mitolo**, T. Bajzek: “New Generation Tester to Assess the Electrical Safety in Low-Voltage Distribution Systems”. IEEE Transactions on Industry Applications, Volume: 55, No. 1; January/February 2019. Pages: 106 – 110. ISSN: 0093-9994. DOI: 10.1109/TIA.2018.2864697.
- M. Mitolo**, F. Freschi, V. Cirimele: “Inductive power transfer for automotive applications: state-of-the-art and future trends”. IEEE Transactions on Industry Applications, Volume 54, No. 5; September/October 2018. Pages: 4069-4079. ISSN: 0093-9994; DOI: 10.1109/TIA.2018.2836098.
- M. Mitolo**, F. Freschi, R. Tommasini: “Electrical Safety of Plug-in Electric Vehicles”. IEEE Industry Applications Magazine, May/June 2018, Volume 24 Issue 3. DOI: 10.1109/MIAS.2017.2740454.
- M. Mitolo**, M. Tartaglia, L. Orlietti; S. Corgnati: “Energy Savings in Integrated Urban Water Systems: A Case Study”. IEEE Transactions on Industry Applications Vol. 53, No. 6; November/December 2017. Pages 5150-5154. ISSN: 0093-9994; DOI: 10.1109/TIA.2017.2738599.
- M. Mitolo**, F. Freschi, R. Tommasini: “Analysis of causation of a flour dust explosion in an industrial plant”. IEEE Transactions on Industry Applications Vol. 53, No. 6; November/December 2017. Pages: 5182-5186. ISSN: 0093-9994; DOI: 10.1109/TIA.2017.2725947.
- M. Mitolo**, F. Freschi, L. Giaccone: Arc Welding Processes: An Electrical Safety Analysis. IEEE Transactions on Industry Applications Vol. 53, No. 2; March/April 2017. ISSN: 0093-9994; DOI: 10.1109/TIA.2016.2626260.
- M. Mitolo**, F. Freschi: Currents passing through the human body: the numerical viewpoint. IEEE Transactions on Industry Applications Vol. 53, No. 2; March/April 2017. ISSN: 0093-9994; DOI: 10.1109/TIA.2016.2626260.

- M. Mitolo**, T. Bajzek: Safety against burns from hot touchable parts of electrical equipment. IEEE Transactions on Industry Applications Vol. 52, No. 5; Sep/Oct 2016. Pages: 3699 – 3704. ISSN: 0093-9994; DOI: 10.1109/TIA.2016.2593809.
- M. Mitolo**, A. Pettinger: Interactions between Cathodically Protected Pipelines and Grounding Systems. IEEE Transactions on Industry Applications Vol. 52, No. 5; Sep/Oct 2016. Pages:3694-3698. ISSN: 0093-9994; DOI: 10.1109/TIA.2016.2593809.
- M. Mitolo**, M. Tartaglia: Galileo Ferraris, A Life Dedicated to the Electrical Sciences. IEEE Industry Applications Magazine, Vol. 22, No. 5; Sep/Oct 2016. Pages 8-11. ISSN: 1077-2618. DOI: 10.1109/MIAS.2016.2574223.
- M. Mitolo** et al.: District Heating Safety Issues: Interactions Between Grounding Systems and Thermal Installations. IEEE Transactions on Industry Applications Vol. 52, No. 3; May/June 2016.
- M. Mitolo**, F. Freschi, R. Tommasini: Electrical Model of Building Structures under Ground-Fault Conditions, Part II, IEEE Transactions on Industry Applications; Vol. 52, No. 2; March/April 2016.
- M. Mitolo**, F. Freschi, R. Tommasini: Electrical Model of Building Structures under Ground-Fault Conditions, Part I, IEEE Transactions on Industry Application; Vol. 52, No. 2; March/April 2016.
- M. Mitolo**, On the New Terminology Introduced in Std. IEEE P3003.2 Recommended Practice for Equipment Grounding and Bonding in Industrial and Commercial Power Systems, IEEE Transactions on Industry Application; Vol. 52, No. 2; March/April 2016.
- M. Mitolo**, H. Liu: Touch Voltage Analysis in Low-Voltage Power Systems Studies. IEEE Transactions on Industry Application. Vol. 52, No. 1; January/February 2016. Pages 556 – 559.
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- M. Mitolo:** Safe Design of an End-User Substation Ground Grid, EC&M - The Magazine of Electrical Design, Construction & Maintenance; Pub. Primedia, USA. Volume 115; Issue 5, May 2016. Pages 26-32. ISSN 0013-4260.
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- M. Mitolo**: Stray Currents in Electrical Transit Systems, Il Giornale dell’Installatore Elettrico, no. 10, July, 15 2009, pp. 24-26. Pub. Reed Business Information, Milan, Italy.
- M. Mitolo**: Electrical Fires, L’Impianto Elettrico, June 2007, pp. 62-66, Pub. Tecniche Nuove, Milan, Italy.
- M. Mitolo**: Per Cent Voltage-Impedance Of Transformers: The True Interpretation, L’Impianto Elettric,” December 2006, pp. 42-45, Pub. Tecniche Nuove, Milan, Italy.
- M. Mitolo**: Calculating the Incident Energy Produced By Electric Arcs, L’Impianto Elettrico, October 2006, pp. 30-33, Pub. Tecniche Nuove, Milan, Italy.
- M. Mitolo**: Grounding The Neutral In Industrial Facilities, L’Impianto Elettrico, n° 6, June 2006, pp. 18-22, Pub. Tecniche Nuove, Milan, Italy.
- M. Mitolo**: Animal Caused Electric Outages, L’Impianto Elettrico, April 2006, pp. 44-48, Pub. Tecniche Nuove, Milan, Italy.
- M. Mitolo**: American Working Space about Equipment, TuttoNormel, February 2006, Pub. TNE, Torino, Italy.
- M. Mitolo**: Ground Differential Protection for Transformers and Generators, L’Impianto Elettrico, January 2006, pp. 19-23, Pub. Tecniche Nuove, Milan, Italy.
- M. Mitolo**: Fire Insurance Policy: in the USA its Cost Depends on the Conditions of the Electrical Installations, TuttoNormel, March 2005, pp. 20-22, Pub. TNE, Torino, Italy.
- M. Mitolo**: Short Circuit Calculation Methodologies: The IEEE Point Of View, L’Impianto Elettrico, December 2004, pp. 20-25, Pub. Tecniche Nuove, Milan, Italy.
- M. Mitolo**: Short Circuit Calculation Methods, EC&M - The Magazine of Electrical Design, Construction & Maintenance,” October 2004, pp.54-58, Pub. Primedia, USA.
- M. Mitolo**: Harmonic Voltage and Current Distortion, L’Impianto Elettrico, September 2004, pp.82-87, Pub. Tecniche Nuove, Milan, Italy.

## Invited Lectures and Seminars

- “Ethical Considerations in the Electrical Design of Industrial & Commercial Power Systems,” 23<sup>rd</sup> IEEE EEEIC International Conference on Environment and Electrical Engineering, Madrid, Spain. June 7th, 2023.

- “Intro to Electrical Safety Engineering”, Nalanda Institute of Technology, Bhubaneswar, Odisha 754005, India. May 20th, 2020.
- “Electrical Safety Engineering: Prevention Through Design”, 19th IEEE EEEIC International Conference on Environment and Electrical Engineering, Genoa, Italy. June 12th, 2019.
- “Have You Noticed a Warning Sign Today? Safety signs and workplace hazards”, Irvine Valley College; January 11th, 2018.
- “Claims & Litigation Involving Electrical Accidents and Injuries”, minimum continuing legal education seminar at Buchalter Products Liability Practice Group; Irvine, May 3rd, 2017.
- “Electrical Safety for Dummies”, Irvine Valley College; January 11th, 2017
- “Is the Smart grid a Safe Grid? The case of the “false” TT in the U.S.”, University of Roma “La Sapienza”, Italy; School of Engineering; June 6th, 2016.
- “Failure Analysis of Airport Runway Lighting Systems”, IEEE Symposium on Product Compliance Engineering. May 16th, 2016.
- “Root Cause Analysis for Equipment Failure”, IEEE Orange County Section, Product Safety Engineering Society Chapter; Northwest EMC, Irvine, CA; April 27th, 2016.
- “Key concepts and differences in the NEC and IEC in the matter of bonding and grounding of low-voltage power systems”, ETAP 2016 User Conference; Hotel Irvine, Irvine, CA; April 19th, 2016.
- “Understanding NEC and IEC in the matter of bonding and grounding of low-voltage power systems”, IEEE IAS Webinar series; January 6th, 2016.
- “Latent Electric Shock Hazards in Buildings: Are We Safe?”, University of California Irvine; November 17<sup>th</sup>, 2015.
- “Electrical Safety of Airport Ground Lighting Systems”, IEEE Orange County Section, Product Safety Engineering Society Chapter; Northwest EMC, Irvine, CA; September, 22<sup>nd</sup>, 2015.
- “IEEE Recommended Practice for Grounding, Equipment Grounding and Bonding of Industrial and Commercial Power Systems”, 4-hour seminar for the IEEE Los Angeles Metropolitan Section, Industry Applications Society Chapter; ETAP Training Facility, Irvine, CA, August 29<sup>th</sup>, 2015.
- “How hot is too hot?”, Fire, Process and Electrical Practice meeting, ESI, Houston, April 20<sup>th</sup>, 2015.
- “Protection Against Electric Shock: Crucial Roles of Bonding and Earthing,” IEEE IAS Workshop on Electrical Safety in India (WESI), Pune, India, November 20<sup>th</sup>, 2014.
- “Comparing NEC and IEC in the Matter of Bonding and Grounding of Low-Voltage Power Systems,” IEEE IAS Los Angeles Metropolitan Section Chapter, September 10th, 2014.
- “Introduction to Electrical Safety of Aeronautical Ground Lighting Systems,” Eaton Corp., Training Room B, Warrendale, PA. May 30th, 2014.



“Electric Shock Hazard in Low-Voltage Installations Designed per the NEC,” Eaton Corp., Training Room B, Warrendale, PA. May 30th, 2014.

“Alternative Protection Measures Against Electric Shock in Industrial Environment,” IEEE Power & Energy Society (PES) and Industry Applications Society (IAS) of Orange County, CA; May 15th, 2014.

“Earthing and Bonding: from the Ground Up,” Eaton Corp, City of Industry, CA, March 5<sup>th</sup>, 2014.

“Touch Voltages in NEC Based Low-Voltage Installations,” IEEE Power & Energy Society (PES) and Industry Applications Society (IAS) of Orange County, CA; June 20<sup>th</sup>, 2013.

ETAP 101 “Design, Analysis, and Operation of Power Systems,” 1-day Seminar; Birmingham (UK), 13-May-2013.

ETAP 164 “Low-Voltage Power System Design and Analysis,” 4-day Workshop; Birmingham (UK), May 14-17, 2013.

“Effects of Electrical Currents Passing Through the Human Body and Bonding Requirements in Buildings,” Middlesex County College, Middlesex, NJ, March, 17<sup>th</sup>, 2010.

“The Neutral Wire in Public Low-Voltage Distribution Systems: the American Issue,” I.S.I.S Lauria (Italy), December 17<sup>th</sup>, 2009.

“Stray Voltages and Public-Exposed Lighting Installations,” IEEE Princeton/Central Jersey Section, “Circuits and Systems” Chapter, Rutgers State University – Busch Campus, November 30<sup>th</sup>, 2006.

“Equipment Bonding Jumpers: Are they Always Necessary?,” IEEE Princeton/Central Jersey Section, “Circuits and Systems” Chapter, Rutgers State University – Busch Campus, May 16<sup>th</sup>, 2005.

## **Patents**

“Noise Abatement System for Dental Procedures” (U.S. Patent No. 9,609,423).

## **Published Technical Standards**

Member of IEEE P3001.3 “Recommended Practice for the Design of Industrial and Commercial Power Systems: Voltage Considerations.”

Chair of the IEEE P3003.1 “Recommended Practice for the System Grounding of Industrial and Commercial Power Systems”; Published June 2019.

Chair of the IEEE Standard P3003.2 “Recommended Practice for Equipment Grounding and Bonding”  
Published August 2014.

M. Mitolo (Working Group Chair): IEEE P3003.1 “Recommended Practice for the System Grounding of Industrial and Commercial Power Systems”; Published June 2019.



M. Mitolo (Member): IEEE P3002.2 “Recommended Practice for Conducting Load-Flow Studies of Industrial and Commercial Power Systems”. Published November 2018.

## **Fire Academy Certificates**

Firefighter I certification issued on 07-07-2006 at Middlesex County Fire Academy, NJ, Class 02-1001-06.

Firefighter I, State of New Jersey Certification, Division of Fire Safety, 2006.

“Hazardous Materials Awareness - 06007,” New Jersey State Police, 2006.

“Hazardous Materials Operations - 06009,” New Jersey State Police, 2006.

“CBRNE Operations – 06088,” New Jersey State Police, 2006.

“National Incident Management System, NIMS IS-700,” Federal Emergency Management Institute (FEMA) - U.S. Department of Homeland Security, 2006.

“Intermediate Incident Command, ICS I-200,” Piscataway Township Fire School, NJ, 2006.

“Radiological Emergency Management, IS-003,” Federal Emergency Management Institute (FEMA) - U.S. Department of Homeland Security, 2006.

“Radiological Emergency Response, IS-301,” Federal Emergency Management Institute (FEMA) – U.S. Department of Homeland Security, 2006.

“Building for the Earthquakes of Tomorrow, IS-008.A,” Federal Emergency Management Institute (FEMA) – U.S. Department of Homeland Security, 2007.

“Retrofitting Flood-Prone Residential Structures, IS-00279,” Federal Emergency Management Institute (FEMA) – U.S. Department of Homeland Security, 2007.

“Special Events Contingency Planning for Public Safety Agencies, IS-00015.A,” Federal Emergency Management Institute (FEMA) – U.S. Department of Homeland Security, 2007.

“Introduction to Residential Coastal Construction, IS-00386,” Federal Emergency Management Institute (FEMA) – U.S. Department of Homeland Security, 2007.

“Disaster Basics, IS-292,” Federal Emergency Management Institute (FEMA) – U.S. Department of Homeland Security, 2007.

“Large Incident Command, ICS I-300,” Piscataway Township Fire School, NJ, 2007.

“National Response Plan (NRP), an Introduction, IS-00800.A,” Federal Emergency Management Institute (FEMA) – U.S. Department of Homeland Security, 2007.

## **Selected Project Experience**

Analysis of safety of wearable electrical devices (CA).

Analysis of electric energy meters to establish electricity theft due to meter tampering (Italy).

Analysis of poker machines to establish conformity with applicable laws and standards (Italy).

Analysis of noise emission from equipment in urban area to establish conformity with applicable laws and standards (Italy).

Water pipe corrosion analysis through modeling of the interference with neighboring cathodically protected oil pipeline (IL).

Fire investigation in industrial building (CA).

Pipeline failure allegedly due to an arc-produced electrical discharge from a downed power line (IL).

Product safety analysis of wirelessly controllable thermostat, allegedly causing fires in buildings (IL).

Product safety analysis of hot tub, allegedly causing fires in building (CA).

Soil resistivity tests at several municipal train stations.

Sizing of equipment grounding conductors and fault-loop calculations for the low-voltage signaling equipment of train stations in the UK.

Lighting illumination calculation for the train station platform and Load Flow study in NJ.

Protective Device Coordination study of the electrical system prior to energizing of new equipment in municipal train station.

Design of the electrical distribution system for new Bench Test Equipment and Carpentry areas in railroad maintenance facility.

Load Flow, Short Circuit, and Grounding studies in major municipal wastewater treatment plants.

Short Circuit, Blower Starting, and Load Flow Studies for municipal water and sewer authority.

Detail design and specifications for the replacement of the existing outdoor Substations; short circuit analysis for major hospital in NJ.

Detail design and specifications for the Uninterruptable Power Supply (UPS) System for surgery rooms for major hospital in NJ.

Design for Repairing/Upgrading Electrical Grounding Systems. Elaboration of equivalent fault-loop circuits to explain the source of stray voltages in the facility, and finding electrical violations to applicable codes and standards for a maximum security correctional institution in NJ.



Detail design and specifications for the replacement of existing Substation #2 with a new double-ended substation of greater apparent power for a Sewer District in New York State.

Detail drawings and specifications for the replacement of High-Voltage Disconnect Switchgears and short circuit analysis for a Sewer District in New York State.

Short Circuit and Coordination study for the Low-Voltage Temporary Power Distribution System for a Water Pollution Control Plant in New York City.

Design and construction phase services for the upgrade of the electrical system of a wastewater treatment plant in NJ.

Detailed design and specifications for the new Soft Starters in Power Plant Building of a hospital in NJ.

Load Flow, Short Circuit and Ground Fault studies for the new expansion project, which included power grid and load expansions of existing facility in Nanjing, China.

Ground Grid study for the new 20 MVA, 69 kV/13.8 kV substation at a steel process facility in PA.

DC and AC short circuit studies for conductor bar systems manufacturer in NE.

Grounding analysis and field survey at a Pump Station in San Francisco, CA.

Ground Grid design for a Compressor Station, in WY.

Ground Grid design for a Compressor Station, in CO.