Francisco de Leon, Ph.D., Life FIEEE

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1. Abstract

I received the B.Sc. degree and the M.Sc. degree (summa cum laude) in electrical engineering from the National Polytechnic Institute (IPN), Mexico, in 1983 and 1986, respectively. In 1992 I have obtained a Ph.D. degree also in electrical engineering from the University of Toronto, Canada. From 1992 to 1997 I was with the Graduate Division of the School of Electrical and Mechanical Engineering of the IPN, Mexico. From September 1997 to August 1998 I was on sabbatical leave at McGill University in Montreal, and from September 1998 to April 1999 I was a post-doctoral researcher at the University of Toronto.

From 1999 to 2007 I held several academic positions in Mexico and worked for the Canadian electric industry in the research and development of standard and special motors and transformers. From 2004 to 2007 I was the Director of R&D at CYME International T&D in St. Bruno (Quebec) developing professional-grade software for the analysis of power and distribution systems and cable ampacity. I have joined the Department of Electrical and Computer Engineering of Polytechnic University (previously Brooklyn Poly and now the NYU Tandon School of Engineering) as Associate Professor in September 2007. Obtained tenure in 2013 and was promoted to (full) Professor in 2019. Currently, I am the Director of Undergraduate Programs for the Department of Electrical and Computer Engineering. In 2021, I have completed successfully the ABET re-accreditation of our three Electrical Engineering and Computer Engineering programs.

I have many publications including 137 journal papers (over 100 in the IEEE Transactions), 5 book chapters, 14 discussions, 53 conference papers, and 18 patents. My papers have been cited over 5000 times in Scopus and over 8000 times in Google Scholar. I have attracted over $6M in external funding. I have graduated (so far) 29 Ph.D., 31 M.Sc. students with thesis, and hundreds of undergraduates. I also have directed the research of 20 postdoctoral fellows and 7 visiting PhD students.

I have been an Editor of the IEEE Transactions on Power Delivery since 2009 and an Editor/Coordinator of the IEEE Power Engineering Letters since 2011. I was elevated to IEEE Fellow in 2015 and since 2025 I am a Life IEEE Fellow. I was the *Editor-in-Chief of the IEEE Transactions on Power Delivery for papers submitted from 2020 to 2025 (6 years)*.

2. Education and Employment

Education

Ph.D. in Electrical Engineering from the *University of Toronto*, 1992 (<u>Power Devices and Systems</u>). **Dissertation title: "Transformer Model for the Study of Electromagnetic Transients".** Advisor: Prof. Adam Semlyen.

M.Sc. in Electrical Engineering from the *National Polytechnic Institute, Mexico City*, 1986 (<u>Power Systems</u>). **Dissertation title: "Modeling of the Transformer's Magnetizing Impedance".** Advisor: Prof. Jaime Avila-Rosales.

B.Sc. in Electrical Engineering from the *National Polytechnic Institute, Mexico City*, 1983 (<u>Electrical Machine Design</u>). **Dissertation title: "Design of a Panel for Protection, Control, and Measurement of two 2625 kVA, 2.4 kV AC Generators".**

Post-Doctoral Studies (all in Electrical Power Engineering)

University of Toronto, September 1998 to March 1999. **Papers: "Iterative Solvers in the Newton Power Flow Problem: Preconditioners, Inexact Solutions, and Partial Jacobian Updates" and "Quasi-Newton Power Flow Using Partial Jacobian Updates".** Advisor: Prof. Adam Semlyen.

McGill University, September 1997 to August 1998. **Paper: "Active Damping of Power System Oscillations by Alternative Power Generation Plants".** Advisor: Prof. Boon-Teck Ooi.

University of Toronto, January to September 1992. **Paper: "Computation of Electro-Magnetic Transients Using Dual or Multiple Time Steps".** Advisor: Prof. Adam Semlyen.

Employment

<u>Current</u>: **New York University** – Professor, since September 2019 to date.
Associate Professor from September 2007 to August 2019. Tenured in 2013.

CYME International (Canada) - Director of R&D. Developed professional-grade software for cable ampacity and power system analysis. From January 2004 to August 2007.

Universidad Michoacana (Mexico) – Titular Professor. September 2001 to December 2003.

Plitron Manufacturing Inc. (Canada) - R&D Engineer. Designed experimental toroidal transformers for new applications. From September 1999 to August 2001.

Windomotion (Canada) - R&D Engineer. Developed a simulator to design motor controllers for automotive power windows. From April to August 1999.

Instituto Politécnico Nacional (Mexico) – Associate Professor, in the Graduate Division of the School of Electrical Engineering September 1992 to August 1997.

Instituto Politécnico Nacional (Mexico) – Lecturer, September 1983 to August 1987.

CONALEP (technical high school in Mexico) – Teacher, September 1982 to August 1983.

3. Grants and Contracts

Externally Funded Research Projects (Total $6,043,627)

Funded Projects as Sole PI (Total $4,293,821)

1. "*HIGHEST Transformers (High-Efficiency Shielded Toroidal transformers) to help distribution network operators for saving energy*" (sole PI), **De Leon ($149,985).** Funded by PowerBridgeNY, Started in June 2014 ended in May 2015.

2. "*C.TrAm - Cable transient ampacity software to monitor the temperature of electric cables",* (sole PI), **De Leon ($149,850).** Funded by PowerBridgeNY, Started in June 2014 ended in May 2015.

3. "*Harmonic mitigating power transformer to improve power quality and efficiency*", (sole PI), **De Leon ($149,850).** Funded by PowerBridgeNY, Started in May 2016 ended in April 2017.

4. "*Network Transformer Failure Analysis and Root Cause Determination*". (Sole PI) **De Leon $499,700.00.** Start date: September 2008. Ended in October 2011.

5. "*Testing DEW against the IEEE Test Distribution Feeders*" (Sole PI). **De Leon $99,919.41** by Con Edison. Start date: September 2008. Ended in September 2009.

6. "*Development of Toroidal Core Transformers*". (Sole PI). Funded by DOE **De Leon $951,500.00** (Earmark) and by NYU-Poly $237,875.00. Start date: October 2009. Ended in May 2014.

7. "*Customer Load Model under Varying Voltage Conditions*". (Sole PI). Funded by Con Edison **(De Leon) $264,932.00** Start date: October 2010. Ended in September 2011.

8. "*Analysis of the Load Drop Following Three-Phase Short-Circuits in the Fordham Network*". (Sole PI). Funded by Con Edison **(De Leon) $49,900**. Start date: October 2010. Ended in April 2012.

9. "*Customer Load Model under Varying Voltage Conditions – Phase II: Economic Impact on Utility and Customers*". (Sole PI). Funded by Con Edison **(De Leon) $399,674.00** Start date: July 2011. Ended in June 2012.

10. "*Development of Real-Time Thermal Rating Software for Underground Power Cables*". (sole PI). Funded by LIOS Technology GmbH of Köln, Germany, **(De Leon) $473,643.** Start date: June 2012. Scheduled to end in December 2014.

11. "*Study and Development of Non-Network Reliability Index Models for 4 kV Grids*", (sole PI). Funded by Con Edison: **(De Leon) $149,059**. Start date of Phase I: December 2012 ended December 2013.

12. "*Data-Driven Online Detection of Winding Deformations in Large Power Transformers". (sole PI). Funded by NYSERDA ($187,313) and NYPA ($187,313).* **(De Leon) $374,626.** Start date: June 2023. Scheduled to end in May 2025.

13. "*Analysis Design and Construction of a De-Energized Feeder Detector Prototype". (sole PI). Funded by Con Edison* **(De Leon) $581,183.** Start date: December 2023. Scheduled to end in December 2025.

Funded Projects as Co-PI (Total $4,079,988 my share is $1,740,806)

1. "*Arc Fault Detection and Localization in Distribution Networks*", Co-Pi with Czarkowski, funded by Con Edison a total of $99,927, **(De Leon $49,964)**. Performance period: January 2013 to December 2013.

2. "*Sensitivity of Medical Equipment and Elevator Controllers to Voltage Reduction*", (Co-PI with Dariusz Czarkowski and Zivan Zabar). Funded by Con Edison a total of $199,694. Czarkowski ($66,565), **De Leon ($66,565)**, Zabar ($66,565). Start date January 2014 ended in December 2014.

3. "*Study and Development of Non-Network Reliability Index Models for 4 kV Grids*", Phases 2 and 3. (Co-PI with Dariusz Czarkowski and Zivan Zabar). Funded by Con Edison a total of $347,934, **De Leon ($115,978).** Performance Period: January 2014 to December 2015.

4. "*Resonant Power Inverters Optimized for Highly Efficient Wireless Power Transfer*", Co-PI with Czarkowski. Funded by PowerBridgeNY a total of $149,850, **(De Leon $74,925)**. Performance period: June 2014 to May 2015.

5. "*Wireless Electric Vehicle Charging and Deployment*", Co- PI with Czarkowski ($48,125), **De Leon ($48,125)**. Funded by GII (Global Innovation Initiative) a total of $96,251. Performance period: May 2014 to March 2016.

6. "*A Meta-Network System Framework for Resilient Analysis and Design of Interdependencies*", (co-PI). Funded by NSF a total of $299,824. Co-PI with Q. Zhu, R. Zimmerman and N. Memon, **(De Leon $74,956)**. Performance period: from October 2014 to September 2016.

7. *NYSRISE (NYS Resilience Institute for Storms and Emergencies). Project: Electric Power System Performance*, PD/PI B. Griffis funded by New York State $2M+ **(De Leon $100,000** – estimated). Performance period: January 2014 to May 2015.

8. "*Modular Programmable Electronic AC/DC Load*", Co-Pi with D. Czarkowski. Funded by Boeing a total of $292,393 **(De Leon $146,197)**. Performance period from June 2013 to December 2015.

9. "*Phase I STTR: Research and Development of High Efficiency Shielded Toroidal Transformers*", Co-PI with Jazebi (my post-doctoral fellow). Funded by NSF a total of $224,862. **(De Leon, $77,012)**. Performance period: December 2015 to December 2016.

10. "*EAGER: Renewables: Game-Theoretic Methods for Analysis and Design of Distributed Renewable-Based Energy Resources in Smart Grids*", Co-Pi with Quanyan Zhu, funded by NSF $245,486, **(De Leon $122,743).** Performance period: January 2016 to December 2017.

11. "*AC Electronic Programmable Load*", Co-Pi with Dariusz Czarkowski, funded by Boeing $140,442 (**De Leon $70,221**). Performance period: January 2016 to December 2016.

12. "*AC Electronic Programmable Load*", Co-Pi with Dariusz Czarkowski, funded by Boeing $140,875 (**De Leon $70,437**). Performance period: January 2017 to December 2017.

13. "*Universal Controller for Interconnection of Distributed Generators with the Utility Lines at Customer Level Voltages*" (Co-PI with Dariusz Czarkowski). Con Edison Funded a total of $149,424.00. **De Leon ($74,712)**; Czarkowski ($74,712). Start date: September 2008. Ended in December 2011.

14. "*Analysis of Secondary Networks Having Distributed Generation Systems*", (Co-PI with Dariusz Czarkowski and Zivan Zabar. Funded by Con Edison a total of $238,759.00; Czarkowski ($79,586); Zabar ($79,586); **De Leon ($79,586)**. Collaborator: Zhong-Ping Jiang ($11,154). Start date: September 2009. Ended in October 2011.

15. "*Development and Modeling of a Universal Power Converter for Fuel Cell Applications in an Aircraft Power System*", (Co-PI with Dariusz Czarkowski). Funded by Boeing a total of $384,010.00. **De Leon ($192,005)**; Czarkowski ($192,005). Start date: October 2009. Ended in December 2012.

16. "*An Interdisciplinary Minor in Nuclear Sciences and Engineering*", Funded by the Nuclear Regulatory Commission (NRC) in 2009. PI/PD: Lorcan M. Folan, Co-PI's: George C. Vradis, Barry Blecherman, Francisco De Leon, Said Nourbakhsh, Richard Wener. Award Period: September 1, 2009 – August 31, 2010. Total award $265,497. **De Leon ($25,000)**.

17. "*Transient and Steady-State Analysis for the 3G Smart Grid Concepts*", (Co-PI with Dariusz Czarkowski). Funded by Con Edison (in competition with Siemens, ABB, Mitsubishi) total amount $346,675; **De Leon ($173,337.50)**; Czarkowski ($173,337.50). Collaborator: Zhong-Ping Jiang ($11,154). Start Date: December 2009. Ended in December 2012.

18. "*Comprehensive EMTP Study of Consolidated Edison Secondary Distribution Networks*", (Co-PI with Dariusz Czarkowski), Funded by Con Edison a total of $198,234.00; **De Leon ($99,117)**; Czarkowski ($99,117). Start Date: December 2011. Ended in December 2012.

19. "*Development of a Universal Wireless Charging Solution for Electric Vehicles",* Co-PI with Dariusz Czarkowski. HEVO Power, Three phases ($160,249). Phase (1): Proof of Concept. Funded a total of $30,350; **De Leon ($15,175)**; Czarkowski ($15,175). December 2012 to March 2013. Phase (2): $129,889 **De Leon ($64,944)**; Czarkowski ($64,944). June 2013 to May 2014.

4. Scholarly Work

Book Chapters

(* indicates supervised student, postdoctoral fellow, or visitor)

1. T. Hong*, **F. de León**, Q. Zhu, "_Optimal Dispatch of Electric Transmission Systems Considering Interdependencies with Natural Gas Systems"_ in _Game Theory for Security Risk Management: From Theory to Practice_, Springer, ISBN 978-3-319-75267-9, June 2018.

2. **F. de León**, T. Hong*, and A. Raza*, Section 17 "_Power System Analysis_", _Standard Handbook for Electrical Engineers_, Mc-Graw-Hill, pp. 1053-1096, 2018.

3. **F. de León**, M. Diaz-Aguiló*, and A. Raza*, Chapter 35 "_Conservation Voltage Reduction"_ (SGD057), _Smart Grid Handbook_, John Wiley & Sons, Ltd., pp. 661-684, 2016.

4. **F. de León**, R. Salcedo*, X. Ran*, and J. A. Martinez-Velasco, Chapter 12, "Time-Domain Analysis of the Smart Grid Technologies: Possibilities and Challenges" in _Transient Analysis of Power Systems. Solution Techniques, Tools and Applications_, John Wiley & Sons, pp. 481-546, 2015.

5. **F. de León**, P. Gómez*, J. A. Martinez-Velasco, and M. Rioual, Chapter 4, "_Transformers_" in _Power System Transients: Parameter Determination_, CRC Press, Boca Raton FL, 2009, pp. 177-250.

Publications (Refereed Journal Articles)

Number of papers	Journal	
88	IEEE Transactions on Power Delivery	
10	IEEE Transactions on Power Systems	
6	IEEE Transactions on Smart Grid	
4	IEEE Transactions on Magnetics	
3	IEEE Transactions on Power Electronics	
2	IEE Proceedings on Generation, Transmission & Distribution	
2	IET Generation, Transmission & Distribution	
2	IET Electric Power Applications	
2	IET Science, Measurement & Technology	
2	International Journal of Power and Energy Systems	
1	IEEE Transactions on Sustainable Energy	
1	IEEE Open Access Journal of Power and Energy	
1	IEEE Transactions on Energy Conversion	
1	IET Power Electronics	
1	IEEE Transactions on Circuits and Systems	
2	IEEE Transactions on Industry Applications	
1	Complexity	
1	Thermal Science and Engineering Progress	
1	ASCE Journal of Infrastructure Systems	
1	Applied Computational Electromagnetics Society – ACES Journal	
6	Papers in other journals	
Total 137		

2026 (2):

1) C. H. Alonso*, U. Zatika, and **F. de Leon**, "*Analytical Model of Capacitive Voltage Transformers for the Calculation of Voltage Collapse Transients*", IEEE Transactions on Power Delivery, Accepted for publication February 2026.

2) I. Antolin*, C. H. Alonso*, Z. Hu*, A. Ortiz, and **F. de Leon**, "*Reducing Dielectric Fluid in Current Transformers via Hybrid Ester-Gel Insulation*", IEEE Transactions on Power Delivery, Accepted for publication December 2025.

2025 (6):

3) F. M. Arrabal-Campos, F. G. Montoya, J. Ventura, S. Sánchez-Acevedo, R. E. Torres-Olguin, and **F. de Leon**, "*Experimental Verification of a Time-Domain Load Identification Method for Single-Phase Circuits*", IEEE Transactions on Power Delivery, vol. 40, no. 6, pp. 3660-3671, Dec. 2025, doi: 10.1109/TPWRD.2025.3623506.

4) A. Behniafar and **F. de Leon**, "*A Novel Brushless Axial Synchronous Generator with Excitation Winding*", IEEE Transactions on Energy Conversion, vol. 40, no. 4, pp. 3186-3189, Dec. 2025. doi: 10.1109/TEC.2025.3598628.

5) A. Bamigbade* and **F. de Leon**, "*Advancing Industrial Sustainability and Economics Through a Net-Zero Grid*", IEEE Transactions on Sustainable Energy, vol. 16, no. 4, pp. 2312-2326, October 2025. doi:10.1109/TSTE.2025.3551436

6) A. Bamigbade* and **F. de Leon**, "*Secure Voltage-Modulated Vector Current Control of Distributed Energy Resources Using Delayed DSOGI Under Distorted and Unbalanced Grid Conditions*", IEEE Transactions on Industry Applications, vol 61, no., 1, pp. 1091-1101, Jan/Feb 2025, doi: 10.1109/TIA.2024.3481214.

7) A. Bamigbade* and **F. de Leon**, "*Secure Implementation of Active Power Filters Using a Dual Cascaded Second-Order Time-Delay Filter*", IEEE Transactions on Power Delivery, vol. 40, no. 1, pp. 655-658, February 2025, doi: 10.1109/TPWRD.2024.3498450.

8) A. Bamigbade* and **F. de Leon**, "*A Novel Time-Delay Filter Implementation for Resilient Control of Active Power Filters*", IEEE Transactions on Power IEEE Transactions on Power Delivery, vol. 40, no. 1, pp. 191-202, February 2025, doi: 10.1109/TPWRD.2024.3488005.

2024 (3):

9) L. A. Alvarez-Gomez, X. M. Lopez-Fernandez, **F. de Leon**, and A. Ramos, "*Three-phase Three-legged Wye-Wye Transformers with Only One Neutral Grounded and no Stabilizing Winding – Part I: Zero-sequence Performance*", IEEE Transactions on Power Delivery, vol. 39, no. 3, pp. 1451-1461, June 2024, doi: 10.1109/TPWRD.2024.3365861. **Prize Paper Award: IEEE PES Technical Committee Working Group Award.**

10) L. A. Alvarez-Gomez, X. M. Lopez-Fernandez, **F. de Leon**, and A. Ramos, "*Three-phase Three-legged Wye-Wye Transformers with Only One Neutral Grounded and no SW- Part II: Zero-sequence Permissible Temperature*", IEEE Transactions on Power Delivery, vol. 39, no. 3, pp. 1462-1473, June 2024, doi: 10.1109/TPWRD.2024.3365857.

11) Y. Li*, **F. de León**, Y. Zhao, L. Yue, Z. Hu*, R Wang*, "*Influence and comprehensive evaluation of porous metal foam filled fins on the performance of power cable surface waste heat recovery thermoelectric power generation device*", Thermal Science and Engineering Progress, Vol. 47, Jan. 2024, No. 102278, doi: 10.1016/j.tsep.2023.102278.

2023 (6):

12) Z. Hu*, **F. de Leon**, R. Wang*, and Y. Li*, "_Effects of Installing Different Types of Cooling Fins on the Cold Side of a Thermoelectric Power Generation Device on the Thermal Efficiency and Exergy Efficiency of Power Cable Surface Waste Heat Recovery"_, Micromachines, Vol. 14, No. 8, August 2023 Article number 1591, doi: 10.3390/mi14081591.

13) S. Behzadirafi*, Y. Malallah*, L. Qaseer*, and **F. de Leon**, "_Theoretical and Experimental Verification of CVR Energy Savings for Refrigeration Loads_", IEEE Transactions on Power Delivery vol. 38, no. 4, pp. 2489-2499, August 2023, doi: 10.1109/TPWRD.2023.3244774.

14) W. Sima, B. Zou, M. Yang*, P. Duan, Y. Zhou, D. Peng, K. Cheng, and **F. de Leon**, "_Reconstructing Primary Voltages across Inductive VTs — Part I: Methodology_", IEEE Transactions on Power Delivery, vol. 38, no. 2, pp. 1353-1362, April 2023, doi: 10.1109/TPWRD.2022.3213666.

15) B. Zou, W. Sima, M. Yang*, P. Duan, Y. Li, X. Luo, Y. Qiu, and **F. de Leon**, "_Reconstructing Primary Voltages across Inductive VTs — Part II: Validation, Application, and Analysis_", IEEE Transactions on Power Delivery, vol. 38, no. 2, pp. 1363-1374, April 2023, doi: 10.1109/TPWRD.2022.3213720

16) D. Giglio* and **F. de Leon**, "_Dynamic Thermal Model for Different Size Trefoil Power Cables with Various Loads in Non-Forced-Ventilated Tunnels_", IEEE Transactions on Power Delivery, vol. 38, no. 2, pp. 1286-1296, April 2023, doi: 10.1109/TPWRD.2022.3212376.

17) **F. de León,** "_In My View: The future belongs to dc, Edison will Beat Tesla after all_", IEEE Power and Energy Magazine, March/April 2023, pp. 80 & 78, doi: 10.1109/MPE.2022.3231000.

2022 (3):

18) D. Deswal* and **F. de León**, "_Distributed Dual Model for High-Frequency Transformer Windings: Electromagnetic Transients and Solid State Transformers_", IEEE Open Access Journal of Power and Energy, vol. 9, pp. 549-559, doi: 10.1109/OAJPE.2022.3208251.

19) F. G. Montoya, **F. de León**, F. Arrabal-Campos, and A. Alcayde, "_Determination of Instantaneous Powers from a Novel Time-Domain Parameter Identification Method of Non-Linear Single-Phase Circuits_", IEEE Transactions on Power Delivery, vol. 37, no. 5, pp. 3608-3619, Oct. 2022, doi: 10.1109/TPWRD.2021.3133069.

20) J. M. Colef* and **F. de León**, "_Improvement of the Standard Ampacity Calculations for Power Cables Installed in Trefoil Formations in Ventilated Tunnels_, IEEE Transactions on Power Delivery, vol. 37, no. 1, January 2022, pp. 627-637. Doi**:** 10.1109/TPWRD.2021.3068111.

2021 (3):

21) B. Al Faiya, D. Athanasiadis, M. Chen, S. McArthur, I. Kockar, H. Lu*, and **F. de León**, "_A Self-Organizing Multi-Agent System for Distributed Voltage Regulation_", IEEE Transactions on Smart Grid, vol. 12, no. 5, pp. 4102-4112, September 2021, doi: 10.1109/TSG.2021.3070783.

22) A. Borbuev*, W. Wang*, H. Lu*, S. Jazebi*, and **F. de León**, "_Investment Deferral of Feeder Upgrades Revealed by System-Wide Unbalanced Dynamic Rating: Harvesting the Hidden Capacity of Distribution Systems Discovered by Thermal Map Technology_", IEEE Transactions on Power Delivery, vol. 36, no. 3, pp. 1594-1602, June 2021, doi: 10.1109/TPWRD.2020.3011618.

23) W. Sima, B. Zou, M. Yang*, and **F. de León**, "_New Method to Measure Deep-Saturated Magnetizing Inductances for Dual Reversible Models of Single-Phase Two-Winding Transformers_", IEEE Transactions on Power Delivery, vol. 36, no. 1, pp. 488-491, Feb. 2021, doi: 10.1109/TEC.2020.3023596.

2020 (9):

24) A. Iravani* and **F. de León,** "_Real-Time Transient Stability Assessment Using Dynamic Equivalents and Nonlinear Observers_", IEEE Transactions on Power Systems, vol. 35, no. 4, July 2020, pp. 2981-2992.

25) A. Borbuev* and **F. de León,** "_Increasing Power Transfer Capacity of Distribution Networks Using Direct Current Feeders",_ International Journal of Energy and Power Engineering, World Academy of Science, Engineering and Technology, vol. 14, No. 4, 2020.

26) S. Behzadirafi* and **F. de León**, "_Closed-Form Determination of the Impedance Locus Plot of Fault Current Limiters: Asymmetrical Faults_," IEEE Transactions on Power Delivery, vol. 35, no. 2, April 2020, pp. 754-762.

27) Q. Wu*, D. Deswal*, M. Yang*, and **F. de León**, "_Experimental Study of Magnetic Effects of Steel Tanks on Three-Phase Transformer Transients",_ IEEE Transactions on Power Delivery, vol. 35, no. 2, April 2020, pp. 665-673.

28) S. Jazebi*, **F. de León**, and A. Nelson, "_Review of Wildfire Management Techniques—Part II: Urgent Call for Investment in Research and Development of Preventative Solutions_", IEEE Transactions on Power Delivery, vol. 35, no. 1, February 2020, pp. 440-450.

29) S. Jazebi*, **F. de León**, and A. Nelson, "_Review of Wildfire Management Techniques—Part I: Causes, Prevention, Detection, Suppression, and Data Analytics",_ IEEE Transactions on Power Delivery, vol. 35, no. 1, February 2020, pp. 430-439.

30) W. Wang* and **F. de León**, "_Quantitative Evaluation of DER Smart Inverters for the Mitigation of FIDVR_", IEEE Transactions on Power Delivery, vol. 35, no. 1, February 2020, pp. 420-429.

31) M. Yang*, D. Deswal*, and **F. de León**, "_Mitigation of Half-Cycle Saturation of Adjacent Transformers during HVDC Monopole Operation – Part II: Detecting Zero-Sequence Fault Currents_", IEEE Transactions on Power Delivery, vol. 35, no. 1, February 2020, pp. 16-24.

32) H. Rong* and **F. de León**, "_Load Estimation of Complex Power Networks from Transformer Measurements and Forecasted Loads_", Complexity, Vol. 2020 (January), Article ID 2941809. DOI: 10.1155/2020/2941809

2019 (3):

33) M. Yang*, D. Deswal*, and **F. de León**, "_Mitigation of Half-Cycle Saturation of Adjacent Transformers during HVDC Monopolar Operation – Part I: Mitigation Principle and Device Design_", IEEE Transactions on Power Delivery, vol. 34, no. 6, December 2019, pp. 2232-2239.

34) D. Deswal* and **F. de León**, "_Generalized Circuit Model for Eddy Current Effects in Multi-Winding Transformers_", IEEE Transactions on Power Delivery, vol. 34, no. 2, March 2019, pp. 638-650 (13 pages!).

35) Q. Wu*, T. Hong*, S. Jazebi*, **F. de León**, "_Experimentally Validated Method to Measure the λ-I Characteristics of Asymmetric Three-Phase Transformers_", IEEE Transactions on Magnetics, Vol. 55, No. 4, pp. 8101009, April 2019.

2018 (12):

36) H. Lu*, **F. de León**, D. Soni*, and W. Wang*, "_Two-Zone Geological Soil Moisture Migration Model for Cable Thermal Rating_", IEEE Transactions on Power Delivery, vol. 33, no. 6, December 2018, pp. 3196-3204.

37) W. Wang*, M. Diaz-Aguiló*, K. B. Mak*, **F. de León**, D. Czarkowski, and R. E. Uosef*, "*Time Series Power Flow Framework for the Analysis of FIDVR Using Linear Regression*", IEEE Transactions on Power Delivery, vol. 33, no. 6, December 2018, pp. 2946-2955.

38) S. Behzadirafi* and **F. de León**, "*Closed-Form Determination of the Impedance Locus Plot of Fault Current Limiters: A Rigorous Approach with Graphical Representation*," IEEE Transactions on Power Delivery, vol. 33, no. 6, December 2018, pp. 2710-2717.

39) A. Sedaghat*, H. Lu*, A. Bokhari*, and **F. de León**, "*Enhanced Thermal Model of Power Cables Installed in Ducts for Ampacity Calculations*", IEEE Transactions on Power Delivery, vol. 33, no. 5, October 2018, pp. 2404-2411.

40) M. Yang*, R. Kazemi*, S. Jazebi*, D. Deswal*, and **F. de León**, "*Retrofitting the BCTRAN Transformer Model with Non-Linear Magnetizing Branches for the Accurate Study of Low-Frequency Deep Saturating Transients*", IEEE Transactions on Power Delivery, vol. 33, no. 5, October 2018, pp. 2344-2353.

41) Z. Li*, S. Wang, X. Zheng, **F. de León**, and T. Hong, "*Dynamic Demand Response using Customer Coupons Considering Multiple Load Aggregators to Simultaneously Achieve Efficiency and Fairness*", IEEE Transactions on Smart Grid, vol. 9, no. 4, July 2018, pp. 3112-3121.

42) T. Hong* and **F. de León**, "*Centralized Unbalanced Dispatch of Smart Distribution dc Microgrid Systems*", IEEE Transactions on Smart Grid, vol. 9, no. 4, July 2018, pp. 2852-2861.

43) H. Lu*, A. Bokhari*, T. Hong*, and **F. de León**, "*Experimental Evaluation of Available Computational Methods for Eddy Current and Hysteresis Losses for Cables Installed in Steel Pipes*", IEEE Transactions on Power Delivery, vol. 33, no. 4, August 2018, pp. 1777-1786.

44) W. Wang*, S. Jazebi*, **F. de León,** and Z. Li*, "*Looping Radial Distribution Systems Using Superconducting Fault Current Limiters: Feasibility and Economic Analysis*", IEEE Transactions on Power Systems, vol. 33, no. 3, May 2018, pp. 2486-2495.

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14) **F. de León**, *Discussion of "Multi-Winding Multi-Phase Transformer Model with Saturable Core"*, IEEE Transactions on Power Delivery, Vol. 6, No. 1, January 1991, p.173.

Conference Papers[ŧ]

[ŧ] - is it difficult to find the acceptance rate of the conference papers. However, my contributions are mostly reported in journal papers. I attend conferences mainly to interact with other researchers, but not to present the latest or the highest quality research. The list is incomplete as I do not care too much for conference papers. There may be many more.

(* indicates supervised student, postdoctoral fellow, or visitor)

1. R. Feng, D. Czarkowski, **F. de León**, and Q. Deng, "*Analysis and design of efficient IPT wireless charging systems for electric vehicle*", IECON 2017, 43rd Annual Conference of the IEEE, 29 Oct. to 1 Nov. 2017, Beijing, China.

2. M. Chen, Di. Athanasiadis, B. A. Faiya, S. McArthur, I. Kockar, H. Lu*, and **F. de León**, "*Design of a multi-agent system for distributed voltage regulation*", 19th International Conference on Intelligent System Application to Power Systems (ISAP), San Antonio, TX, USA, 17-20 Sept. 2017.

3. R. Feng, D. Czarkowski, **F. de León**, and K. Mude, "*Optimal design of resonant coupled multi-receiver wireless power transfer systems*", 2017 IEEE International Conference on Industrial Technology (ICIT), Toronto, ON, Canada, 22-25 March 2017.

4. Z. Li*, S. Wang, S. Jazebi*, **F. de León**, and J. Wang*, "*Assessing the effect of system reconfiguration to enhance the capacity of electric-vehicle charging stations in radial distribution systems*", 2016 IEEE Power and Energy Society General Meeting (PESGM), 17-21 July 2016.

5. R. Feng, N. Roscoe, L. Qaseer, M. Bojarski, J. Shin, D. Czarkowski, **F. de León**, S. Finney, and Q. Deng, "*Magnetic field distribution in a WPT system for electric vehicle charging*", 2016 Progress in Electromagnetic Research Symposium (PIERS), 8-11 Aug. 2016.

6. T. Hong*, T. Bian, and **F. de León**, "*Supplementary damping controller of grid-connected dc micro-grids based on Q-learning*", 2016 IEEE Power and Energy Society General Meeting (PESGM), 17-21 July 2016.

7. M. Bojarski, K. K. Kutty, D. Czarkowski, and **F. de León**, "*Multiphase resonant inverters for bidirectional wireless power transfer*", IEEE International Electric Vehicle Conference (IEVC), Dec. 2014, Florence, Italy.

8. Q. Deng, D. Czarkowski, M. Bojarski, Z. Chu, **F. de León**, and J. Liu, "*Edge position detection of on-line vehicles with segmental wireless power supply*", IEEE International Electric Vehicle Conference (IEVC), Dec. 2014, Florence, Italy.

9. J. Huang*, T. Hong*, M. Bojarski, **F. de León**, and D. Czarkowski, "*Design algorithm of a uniform magnetic field transmitter intended for the wireless charging of electric vehicles*", IEEE International Electric Vehicle Conference (IEVC), Dec. 2014, Florence, Italy.

10. M. Lambert, M. Martínez-Duró, J. Mahseredjian, **F. de León**, and F. Sirois, "*Transformer Leakage Flux Models for Electromagnetic Transients: Critical Review and Validation of a New Model*", presented in the 2014 IEEE/PES General Meeting in Washington, DC, July 27-31, 2014 and published in the IEEE Transactions on Power Delivery.

11. M. Bojarski, D. Czarkowski, **F. de León**, Q. Deng, M. K. Kazimierczuk, and H. Sekiya, "*Multiphase resonant inverters with common resonant circuit*", in Proc. IEEE International Symposium on Circuits and Systems (ISCAS), pp. 2445-2448, June 2014, Melbourne, Australia.

12. Y. Li, D. Czarkowski, **F. De León**, and W. Bury, "*A time sequence load-flow method for steady-state analysis in heavily meshed distribution network with DG*", 2013 8th International Conference on Compatibility and Power Electronics (CPE), Ljubljana, Slovenia, June 5-7, 2013, pp. 25-30.

13. E. Asa, K. Colak, D. Czarkowski, and **F. de León**, "*PLL Control Technique of LLC Resonant Converter for Evs Battery Charger*", International Conference on Power Engineering, Energy and Electrical Drives, POWERENG-2013, May 13-17, Istanbul Turkey.

14. K. Colak, D Czarkowski, and **F. de León**, "*Energy Minimization for Catenary-Free Mass Transit Systems using Particle Swarm Optimization*", IEEE International Conference on Electrical Systems for Aircraft, Railway and Ship Propulsion (ESARS), Bologna, Italy, 16-18 Oct. 2012.

15. **F. de León**, D. Czarkowski, and V. Spitsa*, "*Development of Data Translators for Interfacing Power-Flow Programs with EMTP-Type Programs: Challenges and Lessons Learned*", presented in the 2012 IEEE/PES General Meeting in San Diego, CA, July 22-26, 2012 and accepted for publication in the IEEE Transactions on Power Delivery.

16. L. Qaseer*, S. Purushothaman*, and **F. de León**, "*Closed-Form Analysis of Squirrel-Cage Induction Motors With Anisotropic Modeling of Stator and Rotor*", presented in the 2012 IEEE/PES General Meeting in San Diego, CA, July 22-26, 2012 and published in the IEEE Transactions on Energy Conversion.

17. P. Gomez*, F. P. Espino-Cortes*, and **F. de León**, "*Computation of the dielectric stresses produced by PWM type waveforms on medium voltage transformer windings*", presented at the 2011 Annual Conference on Electrical Insulation and Dielectric Phenomena (CEIDP), Cancun, 16-19 Oct., 2011, pp. 199-202.

18. J. Peralta*, **F. de León**, and J. Mahseredjian, "*Assessing the Errors Introduced by Common Assumptions Made in Power System Studies*", presented in the 2011 IEEE/PES General Meeting in Detroit, MI, July 24-29, 2011.

19. S. Purushothaman* and **F. de León**, "*Eliminating Sub-Synchronous Oscillations with an Induction Machine Damping Unit (IMDU)*", presented in the 2011 IEEE/PES General Meeting in Detroit, MI, July 24-29, 2011 and published in the IEEE Transactions on Power Systems.

20. **F. de León**, "*Active Damping of Power System Oscillations by Unidirectional Control of Distributed Generation Plants*", Invited paper presented at the 2009 Advanced Energy Conference, Brookhaven National Laboratory, Stony Brook, NY, November 18-19, 2009.

21. **F. de León** and J. A. Martinez, "*Dual Three-Winding Transformer Equivalent Circuit Matching Leakage Measurements*", paper presented at the 2009 IEEE/PES General Meeting, Calgary, Alberta, Canada, July 26-30, 2009. This paper is also printed in the IEEE Transactions on Power Delivery.

22. **F. de León**, "*Smart Grid Applications: Viewpoint of an Electrical Power Engineer*", Invited Conference presented at the DIMACS Workshop on Algorithmic Decision Theory for the Smart Grid at the Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), Rutgers University, NJ, October 25-27, 2010.

23. J. A. Martinez, **F. de León**, and V. Dinavahi "*Tools for Analysis of Distribution Systems with Distributed Resources. Present and Future Trends*", paper No. 978-1-4244-6551-4 presented at the 2010 IEEE/PES General Meeting, Minneapolis, MN, July 25-29, 2010.

24. **F. de León**, "*Active Damping of Power System Oscillations by Unidirectional Control of Distributed Generation Plants*", **Invited Conference** presented at the 2009 Advanced Energy Conference, Brookhaven National Laboratory, Stony Brook, NY, November 18-19, 2009.

25. **F. de León** and J. A. Martinez, "*Dual Three-Winding Transformer Equivalent Circuit Matching Leakage Measurements*", paper presented at the 2009 IEEE/PES General Meeting, Calgary, Alberta, Canada, July 26-30, 2009. This paper is printed now in the IEEE Transactions on Power Delivery.

Before Joining NYU-Poly:

26. **F. de Leon**, "*Ampacity Calculations: Most Frequently Asked Questions*", **Invited Conference** presented as part of the Educational Program of the Spring IEEE/PES-ICC Meeting, Orlando, Florida, May 6-9, 2007.

27. **F. de Leon**, "*Major Factors Affecting Cable Ampacity*", paper ID: 06GM0041, presented at the 2006 IEEE/PES General Meeting, June 18-22, 2006, Montreal, Quebec, Canada.

28. **F. de Leon**, P. St-Roch and C. Beauregard, "*Cable Historical Operating Temperature Estimator*" paper presented at the North American Transmission & Distribution Conference & Expo, June 13-15, 2006, Montreal, Canada.

29. **F. de Leon** and J. Cohen*, "*A Practical Approach to Power Factor Definitions: Transmission Losses, Reactive Power Compensation, and Machine Utilizatio*n", paper ID 06GM0565, presented at the 2006 IEEE/PES General Meeting, June 18-22, 2006, Montreal, Quebec, Canada.

30. **F. de Leon** and S. Magdaleno*, "*Finite Element Analysis of the Virtual Gap Technology: Controlling the Magnetizing Curve"* presented at the RVP-AI/2005, paper number TRO-01, July 2005, Acapulco Mexico.

31. C. Parra* and **F. de León**, "*Digital Simulation of Inrush Currents in Transformers"*, presented at the RVP-AI/2003, paper number TRO-12, July 2003, Acapulco Mexico.

32. **F. de León** and J. Cohen, "*Inconsistencies with the Power and Power Factor Definitions for Nonlinear and/or Unbalanced Circuits. Is the New IEEE 1459-2000 Standard the Solution?"*, presented at the RVP-AI'02, paper number SIS-23, July 2002, Acapulco, Mexico.

33. **F. de León**, B. Gladstone, and M. van der Veen, "*Transformer-Based Solutions to Power Quality Problems*", presented at the Fourth International 2001 Power Quality Conference, Rosemont, Illinois, September 9 to 13, 2001, pp. 303-314.

34. M. van der Veen and **F. de León**, "*Narrow Bandwidth Transformers (NBT): A New Power Quality Technology*", presented at the Fourth International 2001 Power Quality Conference, Rosemont, Illinois, September 9 to 13, 2001, pp. 754-758.

35. **F. de León** and B. T. Ooi, "*Damping Power System Oscillations by Unidirectional Control of Alternative Power Generation Plants*", paper presented at the 2001 IEEE/PES Winter Meeting (Columbus Ohio, February 1st, 2001.

36. M. van der Veen, **F. de León**, B. Gladstone, and V. Tatu, "*Measuring and Quantifying Acoustic Noise in Power Transformers in Audio and Video Equipment*", presented at The Audio Engineering Society 109th Convention in Los Angeles, September 22-25, 2000.

37. F. Ceballos* and **F. de León**, "*Electromagnetic Transients Due to Load Rejection in Electric Power Systems*" (In Spanish), paper number RVP'98-SIS-09 presented at the Reunión de Verano de Potencia, July 1998 in Acapulco Guerrero – IEEE Region Mexico, pp. 228-235.

38. J. Martinez-Perez* and **F. de León**, "*Computation of the Leakage Inductance in Power Transformers using Finite Differences*" (In Spanish), paper number RVP'98-TRO-01 presented at the Reunión de Verano de Potencia, July 1998 in Acapulco Guerrero – IEEE Region Mexico, pp. 278-283.

39. J. Cohen*, L. Hernández, **F. De León**, "*On the non-physical existence of Harmonics*", en el 2nd. International Congress on Research in Electrical and Electronics Engineering, Instituto Tecnológico de Aguascalientes, México, 1998.

40. F. Camacho and **F. de León**, "*Origins of Magnetism and Magnetization from Domains Theory*" (In Spanish), paper number RVP'97-EDU-09 presented at the Reunión de Verano de Potencia, July 1997 in Acapulco Guerrero – IEEE Region Mexico, pp. 49-56.

41. J. Martinez-Perez* and **F. de León**, "*Computation of the Electromagnetic Field inside of a Power Transformer: Derivation of the Design Formulae*" (In Spanish), paper number RVP'97-TRO-09 presented at the Reunión de Verano de Potencia, July 1997 in Acapulco Guerrero – IEEE Region Mexico, pp. 199-204.

42. J. Martinez-Perez* and **F. de León**, "U*sing Mathematica® for Teaching Electromagnetics*" (In Spanish), paper number RVP'96-EDU-04 presented at the Reunión de Verano de Potencia, July 1996 in Acapulco Guerrero – IEEE Region Mexico, pp. 199-204.

43. F. de León, "*Professional Actualization of the Electrical Engineer: Current Conditions and Future Perspectives*", Reunión de Verano de Potencia (RVP'96), **Invited Conference**, Acapulco, 1996.

44. R. Adame* and **F. de León**, "*Accurate and Efficient Calculation of Cable Parameters Using Mathematica®*" (In Spanish), paper presented at the II Jornadas Latinoamericanas en Alta Tensión y Aislamiento Eléctrico ALTAE'96, October 8-11, 1996, Instituto Tecnológico de Morelia, Michoacán, México, pp. 95-101.

45. C. Fuerte* and **F. De León**, "*Determination of the Maximum Modeling Region for the Study of Electromagnetic Transients in Power Systems*", Primeras Jornadas Latinoamericanas en Alta Tensión y Aislamiento Eléctrico, ALTAE, **Invited Conference**, Barquisimeto Venezuela, 1995.

46. **F. de León**, A. Calva, J. Fuentes, y G. Enríquez, "*Current State of the High Voltaje Enfgineering in Mexico*", Primeras Jornadas Latinoamericanas en Alta Tensión y Aislamiento Eléctrico, ALTAE, **Invited Magisterial Conference,** Barquisimeto Venezuela, 1995.

47. **F. de León**, "*Computation of Electromagnetic Transients in Power Systems using the EMTP*", Reunión de Verano de Potencia (RVP'95), **Invited Conference**, Acapulco Guerrero, 1995.

48. E. Bernal-Luna* and **F. de León**, "*Analysis of the Electromagnetic Field Inside of an Induction Motor*" (In Spanish), paper number RVP'94-GEN-12 presented at the Reunión de Verano de Potencia, July 1994 in Acapulco Guerrero – IEEE Region Mexico, Volume IV, pp. 80-87.

49. C. R. Fuerte*, R. O. Mota, and **F. de León**, "*Representation of the Electric Power System for Electromagnetic Transients Studies*" (In Spanish), paper number RVP'93-SIS-08 presented at the Reunión de Verano de Potencia, July 1993, Acapulco Guerrero- IEEE Region Mexico, pp. 87-98.

50. **F. de León** and A. Semlyen, "*Modeling of Leakage Fields and Inductances of Transformers Using an Image Conductor Method*," paper presented in The Fourth Biennial IEEE Conference on Electromagnetic Field Computation, Toronto, Ontario, October 22 to 24, 1990.

51. J. Avila-Rosales and **F. de León**, "*Influence of the Frequency Dependence on the No-load Losses in Transformers*" (In Spanish), LATINCON 86, Panama City, IEEE Region 9.

52. J. Avila-Rosales and **F. de León**, "*Effects of the Frequency Dependence of the Transformer Iron-Core Parameters on Magnetizing Currents Chopping*" (In Spanish), MEXICON 86, Guadalajara Jalisco – IEEE Region Mexico.

53. J. Avila-Rosales, **F. de León**, and R. Villafuerte, "*State Space Modeling of Transmission Lines with Distributed Parameters for Electromagnetic Transients*" (In Spanish), MEXICON 86 – IEEE Mexico.

Citations Summary

(to Feb 16, 2026)

Paper	Scopus	Google Scholar
Experimental Determination of the ZIP Coefficients for Modern Residential, Commercial, and Industrial Loads	**332**	**500**
Complete transformer model for electromagnetic transients	**236**	**388**
Analysis of Voltage Profile Problems Due to the Penetration of Distributed Generation in Low-Voltage Secondary …	**175**	**260**
Effects of backfilling on cable ampacity analyzed with the finite element method	**149**	**203**
Optimal distributed voltage regulation for secondary networks with DGs	**142**	**198**
Time domain modeling of eddy current effects for transformer transients	**127**	**191**
Field-validated load model for the analysis of CVR in distribution secondary networks: Energy conservation	**126**	**191**
Review of Wildfire Management Techniques-Part I: Causes, Prevention, Detection, Suppression, and Data Analytics	**102**	**158**
Duality Derived Transformer Models for Low-Frequency Electromagnetic Transients – Part I: Topological Models	**99**	**111**
Efficient calculation of elementary parameters of transformers	81	**147**
Reduced Order Model for Transformer Transients	79	**135**
Determination of the Optimal Switching Frequency for Distribution System Reconfiguration	98	**125**
A simple representation of dynamic hysteresis losses in power transformers	65	**131**
Dual Three-Winding Transformer Equivalent Circuit Matching Leakage	53	**138**
A robust multiphase power flow for general distribution networks	43	74
On the Transient Behavior of Large-Scale Distribution Networks During Automatic Feeder Reconfiguration	35	68
Computation of electromagnetic transients using dual or multiple time steps	26	59
Comparing the T and π Equivalent Circuits for the Calculation of Transformer Inrush Currents	18	135
Detailed modeling of eddy current effects for transformer transients	18	48
Quasi-Newton power flow using partial Jacobian updates	22	47
Iterative solvers in the Newton power flow problem: preconditioners, inexact solutions and partial Jacobian …	20	42
Unbalanced multiphase load-flow using a positive sequence load-flow program	8	35
Mitigation of Inrush Currents in Network Transformers by Reducing the Residual Flux with an Ultra-Low-Frequency …	15	46
Selection of copper against aluminium windings for distribution transformers	16	100
Improved insert geometry for reducing tank-wall losses in pad-mounted	7	15
2D finite-element determination of tank wall losses in pad-mounted transformers	5	13
Eddy current add-on for frequency dependent representation of winding	5	13
Physical time domain representation of powers in linear and nonlinear electrical circuits	8	12
Discussion of "Generalized theory of instantaneous reactive quantity for multiphase power system"	1	14
Discussion of "Could power properties of three-phase systems be described in terms of the Poynting Vector?"	3	4
Mitigation of inrush currents in network transformers by reducing the residual flux with an ultra-low-frequency …	18	41
Modelling transformer core joints using Gaussian models for the magnetic flux density and permeability	2	16
Dual three-winding transformer equivalent circuit matching leakage measurements	6	63
Discussion of "instantaneous reactive power p-q theory and power properties of three-phase systems"	8	2
Accurate and Efficient Computation of the Inductance Matrix of Transformer Windings for the Simulation of …	24	33
Tools for Analysis and Design of Distributed Resources—Part II: Tools for Planning, Analysis and Design …	3	22
Impulse-Response Analysis of Toroidal Core Distribution Transformers for Dielectric Design	17	17
AC power theory from Poynting Theorem: Accurate identification of instantaneous power components in …	6	2
Three–Phase Time–Domain Simulation of Very Large Distribution Networks	17	6
Design Formulas for the Leakage Inductance of Toroidal Distribution Transformers	10	23
Equivalent circuit for the leakage inductance of multiwinding transformers: unification of terminal and duality …	14	22
Dual Reversible Transformer Model for the Calculation of Low-Frequency Transients	15	22
Leakage inductance design of toroidal transformers by sector winding		27
…	…	…
Total	**5,069**	**7,957**
H-index =	**40**	**48**

Editorial Activities

- **Editor-in-Chief,** IEEE Transactions on Power Delivery, since 2020
- **Editor.** IEEE Transactions on Power Delivery, since 2009
- **Editor/Coordinator**. IEEE Power Engineering Letters, 2011 to 2019
- **Guest Editor-in-Chief.** Special Section on *Advances in Condition Monitoring and Assessment of Power Equipment* for the IEEE Transactions on Power Delivery published in August 2019.

Invited Talks

Missing here are the Keynotes.

1) **F. de Leon, "***A critical examination of power definitions and calculations: What we agree, what we disagree, and a lookout to the future***",** Three-day course at the University of Almeria (Spain), November 2020.

   Recordings:

   > https://www.youtube.com/watch?v=VS8bzax52As
   > https://www.youtube.com/watch?v=Owlrc8MsSDo
   > https://www.youtube.com/watch?v=_ZRaqbR1KEE
   > https://www.youtube.com/watch?v=s9ACqVI_5TM

2) **F. de Leon,** I was invited for a short visit (one week) to the University of Cantabria (Santander, Spain) from May 28 to June 1, 2018, under the program of ***Visits from Renowned International Faculty***. There, I gave the following four talks on my research and teaching to faculty, students, and administrators:

   a. *Electromagnetic Transients in Transformers*
   b. *Maxwell's Equations for Transformers and Solutions*
   c. *Transformer's Leakage Inductance*
   d. *Renewable energy generation in the world, the USA, and NY State*

Press release:

http://web.unican.es/noticias/Paginas/2018/junio_2018/Profesor-de-Ingenieria-Electrica-de-la-Universidad-de-Nueva-York-visita-la-Universidad-de-Cantabria.aspx

3) **F. de Leon**, "*Electromagnetic Transients in Transformers*", Norwegian University of Science and Technology (NTNU), Trondheim, Norway, 2010

4) **F. de León**, "*Smart Grid Applications: Viewpoint of an Electrical Power Engineer*", presented at the DIMACS Workshop on Algorithmic Decision Theory for the Smart Grid at the Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), Rutgers University, October 25-27, 2010.

Patents (18)

Granted (16), Applications (2)

1. **High Frequency AC Power Generator**
   Publication number: **20200259404**
   Type: **Application**
   Filed: **February 7, 2020**
   Publication date: **August 13, 2020**
   Inventor: **Francisco DE LEON**

2. **Winding for low-voltage coils of distribution-class toroidal transformers**
   Patent number: **10381155**
   Type: **Grant**
   Filed: **August 18, 2016**
   Date of Patent: **August 13, 2019**
   Assignee: **NEW YORK UNIVERSITY**
   Inventors: **Francisco De León, Saeed Jazebi**

3. **Programmable alternating current (AC) load having regenerative and dissipative modes**
   Patent number: **10539629**
   Type: **Grant**
   Filed: **December 17, 2018**
   Date of Patent: **January 21, 2020**
   Inventors: **Dazhong Gu, Dariusz Czarkowski, Francisco de Leon, Kamiar J. Karimi, Eugene V. Solodovnik, Shengyi Liu**

4. **Earth surface potential and harmonic mitigating transformers**
   Patent number: **10224145**
   Type: **Grant**
   Filed: **January 10, 2017**
   Date of Patent: **March 5, 2019**
   Assignee: **NEW YORK UNIVERSITY**
   Inventors: **Francisco De Leon, Baris Kovan**

5. **Aircraft universal power converter**
   Patent number: **10476379**
   Type: **Grant**
   Filed: **November 22, 2016**
   Date of Patent: **November 12, 2019**
   Assignee: **The Boeing Company**
   Inventors: **Kamiar Karimi, Shengyi Liu, Duanyang Wang, Francisco de Leon, Qingquan Tang, Dazhong Gu, Dariusz Czarkowski, Kerim Colak, Mariusz Bojarski**

6. **Resonant inverter topology, wireless charger, and control method**
   Patent number: **10381950**
   Type: **Grant**
   Filed: **February 18, 2015**
   Date of Patent: **August 13, 2019**
   Assignee: **New York University**
   Inventors: **Mariusz Bojarski, Dariusz Czarkowski, Francisco De Leon**

7. **Programmable alternating current (AC) load having regenerative and dissipative modes**
   Patent number: **10184990**
   Type: **Grant**
   Filed: **October 30, 2014**
   Date of Patent: **January 22, 2019**
   Assignee: **The Boeing Company**
   Inventors: **Dazhong Gu, Dariusz Czarkowski, Francisco de Leon, Kamiar J. Karimi, Eugene V. Solodovnik, Shengyi Liu**

8. **Reduction of Geomagnetically Induced Currents**
   Publication number: **20180145504**
   Type: **Application**
   Filed: **April 12, 2016**
   Publication date: **May 24, 2018**
   Inventors: **Baris KOVAN, Francisco DE LEON**

9. **Uniform magnetic field transmitter**
   Patent number: **9975441**
   Type: **Grant**
   Filed: **December 16, 2015**
   Date of Patent: **May 22, 2018**
   Assignee: **NEW YORK UNIVERSITY**
   Inventors: **Jingduo Huang, Dariusz Czarkowski, Francisco De Leon, Mariusz Bojarski**

10. **Electrostatic shielding of transformers**
    Patent number: **9831027**
    Type: **Grant**
    Filed: **July 22, 2014**
    Date of Patent: **November 28, 2017**
    Assignee: **NEW YORK UNIVERSITY**
    Inventor: **Francisco De Leon**

11. **Power converter having EMI filter common to multiple converters**
    Patent number: **9768680**
    Type: **Grant**
    Filed: **September 23, 2013**
    Date of Patent: **September 19, 2017**
    Assignee: **The Boeing Company**
    Inventors: **Mariusz Bojarski, Kerim Colak, Dazhong Gu, Duanyang Wang, Qingquan Tang, Dariusz Czarkowski, Francisco de Leon, Kamiar J. Karimi, Shengyi Liu**

12. **Aircraft universal power converter**
    Patent number: **9533638**
    Type: **Grant**
    Filed: **July 18, 2013**
    Date of Patent: **January 3, 2017**
    Assignee: **The Boeing Company**
    Inventors: **Kamiar Karimi, Shengyi Liu, Duanyang Wang, Francisco de Leon, Qingquan Tang, Dazhong Gu, Dariusz Czarkowski, Kerim Colak, Mariusz Bojarski**

13. **Systems and methods for high power DC/DC conversion using voltage converter cells**
    Patent number: **9425693**
    Type: **Grant**
    Filed: **June 24, 2014**
    Date of Patent: **August 23, 2016**
    Assignee: **The Boeing Company**
    Inventors: **Duanyang Wang, Dariusz Czarkowski, Francisco de Leon, Kamiar J. Karimi, Lijun Gao, Shengyi Liu**

14. **Three-phase inverter with a repositioned choke**
    Patent number: **9401633**
    Type: **Grant**
    Filed: **January 24, 2014**
    Date of Patent: **July 26, 2016**
    Assignee: **The Boeing Company**
    Inventors: **Qingquan Tang, Dazhong Gu, Dariusz Czarkowski, Francisco de Leon, Kamiar J. Karimi, Shengyi Liu**

15. **Conversion system for converting direct current into alternating current**
    Patent number: **9331594**
    Type: **Grant**
    Filed: **January 24, 2014**
    Date of Patent: **May 3, 2016**
    Assignee: **THE BOEING COMPANY**
    Inventors: **Dazhong Gu, Qingquan Tang, Dariusz Czarkowski, Francisco de Leon, Kamiar J. Karimi, Shengyi Liu**

16. **Power system having repetitive control in symmetric sequences with harmonics cancellation**
    Patent number: **9048726**
    Type: **Grant**
    Filed: **March 11, 2013**
    Date of Patent: **June 2, 2015**
    Assignee: **The Boeing Company**
    Inventors: **Qingquan Tang, Dariusz Czarkowski, Francisco de Leon, Kamiar Karimi, Shengyi Liu**

17. **Apparatus and method for controlling circulating current in an inverter system**
    Patent number: **8964432**
    Type: **Grant**
    Filed: **January 29, 2013**
    Date of Patent: **February 24, 2015**
    Assignee: **The Boeing Company**
    Inventors: **Qingquan Tang, Dazhong Gu, Dariusz Czarkowski, Francisco de Leon, Kamiar Karimi, Shengyi Liu**

18. **System and methods for high power DC/DC converter**
    Patent number: **8792253**
    Type: **Grant**
    Filed: **October 3, 2011**
    Date of Patent: **July 29, 2014**
    Assignee: **The Boeing Company**
    Inventors: **Duanyang Wang, Dariusz Czarkowski, Francisco de Leon, Kamiar J. Karimi, Lijun Gao, Shengyi Liu**

7. Awards and Honors

Elevated to **IEEE Fellow** effective January 2015, "***for contributions to transformer modeling for electromagnetic transient studies".*** *Evaluated in the category of Research Engineer/Scientist.* IEEE Fellow is a distinction reserved for select IEEE members whose extraordinary accomplishments are deemed fitting of this prestigious grade. Following a rigorous evaluation procedure, less than 0.1% of voting members are selected annually for this member grade elevation. **Since January 2025 I am a Life IEEE Fellow**.

5. Academic activities

Classes Taught

	Term	No. students	Rating (1 to 5)	
			Course	Instructor
Undergraduate				
ECE 4123 – Design Project I – Electrical Power and Machinery	F08	13		
ECE 4123 – Design Project I – Electrical Power and Machinery	F12	19		
ECE 4123 – Design Project I – Electrical Power and Machinery	F14	12	4.9	4.8
ECE 4123 – Design Project I – Electrical Power and Machinery	F15	8	4.3	4.3
ECE 4123 – Design Project I – Electrical Power and Machinery	F16	9	4.4	4.6
ECE 4123 – Design Project I – Electrical Power and Machinery	F17	6	4.5	4.5
ECE 4123 – Design Project I – Electrical Power and Machinery	F18	10	4.5	4.5
ECE 4123 – Design Project I – Electrical Power and Machinery	F19	15		
ECE 4123 – Design Project I – Electrical Power and Machinery	F20	9		
ECE 4123 – Design Project I – Electrical Power and Machinery	F21	12		
ECE 4123 – Design Project I – Electrical Power and Machinery	F22	4		
ECE 4123 – Design Project I – Intro. to Electrical Power Systems	F23	4		
ECE 4123 – Design Project I – Intro. to Electrical Power Systems	F24	5		
ECE 4123 – Design Project I – Intro. to Electrical Power Systems	F25	7		
ECE 3824 – Energy Conversion Systems	S23	19		
Graduate				
ECE 5613 – Introduction to Electrical Power Systems	F09	40		
ECE 5613 – Introduction to Electrical Power Systems	F10	39		
ECE 5613 – Introduction to Electrical Power Systems	F11	52		
ECE 5613 – Introduction to Electrical Power Systems	S12	27		
ECE 5613 – Introduction to Electrical Power Systems	F23	20		
ECE 5613 – Introduction to Electrical Power Systems	F24	15		
ECE 5613 – Introduction to Electrical Power Systems	F25	21		
ECE 5623 – Finite Elements for Electrical Engineering	F08	10	4.9	4.8
ECE 5623 – Finite Elements for Electrical Engineering	S11	10	4.6	5.0
ECE 5623 – Finite Elements for Electrical Engineering	S14	18	4.4	4.4
ECE 5623 – Finite Elements for Electrical Engineering	S17	18	4.7	4.8
ECE 5623 – Finite Elements for Electrical Engineering	F18	8	4.5	4.5
ECE 6633 – Transients, Surges and Faults in Power Systems	S08	13	4.6	4.6
ECE 6633 – Transients, Surges and Faults in Power Systems	S09	11		
ECE 6633 – Transients, Surges and Faults in Power Systems	S10	12		
ECE 6633 – Transients, Surges and Faults in Power Systems	F11	25		
ECE 6633 – Transients, Surges and Faults in Power Systems	S13	16		
ECE 6633 – Transients, Surges and Faults in Power Systems	F14	23	4.8	4.9
ECE 6633 – Transients, Surges and Faults in Power Systems	F16	18	4.7	4.8
ECE 6633 – Transients, Surges and Faults in Power Systems	S18	7	4.3	4.3
ECE 6633 – Transients, Surges and Faults in Power Systems	F19			
ECE 6633 – Electromagnetic Transients in Power Systems	S22	11	4.5	4.5
ECE 6633 – Electromagnetic Transients in Power Systems	S24	16		
ECE 6653 – Power System Stability	F07	34	4.3	4.3
ECE 6653 – Power System Stability	S09	15		
ECE 6653 – Power System Stability	F10	38		
ECE 6653 – Power System Stability	F13	15	4.5	5.0
ECE 6653 – Power System Stability	S15	31	4.5	4.5
ECE 6613– Electrical Transmission and Distribution Systems	F09			

ECE 6613– Electrical Transmission and Distribution Systems	S14	14	4.3	4.7
ECE 6613– Electrical Transmission and Distribution Systems	S16	22	4.6	4.7
ECE 6613– Electrical Transmission and Distribution Systems	F17	17	4.1	4.1
ECE 6613– Electrical Transmission and Distribution Systems	S21	12		
ECE 6613– Electrical Transmission and Distribution Systems	S23	19		
ECE 6613– Electrical Transmission and Distribution Systems	S25	15		

Certificates Proposed:

Power Systems Management (Leading Faculty) – Registered in the State of New York on August 17, 2009.

New Courses Developed:

EL 5623 – Finite Elements for Electrical Engineering (2008)
EE 2613 – Fundaments of Electric Power Engineering for the Nonelectrical Students (2009)
EL 6613 – Electrical Transmission and Distribution Systems (2009)

Graduation

Ph.D. (29)

1. Abdullahi Bamigbade, "*Resilient and Secure Control of Grid-Connected Converters*", NYU Polytechnic School of Engineering, Brooklyn, NY, May 2024.

2. David A. Giglio, "*Dynamic Thermal Model for Different Size Trefoil Power Cables with Various Loads in Non-Forced-Ventilated Tunnels"*, NYU Polytechnic School of Engineering, Brooklyn, NY, December 2022.

3. John-Michael Colef, "*Improvement of the Standard Ampacity Calculations for Power Cables Installed in Trefoil Formations in Ventilated Tunnels*", NYU Polytechnic School of Engineering, Brooklyn, NY, May 2021.

4. Akim Borbuev, "*Modern Methods for Investment Deferral of Feeder Upgrades in Distribution Systems*", NYU Polytechnic School of Engineering, Brooklyn, NY, July 2020.

5. Ali Iravani, "*Real Time Transient Stability Assessment Using Dynamic Equivalents and Nonlinear Observers*", ", NYU Polytechnic School of Engineering, Brooklyn, NY, May 2020.

6. Wenbo Wang, "*Fault Induced Delayed Voltage Recovery (FIDVR): Field Validated Time Series Power Flow Model and Mitigation Using Smart Inverters*", NYU Polytechnic School of Engineering, Brooklyn, NY, April 2019.

7. Digvijay Deswal, "*Generalized Circuit Model for Eddy Current Effects for Transformer Transients and High-Frequency Transformers*", NYU Polytechnic School of Engineering, Brooklyn, NY, April 2019.

8. Qiong Wu, "*Parameter Determination of Asymmetric Three-phase Transformer Models for Low-frequency Transients*", NYU Polytechnic School of Engineering, Brooklyn, NY, April 2019.

9. Haowei Lu, "*Improvements of the IEC Standards for Cable Thermal Rating*", NYU Polytechnic School of Engineering, Brooklyn, NY, December 2018.

10. Reza (Amir) Kazemi, "*Estimation of Design Parameters of Single-Phase Distribution Transformers from Terminal Measurements*", NYU Polytechnic School of Engineering, Brooklyn, NY, December 2016.

11. Tianqi Hong, "*Applications of Microgrids in Three-Phase Unbalanced Electrical Power Systems*", NYU Polytechnic School of Engineering, Brooklyn, NY, December 2016.

12. Ashhar Raza, "*EV Charging Method to Prevent Low Voltages & Overloading in Dense Urban Networks*", NYU Polytechnic School of Engineering, Brooklyn, NY, December 2016.

13. Baris Kovan, "*Mitigation of Geomagnetically Induced Currents by Neutral Switching*", NYU Polytechnic School of Engineering, Brooklyn, NY, April 2016.

14. Shahriar Saadat, "*An Equivalent Circuit for the Thermal Analysis of Power Cables Installed in Solid Bottom Trays*", NYU Polytechnic School of Engineering, Brooklyn, NY, September 2015.

15. Rasim Dogan, "*Transformer-Based Solutions for the Reduction of Inrush and Phase-Hop Currents*", NYU Polytechnic School of Engineering, Brooklyn, NY, August 2015.

16. Jingduo Huang, "Design Algorithm of a Uniform Magnetic Field Transmitter Intended for the Wireless Charging of Electric Vehicles", NYU Polytechnic School of Engineering, Brooklyn, NY, December 2014.

17. Imad Baker, "Thermal Analysis of Cables in Non-Vented Vertical Risers", NYU Polytechnic School of Engineering, Brooklyn, NY, August 2014.

18. Abdullah Bokhari, "Combined Effect of CVO and Penetration of DG in the Voltage Profile and Losses of Low Voltage Secondary Distribution Networks", NYU Polytechnic School of Engineering, Brooklyn, NY, May 2014.

19. Xuanchang Ran, "Potential Negative Impact of DG on Reliability Index Study Based on EMTP-RV Time-Domain Modeling", NYU Polytechnic School of Engineering, Brooklyn, NY, May 2014.

20. Julien Sandraz, "Physical and Measureable Energy Flow in Nonlinear AC Electrical Circuits: Standard and Proposed Power Quantities", NYU Polytechnic School of Engineering, Brooklyn, NY, May 2014.

21. Reynaldo Salcedo, "Investigation of Transient Overvoltages in Heavily Meshed Low-Voltage Underground Distribution Networks", NYU Polytechnic School of Engineering, Brooklyn, NY, April 2014.

22. Roupchan Hardowar, "*Prioritizing the Restoration of Network Distribution Transformers using Distribution Factors and Reliability Indexes*", NYU Polytechnic School of Engineering, Brooklyn, NY, April 2014.

23. Ali Sedaghat, "*Improved Ampacity Calculations for Power Cables Installed in Free Air*", NYU Polytechnic School of Engineering, Brooklyn, NY, April 2014.

24. *Saeed Jazebi, "Dual Transformer Model based on Standard Circuit Elements for the Study of Low- and Mid-frequency Transients", Polytechnic Institute of NYU, Brooklyn, NY, October 2013.*

   - **Honorable mention in the contest for the Alexander Hessel Award for the Most Outstanding Doctoral Dissertation in Electrical Engineering (2014).**

25. Ashkan Farazmand, "*Improved Experimentally Validated Calculation of Inrush Currents and Harmonic Analysis of Transformers with Diverse Impedance Under Non-sinusoidal Operation Conditions*", Polytechnic Institute of NYU, Brooklyn, NY, May 2013.

26. Deepak Maragal, "*Universal adaptive automatic reclosure technique on transmission line with shunt reactors*", Polytechnic Institute of NYU, Brooklyn, NY, May 2013.

27. *Sujit Purushothaman, "Application and Design of Induction Machine Damping Unit (IMDU) for Eliminating Subsynchronous Resonance", Polytechnic Institute of NYU, Brooklyn, NY, December 2011.*

   - **Winner of the *Richard Rosenthal Award* for Outstanding performance on the PhD qualifier examination (June 2009).**
   - **Winner of the *Alexander Hessel Award* for the Most Outstanding Doctoral Dissertation in Electrical Engineering (2012).**

28. *Resk Uosef, "The Impact of Distributed Generation on Secondary Networks",* Polytechnic Institute of NYU (Poly), January 2011.

Before joining NYU-Poly:

29. *Jose Cohen, "On the Definitions and the Calculation of Powers in Nonlinear Circuits",* Universidad Nacional Autonoma de Mexico (UNAM), April 1999*.*

M.Sc. (30)

1. R, "*Transient Stability Enhancement Using A Wound Rotor Synchronous Generator*", New York University, May 2024.

2. Mohamed Eladl, "*Distributed Generation Hosting Capacity: Renewable Energy Integration*", New York University, January 2023.

3. Zhiyuan Ding, "*Determination of the Coil Length for Dynamic Wireless Charging of Electric Vehicles*", New York University, December 2021.

4. Arun Agoram Chandrasekar, "*Size Reduction of Synchronous Machines using High Frequency Excitation*", New York University, April 2018.

5. Jaimin Jha, "*Analytical Solution of the Electromagnetic Field of a Current Carrying Conductor in Multi-Layer Media for Wireless Power Transfer Applications*", New York University, May 2017.

6. Carlos Alonso, "*Experimental Parameter Determination and Laboratory Verification of the Inverse Hysteresis Model*", New York University, April 2016.

   - **Winner of the 2015/2016 *Theodor Tamir Award* for Best MS Thesis in ECE.**

7. David Giglio, "*Time Domain Simulation of The Hysteresis Main Loop of Power Transformers*", New York University, May 2015.

8. Akim Borbuev, "*Experimental and Theoretical Study of Sheath Losses in Cross-Bonded Cables: Conductor Transposition versus Counter-Transposition*", New York University, May 2015.

9. Vasanth Bharadwaja Kolluri, "*Damping Subsynchronous Resonance In a Multi-Machine Power System Using an Induction Machine Damping Unit (IMDU)*", New York University, May 2014.

10. Leonid Lyakhovich, "*Comparing FEM and IEC Standards for Thermal Rating of Transmission Underground Cables*", Polytechnic Institute of NYU, Brooklyn, NY, August 2013.

11. Don Burkart, "*Double Ended Transmission Line Fault Location*", Polytechnic Institute of NYU, Brooklyn, NY, November 2012.

12. Aditya Sharma, "*Controlling Inverter Based Distributed Generators to Mimic Synchronous Generators*", Polytechnic Institute of NYU, Brooklyn, NY, September 2012.

13. Rasim Dogan, "*Development of Load Model for Residential Customer Subclasses for Voltage Reduction Studies*", Polytechnic Institute of NYU, Brooklyn, NY, May 2012.

14. Matthew Terracciano, "*Thermal Analysis of Cables in Unfilled Troughs: Investigation of the IEC Standard and a Methodical Approach for Cable Rating*", Polytechnic Institute of NYU, Brooklyn, NY, May 2012.

15. Ashish Sharma, "*Modeling and Analysis of Loads Under Voltage Dips Caused by Three Phase Faults*", Polytechnic Institute of NYU, Brooklyn, NY, May 2012.

16. Githanjali Venkataramani, "*Time Domain Analysis of the Impulse Response of Toroidal Transformers*", Polytechnic Institute of NYU, Brooklyn, NY, May 2012.

17. Richard Macwan, "*Economic Impact of Conservation of Voltage Reduction On A Networked System*", Polytechnic Institute of NYU, Brooklyn, NY, May 2012.

18. Noel Augustine, "*Design Program for Distribution Transformers on Toroidal Cores*", Polytechnic Institute of NYU, Brooklyn, NY, December 2011.

19. Reynaldo Salcedo, "*Three-Phase Time-Domain Modeling and Simulation of Electric Distribution Networks*", Polytechnic Institute of NYU, Brooklyn, NY, December 2011.
    - **Co-Winner of the 2011/2012 *Theodor Tamir Award* for Best MS Thesis in ECE (NYU-Poly).**

20. Julien Sandraz, "*Field Validated Transformer Model for the Thermal Analysis of Transformers in Underground Vaults*", Polytechnic Institute of NYU, Brooklyn, NY, December 2011.

21. Ali Alkan, "*Characterization of Loads under Varying Voltage Conditions*", Polytechnic Institute of NYU, Brooklyn, NY, October 2011.

22. Pranoti Kadam, "*Energy Savings by Reducing No Load Reactive Power of Distribution Transformers*", Polytechnic Institute of NYU, Brooklyn, NY, August 2010.
    - **Winner of the 2010/2011 Theodor Tamir Award for Best MS Thesis in ECE (NYU-Poly).**

23. Ólöf Helgadóttir, "*Dynamic Behavior of Geothermal Power Plants Located at a Weak Point of a Transmission System*", Polytechnic University, Brooklyn, NY, June 2008.

24. Aung Phyo Thant, "*Steady State Network Equivalents for Large Electrical Power Systems*", Polytechnic University, Brooklyn, NY, June 2008.

Before joining NYU-Poly:

25. Jaime Peralta, "Unbalanced Three-phase Load-Flow Using a Positive-Sequence Load-Flow Program". Ecole Polytechnique de Montreal, Montreal, Canada, August 2007.

26. Francisco Ceballos, "*Calculation of Transients Due to Load Rejection in Power Systems*". Instituto Politecnico Nacional, April 1999.

27. Jorge Martinez, "*Numerical Calculation of the Leakage Inductance of Transformers".* Instituto Politecnico Nacional, August 1998.

28. Francisco Camacho, "*Modeling of the Transformer Iron core Based on the Physical Properties of the Ferromagnetic Materials*". Instituto Politecnico Nacional, February 1998.

29. Raul Adame, "*Modeling of Cables for the Computation of Electromagnetic Transients in the Phase Domain*". Instituto Politecnico Nacional, February 1998.

30. Enrique Bernal-Luna, "*Analysis of the Electromagnetic Field Inside of an Induction Motor and its Application to the Study of the Starting and Short Circuit Transients*". Instituto Politecnico Nacional, February 1996.

Post-doctoral fellows & Visiting scholars (25)

Post-Doctors

1. **Dr. Faisal Khan** (January to December 2023). Topic: *Cyber security in bulk power systems.*

2. **Dr. Yanze Li** (February 2022 to Date): Topic: *Electromagnetic analysis of wireless charging of electric vehicles; High-frequency generators.*

3. **Dr. Yaaqoub Malallah** (February 2022 to Date). Topic: *Energy conservation.*

4. **Dr. Layth Qaseer** (February 2016 to December 2022): Topic: *Electromagnetic analysis of wireless charging of electric vehicles; High-frequency generators.*

5. **Dr. Shayan Behzadi Rafi** (April 2017 to March 2018): *Topic: Fault current limiters and CVR*.

6. **Dr. Li Xianqiang** (September 2017 to October 2018): *Topic: Transformer residual flux*

7. **Dr. Ming Yang** (January 2017 to December 2018): Topic: *Transformer modeling*.

8. **Dr. Tianqi Hong** (January 2017 to March 2017): Topic: *DC microgrids*

9. **Dr. Reza Kazemi** (January 2017 to March 2017: Transformer modeling

10. **Dr. Baris Kovan** (May 2016 to May 2017): Topic: *Design of special transformers.*

11. **Dr. Michael Omidora** (June 2015 to May 2016). Topic: *High-frequency electromagnetic transients in transformers*.

12. **Dr. Haina Rong** (May 2015 to April 2016). Topic: *Load identification in electric networks*.

13. **Dr. Saeed Jazebi** (January 2014 to March 2016). Topic: *Design and construction of a distribution transformer in a toroidal core.*

14. **Dr. Ashkan Farazmand** (June to December 2013). Topic: *Transformer demagnetization.*

15. **Dr. Marc Diaz-Aguiló** (December 2011 to date). Topics: (1) *Conservation of Voltage Optimization*; (2) *Real-Time Thermal Rating of Power Cables.*

16. **Dr. Sujit Purushothaman** (January to August 2012). Topics: (1) *Toroidal distribution transformers*; (2) *Cable thermal rating*; (3) *Damping of power system oscillations*.

17. **Dr. Layth Qaseer** (October 2010 to September 2011). Topics: (1) *Induction Machine Design and Modeling*. (2) *Power definitions in nonlinear circuits*.

18. **Dr. Vitaly Spitsa** (May 2010 to April 2011). Topics: (1) *Transient simulation of smart grid technologies;* (2) *Penetration of distributed generation in distribution networks.*

19. **Dr. Pablo Gómez** August 2008 to July 2010). Topics: (1) *Computation of inductive and capacitive parameters for high-frequency transformer models*; (2) *Design of a distribution transformer in a toroidal core.*

Visitors (Ph.D. level research)

20. **Jun Wang** (January 2015 to December 2016): Topic: *Modeling of thermostatic loads*

21. **Zhechao Li** (January 2015 to February 2016). Topic: *Distribution system reconfiguration.*

22. **Nicola Raimondo** (September to December 2013). Topic: *Electromagnetic fields in transformers.*

23. **Matthew Terracciano** (May 2012 to May 2015). Topic: *Real-time thermal rating of cables*.

24. **Saeed Jazebi** (October 2011 to August 2012). Topic: *Modeling of transformer eddy currents*.

25. **Casimiro Álvarez-Mariño** (September to December 2010). Topic: *Multi-winding transformer model*.

26. **Iván Hernández** (February 2009 to August 2010). Topics: (1) *Losses in Transformer Cores;* (2) *Design of a distribution transformer in a toroidal core.*

Ph.D. students in process (5)

Kashif Shahzad (started fall 2022) – "Stability of Systems with Renewable Generation"

Zihao Hu (started fall 2022) – "Solid State Transformers"

Fayyaz Jandan (started spring 2023) – "Transformer Winding Deformation"

Carlos Alonso (started fall 2023) – "Instrument Transformer Modeling"

Rizhou Wang (started fall 2024) – "System Stability"

List of post-doctoral and PhD students supported by their home institutions (or themselves) to work with me:

Name	Funding Institution	Category	Period
Dr. Faisal Khan	University of Taxila	Post-dcot.	Jan-Dec. 2023
Dr.Yaaqoub Malallah	Kuwait Institute for Scientific Research	Post-doct.	Feb 2022 – to date
Dr. Yanze Li	Tianjin, China	Post-doct.	Aug 2022 – to date
Dr. Layth Qaseer	Self	Post-doct.	Feb 2016 – Dec 2022
Dr. Ming Yang	Chongqing University	Post-doct.	Jan 2017 – Dec 2018
Dr. Shayan Behzadi Rafi	Self	Post-doct.	Apr 2017 – Mar 2018
Dr. Dr. Li Xianqiang	Wuhan University	Post-doct.	Aug 2017 – Sept 2018
Dr. Michael Omidora	Self	Post-doct.	Jun 2015 – May 2016
Dr. Haina Rong	Southwest Jiaotong University	Post-doct.	May 2015 – Apr 2016
Dr. Layth Qaseer	University of Baghdad	Post-doct.	Oct 2010 – Sep 2011
Dr. Pablo Gómez	Polytechnic of Mexico	Post-doct.	Aug 2008 – Jul 2010
Fayyaz Jandan	Government of Pakistan	PhD	Jan 2023-
Kashif Shahzad	Government of Pakistan	PhD	Jan 2023-
Jun Wang	University of Electronic Science and Technology	PhD	Jan 2015 – Dec 2016
Zhechao Li	Huazhong University of Science and Technology	PhD	Jan 2015 – Feb 2016
Casimiro Álvarez	University of Vigo, Spain	PhD	Sep 2010 – Dec 2010
Iván Hernández	CINVESTAV, Mexico	PhD	Feb 2009 – Aug 2010

Committee member of the following PhD defenses
(not a complete list. I lost track in 2019)

1) **C. Konstantinou**, 2018, "Leveraging hardware features to enhance the cybersecurity of the smart grid"

2) **K. Zheng**, 2017, "A comparative study of ac-link and dc-link based frequency converters"

3) **Y.-C. Chu**, 2017, "Ac-dc power management ic design with controller sharing concept for wireless power transfer applications".

4) **Z. Geng**, 2016, "Modular programmable electronic ac load based on a three-phase hybrid multilevel voltage source inverter"

5) **E. Asa**, 2016, "Analysis and active control of isolated multi-port semi-bridgeless CLL resonant converter for future renewable energy sources"

6) **J. Shin**, 2016, "Pulse-width modulation controlled real-time resonance tuning methods of wireless power transfer systems for electric vehicles

7) **D. Gu**, 2015, "Resonant control based frequency domain compensation strategy for single-phase boost power factor correction converter"

8) **D. Sciano**, 2015, "Evaluation of dc-links on dense-load urban distribution networks"

9) **M. Bojarski**, 2014, "Multiphase series resonant inverters for wireless charging of electric vehicles"

10) **R. Perez**, "Electromagnetic Modeling of Complex Wave Propagation in a Class of Meta-Media Made of Capacitively Loaded Conducting Loops," September 17, 2014.

11) **Z. Li**, "Wave Guidance and Radiation in Meta Transmission Lines Made of Conducting Dipole and Loop Elements," September 16, 2014

12) **Q. Tang**, 2013, "A New diode-clamping multilevel Inverter with a dc capacitor voltage balance control"

13) **D. Wang**, 2013, "DC/DC power conditioning system for fuel cell in aircraft application"

14) **L. Yu**, 2013, "Optimal decentralized voltage regulation for secondary networks with DG"

15) **K. Colak**, 2013, "Energy optimization in catenary-free railway system and improved time-based model for train movements"

16) **Y. Lu**, 2011, "Ultra high frequency 100 MHz power controller for RFPA power supply"

17) **S. Suresh**, 2009, "Two-loop controlled ultra-high frequency DC-DC converter"

18) **Y. Ten-Ami**, 2009, "Reliability improvements and design optimization of mesh distribution networks"

Committee member of the following MSc defenses
(not a complete list. I lost track in 2019)

1. A. Hassan, 2018
2. S. V. Shubramaniyan, 2015
3. P. Prathidugupu, 2015
4. V. Panuccio, 2014
5. Z. Chu, 2014
6. Z. Zhao, 2014
7. L. P. Channam, 2014
8. J. Pymento, 2013
9. I. Aleksandrov, 2013
10. P. Pandey, 2011
11. T. Zhu, 2010
12. B. Kovan, 2009
13. B. Chow, 2009
14. S. Dinershteyn, 2009

Undergraduate Students (DP1/DP2)

2023/2024:
1. Han, Peter
2. Rodriguez, Jorge
3. Zhang, Thomas
4. Zhu, Kevin

2022/2023:
5. Adeyefa, Tobi
6. Lee, Junghwan
7. Li, Jason
8. Selep, Mary Fiona

2021/2022:
9. Alex Chu
10. Ali Hasaan
11. Alen Yang
12. Austen Ariniello
13. Cameron Kemme
14. Jack Xitco
15. Jeffrey Tang
16. Joseph Ramos
17. Luis Olivera
18. Mir Naveen
19. Ryan Chan
20. Said Elsanhoury
21. Shahzeb Naseer

2020/2021:

22. Ding, Zhiyuan
23. Ge, Chang
24. Gonzalez Rodriguez, Simon Antonio
25. Mendoza, Jaime
26. Naowaff, Mohammed Muhtasin
27. Raghuraman, Rohan
28. Rais, Abe
29. Velez, Helen

2019/2020:

30. Bae,Albert
31. Bebawy,Haidy
32. Dang,Huy G
33. Farayola,Halimat Atinuke
34. Fisher,Gabrielle
35. Garcia,Scander
36. Jones,Darius
37. Jouravlev,Vlad M
38. Kenawy,Adham
39. Pagan,Papo
40. Pingasova,Arina
41. Pope,Ethan John
42. Velau,Claire
43. Youssif Traore,Youssif Alhadj
44. Yu,Jefferson

2018/2019:

45. Chen, Iris
46. Hasan, Mohammed
47. He, Michael
48. Ibrahimi, Allen
49. Ismail-Saad, Amir
50. Li, Franklin K
51. Mirer, Lucas
52. Nawshad, Syed
53. Tam, Darren
54. Zhang, CJ
55. Ahmed, Nader

2017/2018:

56. Carter, Anthony G
57. Hasan, Ali S
58. Karashik, Matthew Joseph
59. Moustafa, Mohamed
60. Nwaokorie, Nnamdi P
61. Thomasevich, Kaelin
62. Znak, Bogdan
63. Pablo Esteban de la Iglesia (Polytechnic University of Catalonia)

2016/2017:

64. Basantes, Melissa C
65. Chen, James

66. Chiang Feng, Danny Y
67. Chu, James
68. Fraz, Ahmed
69. Klein, John Andrew
70. Liang, Cesar
71. Sutton, Justin Paul
72. Uddin, Eftekhar

2015/2016:

73. Bruno, Kowal
74. Chen, Jia Yong
75. Cisco Sullberg, Adriana Sierra
76. Diarrassouba, Bakary
77. Geliebter, Israel
78. Perez, Adeline M
79. Rahman, Taufiq
80. Shah, Syed

2014/2015:

81. Chaudhry, Farhan Aslam
82. Chowdhury, Sharika
83. Gosal, Gurvinder Singh
84. Hossain, Sohrab
85. Hussain, Jumshaid
86. Lam, Vinny
87. Law, Sui Fai
88. Lin, Xiang
89. Morales, Samuel
90. Ramnauth, Khemraj
91. Sacco, Nicholas
92. Saez, James

2012/2013:

93. Ahmed Asfi
94. Alharthi Awadh
95. Cabrera Brian
96. Chowdhury Rifat
97. James Michele
98. Karolidis George
99. Khan Bushra
100. Lama Karma
101. Lyakhovich Leonid
102. Mahamedau Nazir
103. Marcelli Rocco
104. Matthews III Erskine
105. Mindlin Oleg
106. Panuccio Vincenzo
107. Rahaman Mark
108. Romhen Amer
109. Tse Wallace
110. Velez Pedro
111. Huang Bing

2008/2009:

112. Danielle Jean
113. Quentin Williams
114. Diana Musiyenko
115. Konstantin Lednev
116. Leo Stimpson
117. Oliver Williams
118. Andres Zapata
119. Pekir Joseph
120. Judith Cummings
121. William Womg
122. Victoria Pierre-Louis
123. Saanjay Singh
124. Wael Ayoub

6. Service Activities

- **ECE Department:**
    - o   Director of Undergraduate Programs (since March 2018)
    - o   ECE Admission Committee (2022-2023)
    - o   ECE Search Committee (2022-2023)
    - o   ECE Tenure and Promotions Committee (2019 to 2021)

    *   As the director of undergraduate programs of the ECE Department, I have successfully submitted the **2021 ABET re-accreditation** of two of our programs: Electrical Engineering and Computer Engineering. Each report is about 250 pages long. Both programs were re-accredited for 6 years with no concerns, weaknesses, or deficiencies noted in the final assessment.   I have also submitted the **2024 ABET accreditation** for the new program in Electrical and Computer Engineering.

- **NYU:**
    - o   Tandon Representative in the NYU Undergraduate Program Committee (from September 2016 to August 2019).
    - o   Tandon Senator in the NYU Senate (September 2019 to August 2021)
    - o   Member of the Tandon Faculty Executive Committee (September 2019 to August 2021)

- **Profession:**
- *Reviewer*. IEEE Transactions on Power Delivery, since 1992
- *Reviewer*. IEEE Transactions on Power Systems, since 1999
- Reviewer. IEEE Transactions on Smart Grid, since 2012
- *Reviewer*. European Transactions on Electric Power, since 2007
- *Reviewer*. International Journal of Power and Energy Systems, since 2007
- *Reviewer*. IET Electric Power Applications, since 2009
- *Reviewer*. International Journal of Emerging Electric Power Systems, since 2009
- *Reviewer*. IEEE Power and Energy Society Letters, since 2007
- *Reviewer*. Electric Power Components and Systems (Taylor & Francis), since 2009
- *Reviewer*: COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, since 2009
- *Reviewer*: IEEE Proceedings, 2010
- *Reviewer*: IEEE Robotics and Automation Magazine, 2010-11
- Reviewer. IEEE Transactions on Dielectrics and Electrical Insulation, 2011
- *Reviewer*: International Journal of Thermal Sciences (Elsevier), since 2010
- *Occasional Reviewer for many other journals*

- Editor/Coordinator of the IEEE Power Engineering Letters since 2011
- *Guest Editor-in-Chief. Special Issue on Advances in Condition Monitoring and Assessment of Power Equipment for the IEEE Transactions on Power Delivery (2018-19). The issue was published in August 2019.*

- **Editor-in-Chief of the IEEE Transactions on Power Delivery** (since Jan 1, 2020)

- **Chair for the Task Force** on *Transformer Modeling for Low-Frequency Transients*, part of the General Systems Subcommittee of the Transmission and Distribution Committee, IEEE Power and Energy Society, July 2014 to 2017.

- IEEE Working Group on *Modeling & Analysis of System Transients using Digital Programs*, part of the General Systems Subcommittee of the Transmission and Distribution Committee, IEEE Power and Energy Society, 2007 to date.

- IEEE Task Force on *Data for Modeling System Transients of the Working Group on Modeling & Analysis of System Transients using Digital Programs*, of the General Systems Subcommittee of the Transmission and Distribution Committee, 2007 to date.

External Examiner of PhD thesis of other institutions:

Gerardo de Jesús Martínez Figueroa, "*Modeling and Characterization of Single-Phase and Three-Phase Transformers based on Minimum Information*", Polytechnic Institute of Catalonia, 2024 (remotely).

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Hilary Kudzai Chisepo, "*Measurements and finite element modelling of transformer core joints with dc and power frequency excitation*", University of Cape Town, South Africa, 2018 (report sent via email).

Masood Moghaddami, "*Design Optimization of Inductive Power Transfer Systems for Contactless Electric Vehicle Charging Applications*", Florida International University, 2018. (via web presentation).

Leslie David Borrill, "*Duality Derived Topological Model of Single Phase Four Limb Transformers for GIC and dc Bias Studies*", University of Cape Town, South Africa, 2017 (report sent via email).

Nafiseh Nikpour, "*Dynamic and Static Voltage Stability Analysis of Distribution Systems in the Presence of Distributed Generation*", University of British Columbia, 2016 (via email).

Nicola Chiesa, "*Power Transformer Modeling for Inrush Current Calculation*", Norwegian University of Science and Technology (NTNU), Norway, 2010 (in person).

Evaluation Letters for tenure and promotion at other universities:

Prof. Ahmed Bilal Awan, Majmaah University, Saudi Arabia, 2020.
Prof. Liwei Wang, Univesity of British Columbia, 2021

Evaluation Letters for elevation to IEEE Fellow:

1. Ebrahim Rahimpour   Reference   2025
2. Afshin Rezaei   Reference   2025
3. Abner Ramirez   Reference   2023
4. Ebrahim Rahimpour   Reference   2022
5. Qi Huang   Reference   2021
6. Enrique Acha   Reference   2021
7. Shrikrishna Kulkarni   Reference   2018
8. Venkata Dinavahi   Nominator   2019
9. Shrikrishna Kulkarni   Reference   2019
10. Majid Sanaye-Pasand   Reference   2018
11. Shengyi Liu   Reference   2018
12. Afshin Rezaei-Zare   Reference   2017
13. Shrikrishna Kulkarni   Reference   2017
14. Majid Sanaye-Pasand   Reference   2017

Evaluation of book proposals:

Constantly evaluate book proposals for Willey in the areas of transformers and electromagnetic transients in power systems.