

# Pablo Arboleya

## Curriculum Vitae

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📅 Date of Birth: Aug. 5<sup>th</sup>, 1977



### Education

- 1995–2002 **B.S. and M.S. in Industrial Engineering**, *The University of Oviedo*, Polytechnic School of Engineering of Gijón, Spain.  
Specialized in Electrical Engineering
- 2003–2005 **Ph.D. in Electrical Engineering**, *The University of Oviedo*, Spain, PhD. Thesis: "On the dilemma fault/inrush in three phase power transformers differential protection: Statement and solution through the transient characterization in Park space".  
Outstanding PhD. Award

### Experience

- 2010–Present **Associate Professor**, *The University of Oviedo*, Dept. of Electrical Engineering.
- 2004–2010 **Assistant Professor**, *The University of Oviedo*, Dept. of Electrical Engineering.
- 2002–2004 **Researcher**, *The University of Oviedo*, Dept. of Electrical Engineering.

### Positions

- 2018 - Associate Editor of the Journal "eTransportation" from ELSEVIER - Recently created  
Present journal (2019) not yet indexed by the Journal Citation Report de Thomson Reuters,  
<https://www.journals.elsevier.com/etransportation>
- 2017 - Vice-chair of the IEEE Vehicular Technology Society Ad'hoc Committee in Electrical  
Present Railway Systems
- 2017 - Vice-chair of the IEEE Vehicular Technology Society Spanish Chapter  
Present
- 2016 - Holder of the Gijón Mile of Knowledge Smart Cities Chair, Chair of the University  
Present of Oviedo Funded by the city of Gijón, <http://catedrasmartcities.uniovi.es>
- 2015 - Managing Editor of the Journal "International Journal of Electrical Power and Energy  
Present Systems" from ELSEVIER - Q1 journal according to the Journal Citation Report de Thomson Reuters, <https://goo.gl/zQZ5xd>

- 2015 - Principal Investigador of the LEMUR Research Group (Laboratory for Electrical Present Energy Management Unified Research), Group from the Electrical Engineering Department and Recognised by the Nacional Agency of Evaluation (ANEP) with reference (GR-2015-0004).
- 2015 - Coordinator of the *Erasmus Mundus Joint Master Degree in Sustainable Transportation and Electrical Power Systems* University de Oviedo, University of Nottingham, University of Rome (La Sapienza), Instituto Superior de Engenharia de Coimbra, <http://www.emjmdsteps.eu>
- 2011- 2015 Coordinator of the international master in *Electrical Energy Conversion and Power Systems Master Degree* (University de Oviedo) <http://mastereecps.uniovi.es>
- 2008 - Coordinator of the Electrical Engineering Section of the "Schneider Teaching Laboratory" from the University of Oviedo
- Stays in other universities
- 2019 Visiting Professor at **Conservatoire national des arts et métiers (CNAM) - Paris, France**. During this short research state, a very specific collaboration in the field of electric railway simulators will be carried out, the research will be focused in solving the problem of power flow in DC railways when all substations are blocked. (1month) - Approved - 01/07/2019-31/07/2010
- 2017 Visiting Professor at the **University of Manchester, UK**, during this stay I gave seminars on the modeling of accumulation systems in railway systems and discussed agreements to establish future collaborations between the University of Manchester and the University of Oviedo on teaching and research issues, from 17 to 27 of June, 2017
- 2017 Visiting Professor at the **Instituto Superior de Engenharia de Coimbra - Portugal**, during this teaching stay I gave a course on modeling railway networks to master students, the stay was from 2 to 6 May 2017
- 2016 Visiting Professor at the **University of British Columbia- Vancouver, Canada**, during this stay I collaborated with the power systems group of the Canadian University in the development of a system for the allocation of losses in distribution networks, the results of this research are currently in the publication phase. (3 months) 01/05/2016 - 31/07/2016
- 2014 Visiting Professor at **University of Illinois at Urbana-Champaign, United States**. During this short research state, a collaboration in the field of small footprint electrical network was started between the University of Oviedo and University of Illinois. The research is focused in DC power flow modelling, not only for DC distribution networks, but also for DC traction networks. (2months) 05/01/2014-07/01/2014
- 2013 Visiting Professor at The **University of Rome (La Sapienza), Italy**. The aim of this stay was the participation in the research project "*Smart grid design for an energy efficient and environmentally sustainable mobility system in smart cities. Models for energy analysis implementation on the power systems and experimental tests*" developed in the Electrical Engineering Dept. of the above mentioned university. (2 months) 05/20/2013-07/20/2013

### Seminars

- 2018 10 hour visiting professor course at Ain Shams University, Cairo, Egypt **"Power Electronics, Power Systems and Internet of Energy, a multidisciplinary approach** 06/09/2018 to 09/09/2018
- 2018 **On-Board Energy Storage and Another Technological Solutions for Catenary Free Light Trains and Trams**, On line seminar taught for the IEEE Vehicular Technology Society, Spanish Chapter
- 2018 **On-Board Energy Storage and Another Technological Solutions for Catenary Free Light Trains and Trams**, On line seminar taught for the IEEE Vehicular Technology Society, Spanish Chapter
- 2017 **On-Board Energy Storage and Another Technological Solutions for Catenary Free Light Trains and Trams**, On line seminar taught for the "Transportation Electrification Community" del IEEE.
- 2017 **Modelling and Analysis of Railway Power Systems**, 8 hours course tauht at the Instituto Superior de Engenharia de Coimbra
- 2015 **Modelling traction power systems for planning and operation purposes**, Tutorial taught at the Polytechnic University of Hong-Kong to Master, PhD Students and Professors
- 2013 **Modelling FACTS for power flow purposes: A common framework**, Seminar for PhD. Students, Electrical Engineering Dept. University of Rome (La Sapienza)
- 2005 **Operational procedures and grounding systems in electrical substations**. Short course for employees, GAMESA
- 2003-present More than 12 short courses and summer courses in the fields of Electrical Facilities, Energy Efficiency, Renewable Energy and Power Quality

### Educational Research Projects

- 2017-2018 **Improving the understanding of rail transport systems through the development of a simulator in a collaborative manner** , *Teaching Innovation Project of the University of Oviedo*, Sept 2017 to June 2018.
- 2013-2017 **Smart Control Systems for Energy Management: New MSc Degree-SEM-SEM**, *Funded by European Union - Program Erasmus+KA2 - EACEA (Educational, Audiovisual and Cultural Executive Agency*, 05/12/2013 to 14/12/2017.
- 2011-2013 **ELEVTRA Training professionals for the maintenance of EVs and charging stations**, (*Leonardo da Vinci Programme*), Agency: *European Commission*, Involvement: Co-Investigator, Amount: 85K€. 01/10/11-09/30/14

### Public Funded Projects

- 2019-2021 **TALENT - Cost Effective Technological Developments for Accelerating Energy Transition**, Agency: *European Commission, H2020-LC-SC3-2018-2019-2020*, Position: **Part of the Research Team**, Total Budget: 3.996M€, University of Oviedo Budget: 373k€, 2019-2021.

- 2018 - 2021 **Simulation of Litio-Ion Batteries/Simulación de Baterías Litio-Ion**, Agency: *Ministerio de Ciencia e Innovación - Comisión Europea, Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad*, Position: **Part of the Research Team**, Budget: 152k€, 01/01/2018 - 31/12/2021.
- 2017 - 2018 **Integral management of electrical energy in elevators/ Gestión integral de energía eléctrica en elevadores y pasarelas**, Agency: *IDEPA INSTITUTO DE DESARROLLO ECONOMICO DEL PRINCIPADO DE ASTURIAS*, Budget: 35k€, 19/06/2017 to 19/06/2018.  
Position: Part of the Reseach Team
- 2017 - 2019 **CONCILIATOR - Energy conversion technologies in resilient hybrid AC/DC distribution networks/ Tecnologías de conversión de energía en redes híbridas resilientes AC/DC**, Agency: *Ministerio de Economía y Competitividad, Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad*, ref. ENE2016- 77919-R, Position: **Principal Investigator**, Budget: 254k€, 2017-2019.
- 2017 - 2019 **SIETEC: Desarrollo de un sistema para la mejora de la eficiencia energética en edificios basado en técnicas de cloud computing.**, Agency: *Ministerio de Economía y competitividad - Comisión Europea, Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad*, (RTC-2016-4792-3), Position: **Principal Investigator**, Budget: 185k€, 2016 - 2018.
- 2015-2017 **LEMUR Laboratory for Enhanced Microgrid Unbalance Research**, FC-15-GRUPIN14-127 Agency: *Gobierno del Principado de Asturias*, Position: **Principal Investigator**, Budget: 80K€, 2015-2017.
- 2014-2017 **MICROHOLO Development of a Holistic and Systematical Approach to AC Microgrids Design and Management**, ENE2013-44245-R Agency: *Ministerio de Ciencia e Innovación, Gobierno de España*, Position: *Part of the research team*, Budget: 170K€, 2010-2013.
- 2010-2013 **SIENER Energetic management technologies for railway applications**, MICINN-10-IPT-370000-2010-15, Agency: *Ministerio de Ciencia e Innovación, Gobierno de España*, Position: **Principal Investigator**, Budget: 366K€. 10/01/10-07/31/13
- 2011-2013 **Representation, plan and optimization of islanded microgrids based in renewable energy using stability and economical criteria**, MICINN-10-ENE2010-14899, Agency: *Ministerio de Ciencia e Innovación - Gobierno de España*, Position: *Part of the research team*, Budget: 366K€. 01/01/11-12/31/13
- 2009-2011 **Development and implementation of technological solutions for the 2025 Spanish grid**, MICINN-09-PSS-120000-2009-28-30 Agency: *Ministerio de Ciencia e Innovación - Gobierno de España*, Position: *Part of the research team*, Budget: 255K€. 01/12/09-04/31/11

- 2007–2010 **CETICA Project: The Eco Technological City. Steel-based industrialization for a more sustainable urban habitat**, *CENIT-07-ARCELOR-1* Agency: *Ministerio de Ciencia e Innovación - Gobierno de España*, Position: Part of the research team, Budget: 150K€. 10/31/07-12/31/10
- 2007–2010 **DENISE Project: Smart, Safe and Efficient Energy Distribution**, *CENIT-07-DENISE* Agency: *Ministerio de Ciencia e Innovación - Gobierno de España*, Position: Part of the research team, Amount: 285K€. 21/03/07-12/31/10
- 2007–2010 **Characterization of the injection transformer and its control in generation and compensation systems fed simultaneously by a distributed generation source**, *MEC-07-DPI2007-62577* Agency: *Science and Education Ministry (Spanish Government)*, Position: Part of the research team, Budget: 65K€. 10/01/07-09/30/10
- 2007–2007 **Study for creating an energy management system in weak distribution grids working on isolated mode**, *CN-07-120* Agency: *FYCIT Gobierno del Principado de Asturias*, Position: **Principal Investigator**, Amount: 35K€. 01/01/07-12/31/07
- 2005–2006 **Neural network assisted optimization and design of induction motors through a deterministic/stochastic combination**, *FC-04-PC-54* Agency: *FYCIT - Gobierno del Principado de Asturias*, Position: Part of the research team, Budget: 25K€. 01/13/05-12/31/06
- 2004–2007 **Power transformers transient response characterization and its application to the insulation in Clarke space**, *MEC-04-DPI2004-03573* Agency: *Ministerio de Ciencia y Tecnología - Gobierno de España*, Position: Part of the research team, Budget: 55K€. 12/15/04-12/15/07
- 2002–2004 **New electromagnetic models of power transformers with internal short-circuits for its application in predictive maintenance**, *MCT-01-DPI-3814* Agency: *Ministerio de Ciencia y Tecnología - Gobierno de España*, Position: Part of the research team, Budget: 35K€. 10/01/2002-03/31/2004

#### Private Funding Research Projects

- 2019-2020 **Development of a state estimation and monitoring system via web in real time applied to low voltage terminal distribution networks.**, *Hidrocantábrico Distribución Eléctrica SAU.*, Budget: 24.9k€, 2019-2020 (6 months). Position: **Principal Investigator**
- 2019-2019 **Development of an IoT platform for SmartCities as a test bench for the 6LowPan network of the city of Gijón**, *T-Systems*, Budget: 21k€, 2019-2019. Position: **Principal Investigator**

- 2019-2020 **Simulation system, data analysis and automatic generation of energy reports in electric networks of railway traction in DC/ Sistema de simulación, análisis de datos y generación automática de informes energéticos en redes eléctrica de tracción ferroviaria en DC**, *CAF Turnkey and Engineering*, Budget: 102k€, 2019-2020.  
Position: **Principal Investigator**
- 2018-2018 **Development of tools for energy management at building level integrating the different equipment for transporting people and other loads generating the building/Desarrollo de herramientas para la gestión energética a nivel de edificio integrando los distintos equipos de transporte de personas y otras cargas generadores del edificio**, *Thyssenkrupp Elevator Innovation Center*, Budget: 18k€, 2018-2018.  
Position: **Principal Investigator**
- 2018-2018 **Development of a model of the EDP electricity distribution network in the municipality of Pola de Siero to be solved statically through a calculation engine based on OpenDSS and analyzed using techniques based on Visual Analytics/Desarrollo de un modelo de la red de distribución de energía eléctrica de EDP en el término municipal de Pola de Siero para ser resuelto de forma estática a través de un motor de cálculo basado en OpenDSS y analizado mediante el uso de técnicas basadas en Visual Analytics**, *EDP España SA*, Budget: 2.4k€, 2018-2018.  
Position: **Principal Investigator**
- 2018-2018 **Analysis of Applications and Uses of Virtual Reality, Augmented Reality and Mixed Reality in the field of power systems and industrial applications/Análisis de Aplicaciones y Usos de la Realidad Virtual, Realidad Aumentada y Realidad Mixta en el ámbito de los sistemas de potencia y las aplicaciones industriales**, *Areclor Mittal*, Budget: 16.3k€, 2018-2018.  
Position: **Principal Investigator**
- 2018 - 2018 **Test and Validation of Railway Infrastructure Simulation Software**, *CAF Turnkey and Engineering*, Budget: 5.3k€, 2018-2018.  
Position: **Principal Investigator**
- 2018 - 2021 **Development of a visual analytics tool for analysing and representing and analysing the on-board electrical network of the vehicles**, *Rucker Lypsa SL*, Budget: 154k€, 2018-2021.  
Position: **Principal Investigator**
- 2018 - 2018 **Development of a pilot system based on IoT for the control of public lighting and irrigation systems in smart cities using mobile application/ Desarrollo de un sistema piloto basado en IoT para el control de la iluminación pública y sistemas de riego en smart cities mediante aplicaciones móviles**, *T-Systems ITC Iberia SAU*, Budget: 4.8k€, 2018-2018.  
Position: **Principal Investigator**
- 2017-2020 **Development of tools for electrical and thermal simulation of the in-vehicle network/Desarrollo de herramientas para la simulación eléctrica y térmica la red de a bordo de vehículos**, *SEAT*, Budget: 15108k€+ 135000k€, 2017-2020.  
Position: **Principal Investigator**

- 2017-2017 **Simulation of electrical storage/ Simulación de almacenamiento eléctrico**, *Arcelor Mittal*, Budget: 54216k€, 2017.  
Position: Part of the research team
- 2016-2016 **Pilot energy storage plant/Planta piloto de almacenamiento de energía**, *FUO-170-16 Arcelor*, Budget: 45000k€, 2016.  
Position: Part of the research team
- 2015-2017 **ESTEFI - Efficient and Sustainable Development of Intermodal Station**, *FUO-EM-155-15 CAF Transport Engineering*, Budget: 91K€, Sept 2015 - Feb 2017  
Position: **Principal Investigator**.
- 2014-2014 **Large Scale Integration of Wind Power in the Nordic Power System**, *FUO-EM-051-14 Vattenfall Vindkraft AB* Position: **Principal Investigator**, Budget: 13.2K€, 01/02/2014-30/09/2014.
- 2013-2013 **Graphical interface and post-processor of software package for electrical railway simulations**, *FUO-EM-1189-13 Construcciones y Auxiliar de Ferrocarriles (CAF SA.)*, Position: **Principal Investigator**, Amount: 9K€. 06/24/2013-12/31/2013
- 2011-2013 **Technical-Economical study of a fast charging system for trams with ultra-capacitors**, *FUO-EM-156-11 Construcciones y Auxiliar de Ferrocarriles (CAF SA.)*, Position: Part of the research team, Budget: 30K€. 05/03/2011-03/31/2013
- 2010-2012 **Cityelec: Electrification Systems for Urban Mobility**, *FUO-EM-056-10 Hidro-electrica del Cantabrico*, Position: Part of the research team, Budget: 31K€. 01/01/2010-03/05/2012
- 2011-2012 **Development of a software simulator for electrical railway networks including a dynamical multi-train environment for power flow analysis and optimization**, *FUO-EM-158-11 Construcciones y Auxiliar de Ferrocarriles (CAF SA.)*, Position: **Principal Investigator**, Budget: 51K€. 05/03/2011-12/31/2012
- 2011-2012 **Substituting contactors by solid state semiconductors in railways applications**, *FUO-EM-155-11 Construcciones y Auxiliar de Ferrocarriles (CAF SA.)*, Position: Part of the research team, Budget: 46K€. 05/03/2011-03/31/2012
- 2009-2011 **Strategies evaluations for setting up wind park for new operation procedures requirements by means of simulations and small scale tests**, *FUO-EM-314-09*, Position: Part of the research team, Budget: 49K€. 10/10/2009-10/09/2011
- 2010-2011 **Fault detection and location in distribution networks using self organizing maps**, *FUO-EM-300-10 Hidroelectrica del Cantabrico*, Position: Part of the research team, Budget: 45K€. 10/01/2010-04/30/2011
- 2010-2010 **Fault in power plant derived from the anti-islanding protection**, *FUO-EM-223-10 CTIC Foundation*, Position: **Principal Investigator**, Budget: 1K€. 06/17/2010-07/17/2010

- 2008–2009 **Technical-Economic analysis for a combined heat and power system based in gas furnaces with Stirling motors**, *FUO-EM-213-08 Hidroelectrica del Cantabrico*, Position: Part of the research team, Budget: 16K€. 09/26/2008-03/26/2009
- 2006–2007 **Technical and economical impact study derived from the development and implementation of an electrical microgrid in a steel industry using the energetic surpluses**, *CN-06-126-IE05-113 ARECELORMITTAL SPAIN*, Position: Part of the research team, Budget: 22K€. 02/24/2006-12/31/2007
- 2004–2004 **LAUREL: Design of induction motors (sizes IEC 132 2 and 4 poles) and improvement of the efficiency of motors (sizes IEC 90 and 100 2 and 4 poles)**, *CN-03-151 ASEA BROWN BOVERI SA*, Position: Part of the research team, Budget: 17K€. 04/01/2004-10/05/2004

[JCR from Thomson Reuters Indexed Journals](#)

- 2019 P. Arbolea, I. El-Sayed, B. Mohamed and C. Mayet, "*Modeling, Simulation and Analysis of On-board Hybrid Energy Storage Systems for Railway Applications*" in *Energies*, vol. 12, no 11, article number 2199, doi: 10.3390/en12112199
- 2019 P. Arbolea, A. Koirala, L. Suarez-Ramon, B. Mohamed and C. Gonzalez-Moran, "*Impact Evaluation of the New Self-Consumption Spanish Scenario on the Low Voltage Terminal Distribution Network*," in *IEEE Transactions on Industry Applications*. Available in early access. doi: 10.1109/TIA.2019.2913825
- 2019 B. Mohamed, P. Arbolea, I. El-Sayed and C. Gonzalez-Moran, "*High-Speed 2x25kV Traction System Model and Solver for Extensive Network Simulations*," in *IEEE Transactions on Power Systems*. Available in early access. doi: 10.1109/TPWRS.2019.2909962
- 2019 Seminario-García, A.; González-Morán, C.; Arbolea, P. Stepped Leader Progression and Speed Evolution in a Thunderstorm: Theoretical Model. *Energies* 2019, 12, 2507. doi: 10.3390/en12132507
- 2018 P. Arbolea, B. Mohamed and I. El-Sayed, "*DC Railway Simulation Including Controllable Power Electronic and Energy Storage Devices*," in *IEEE Transactions on Power Systems*, vol. 33, no. 5, pp. 5319-5329, Sept. 2018. doi: 10.1109/TPWRS.2018.2801023
- 2018 Cristina González-Morán, Pablo Arbolea, Rejwan R. Mojumdar, Bassam Mohamed, *4-Node Test Feeder with Step Voltage Regulators*, *International Journal of Electrical Power & Energy Systems*, Volume 94, 2018, Pages 245-255, ISSN 0142-0615, doi: 10.1016/j.ijepes.2017.06.027.
- 2017 B. Mohamed, P. Arbolea and C. González-Morán, "*Modified Current Injection Method for Power Flow Analysis in Heavy-Meshed DC Railway Networks With Nonreversible Substations*," in *IEEE Transactions on Vehicular Technology*, vol. 66, no. 9, pp. 7688-7696, Sept. 2017. doi: 10.1109/TVT.2017.2687061



- 2017 P. Arbolea, "Heterogeneous Multiscale Method for Multirate Railway Traction Systems Analysis," in IEEE Transactions on Intelligent Transportation Systems, vol. 18, no. 9, pp. 2575-2580, Sept. 2017.doi: 10.1109/TITS.2016.2633390
- 2017 Pablo Arbolea, Pablo Garcia, Bassam Mohamed, Cristina Gonzalez-Moran, "Distributed resources coordination inside nearly-zero energy buildings providing grid voltage support from a symmetrical component perspective", Electric Power Systems Research, Volume 144, March 2017, Pages 208-214, ISSN 0378-7796
- 2017 Cristina Gonzalez-Moran, Pablo Arbolea, Bassam Mohamed, "Matrix Backward Forward Sweep for Unbalanced Power Flow in  $\alpha\beta 0$  frame", Electric Power Systems Research, Volume 148, July 2017, Pages 273-281, ISSN 0378-7796
- 2016 P. García, P. Arbolea, B. Mohamed and A. A. C. Vega, "Implementation of a Hybrid Distributed/Centralized Real-Time Monitoring System for a DC/AC Microgrid With Energy Storage Capabilities," in IEEE Transactions on Industrial Informatics, vol. 12, no. 5, pp. 1900-1909, Oct. 2016.
- 2016 P. Arbolea, P. Bidaguren and U. Armendariz, "Energy Is On Board: Energy Storage and Other Alternatives in Modern Light Railways," in IEEE Electrification Magazine, vol. 4, no. 3, pp. 30-41, Sept. 2016. doi: 10.1109/MELE.2016.2584938
- 2016 Arbolea, P., Mohamed, B., Gonzalez-Moran, C., El-Sayed I., "BFS Algorithm for Voltage-Constrained Meshed DC Traction Networks With Non-smooth Voltage-Dependent Loads and Generators" Power Systems, IEEE Transactions on, Volume 31, 2015, Pages 1526 - 1536, DOI 10.1109/TPWRS.2015.2420574
- 2015 Arbolea, P., Gonzalez-Moran, C., Coto, M., Falvo, M.C., Martirano, L., Sbordon, D., Bertini, I., Di Pietra, B., "Efficient Energy Management in Smart Micro-Grids: ZERO Grid Impact Buildings" Smart Grid, IEEE Transactions on, Volume 6, February 2015, Pages 1055-1063, ISSN 1949-3053
- 2015 Coto, M., Gonzalez-Moran, C., Arbolea, P., "On the Use of Graph Theory for Railway Power Supply Systems Characterization" Intelligent Industrial Systems, Available on line 28 May 2015, DOI 10.1007/s40903-015-0007-8
- 2014 Arbolea, P., Coto, M., Gonzalez-Moran, C., Arregui, R., "On board accumulator model for power flow studies in DC traction networks" Electric Power Systems Research, Volume 116, November 2014, Pages 266-275, ISSN 0378-7796
- 2014 Arbolea, P., Gonzalez-Moran, C., Coto, M., "Modeling FACTS for power flow purposes: A common framework" International Journal of Electrical Power & Energy Systems, Volume 63, December 2014, Pages 293-301.
- 2014 Arbolea, P., Gonzalez-Moran, C., Coto, M., "Unbalanced power flow in distribution systems with embedded transformers using the complex theory in alpha-beta-0 stationary reference frame" Power Systems, IEEE Transactions on, Volume 29, Issue 3, 2014, Pages 1012 - 1022.
- 2013 Coto, M., Arbolea, P., Gonzalez-Moran, C., "Optimization approach to unified AC/DC power flow applied to traction systems with catenary voltage constraints" International Journal of Electrical Power & Energy Systems, Volume 53, December 2013, Pages 434-441.

- 2012 Alvarez, E., Campos, AM., Arbolea, P., Gutierrez, AJ. *"Microgrid management with a quick response optimization algorithm for active power dispatch"* (2012) International Journal of Electrical Power & Energy Systems, 43 (1), pp. 465-473.
- 2012 Arbolea, P., Diaz, G., Coto, M. *"Unified AC/DC Power Flow for Traction Systems: A New Concept"* (2012) Vehicular Technology, IEEE Transactions on, vol. 61, no. 6, pp. 2421-2430.
- 2011 Arbolea, P., Coto, M., Gonzalez-Moran, C., Reigosa, D.D. *"A semiconductor H-bridge connection to avoid saturation in current transformers for differential protection"* (2011) Electric Power Systems Research, 84 (1), pp. 120-127.
- 2010 Arbolea, P., Diaz, D., Guerrero, J.M., Garcia, P., Briz, F., Gonzalez-Moran, C., Gomez Aleixandre, J. *"An improved control scheme based in droop characteristic for microgrid converters"* (2010) Electric Power Systems Research, 80 (10), pp. 1215-1221.
- 2008 Diaz, G., Gonzalez-Moran, C., Arbolea, P., Gomez-Aleixandre, J. *"Characterization of flux rotation and of the ensuing core losses in the stator of induction motors"* (2008) IEEE Transactions on Energy Conversion, 23 (1), pp. 34-41.
- 2007 Diaz, G.; Gonzalez-Moran, C.; Arbolea, P.; Gomez-Aleixandre, J.; , *"Analytical Interpretation and Quantification of Rotational Losses in Stator Cores of Induction Motors,"* Magnetics, IEEE Transactions on , vol.43, no.10, pp.3861-3867, Oct. 2007
- 2007 Diaz, G.; Arbolea, P.; Gonzalez-Moran, C.; Gomez-Aleixandre, J.; , *"Revision of the hysteresis and excess loss computation method as a means of improving the rotational loss estimate in induction motors,"* Electric Power Applications, IET , vol.1, no.1, pp.75-81, January 2007
- 2007 Diaz, G., Arbolea, P., Gonzalez-Moran, C., Gomez-Aleixandre, J. *"Decomposition of fault currents in power transformers into suitable sets of components for application to fault characterization and modelling. Part 1: Theory"* (2007) Electric Power Systems Research, 77 (3-4), pp. 328-338.
- 2006 Diaz, G.; Arbolea, P.; Gomez-Aleixandre, J.; , *"Analytical approach to internal fault simulation in power transformers based on fault-related incremental currents,"* Power Delivery, IEEE Transactions on , vol.21, no.1, pp. 142- 149, Jan. 2006
- 2006 Arbolea, P., Diaz, G., Gomez-Aleixandre, J., Gonzalez-Moran, C. *"A solution to the dilemma inrush/fault in transformer differential relaying using MRA and wavelets"* (2006) Electric Power Components and Systems, 34 (3), pp. 285-301.
- 2006 Diaz, G., Diaz, I., Arbolea, P., Gomez-Aleixandre, J. *"A novel transformer protection technique and its performance assessment using self-organizing maps"* (2006) Engineering Intelligent Systems, 14 (2), pp. 89-97.
- 2006 Diaz, G., Blanco, I.D., Arbolea, P., Gomez-Aleixandre, J. *"Zero-sequence-based relaying technique for protecting power transformers and its performance assessment using unsupervised learning ANN"* (2006) European Transactions on Electrical Power, 16 (2), pp. 147-160.

- 2005 Diaz, G., Arbolea, P., Gomez-Aleixandre, J. *"Tracking space-vector plot asymmetries in transformer differential relaying"* (2005) COMPEL - The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, 24 (3), pp. 1023-1040.
- 2005 Diaz, G., Arbolea, P., Gomez-Aleixandre, J., De Abajo, N. *"An algorithm using a shape-based approach in Park's plane for transformer differential relaying on the basis of time-dependent symmetrical components"* (2005) Electric Power Systems Research, 73 (3), pp. 295-303.
- 2005 Diaz, G., Arbolea, P., Gomez-Aleixandre, J. *"Multiwinding transformer protection applying the delta-relaying concept"* (2005) Electric Power Components and Systems, 33 (2), pp. 199-211.
- 2005 Diaz, G., Arbolea, P., Gomez-Aleixandre, J. *"A new transformer differential protection approach on the basis of space-vectors examination"* (2005) Electrical Engineering, 87 (3), pp. 129-135.
- 2004 Diaz, G.; Arbolea, P.; Gomez-Aleixandre, J.; , *"Park-based and zero sequence-based relaying techniques with application to transformers protection,"* Generation, Transmission and Distribution, IEE Proceedings- , vol.151, no.5, pp. 619- 624, 13 Sept. 2004
- 2004 Gonzalez, G.D., Fernandez, J.G.-A., Arbolea, P. *"Electromagnetic model of turn-to-turn short circuits in transformers"* (2004) COMPEL - The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, 23 (2), pp. 558-571.
- 2004 Gonzalez, G.D., Fernandez, J.G.-A., Arbolea, P. *"Diagnosis of a turn-to-turn short circuit in power transformers by means of zero sequence current analysis"* (2004) Electric Power Systems Research, 69 (2-3), pp. 321-329.

#### International Conferences Participation

- 2019 P. Arbolea, B. Mohamed, I. El-Sayed, Peru Bidaguren, D. Rivero, *"Software-Based Sizing Procedure of a Real 3kV DC Suburban Railway Feeding Infrastructure"*, 2019 IEEE Vehicle Power and Propulsion Conference (VPPC), Hanoi, Vietnam, 2019, pp. 1-6., Accepted for publication
- 2019 C. Mayet, P. Arbolea, A. Bouscayrol, B. Mohamed, P. Delarue, I. El-Sayed, *"Different Models for the Simulation of DC Railway Systems supplied by Non-Reversible Substations"*, 2019 IEEE Vehicle Power and Propulsion Conference (VPPC), Hanoi, Vietnam, 2019, pp. 1-6., Accepted for publication
- 2019 X. Dominguez, P. Arbolea, P. Mantilla-Perez, N. Gimenez, M.A. Diaz-Millan, *"Visual Analytics-Based Computational Tool for Electrical Distribution Systems of Vehicles"*, 2019 IEEE Vehicle Power and Propulsion Conference (VPPC), Hanoi, Vietnam, 2019, pp. 1-6., Accepted for publication

- 2019 J. Garcia, P. Arboleya, C. Gonzalez, P. Garcia, M. Perdigao, P.G. Pereirinha, C. Agreira, F.G. Capponi, G. Dedonato, A. Castellazzi, A. Williams *"Empowering International, Intersectoral and Interdisciplinary Dimensions in Higher Education: The STEPS and EECPS Master Courses Experience"*, 2019 IEEE Vehicle Power and Propulsion Conference (VPPC), Hanoi, Vietnam, 2019, pp. 1-6., Accepted for publication
- 2019 N.V. Linh and P. Arboleya *"Deep Learning Application to Non-Intrusive Load Monitoring"* 13th IEEE PowerTech 2019, Milan, Italy, 2019, pp. 1-5. Accepted for publication.
- 2018 B. Mohamed, I. El-Sayed and P. Arboleya, *"DC Railway Infrastructure Simulation Including Energy Storage and Controllable Substations,"* 2018 IEEE Vehicle Power and Propulsion Conference (VPPC), Chicago, IL, 2018, pp. 1-6. doi: 10.1109/VPPC.2018.8605010
- 2018 P. Arboleya, *"State Estimation in Low Voltage Networks Using Smart Meters: Statistical Analysis of the Errors,"* 2018 IEEE Power & Energy Society General Meeting (PESGM), Portland, OR, 2018, pp. 1-5. doi: 10.1109/PESGM.2018.8585999
- 2018 V. García, C. González-Morán and P. Arboleya, *"Optimal Tap Configuration for Step-Voltage Regulators Applied to Residential Feeders,"* 2018 IEEE Power & Energy Society General Meeting (PESGM), Portland, OR, 2018, pp. 1-5. doi: 10.1109/PESGM.2018.8586518
- 2018 J. García, C. González-Morán, P. G. Fernández and P. Arboleya, *"Efficiency Comparison in Power Converters Under Transient Operation Conditions: Application to Hybrid Energy Storage Systems,"* 2018 IEEE Energy Conversion Congress and Exposition (ECCE), Portland, OR, 2018, pp. 5344-5350. doi: 10.1109/ECCE.2018.8557625
- 2018 A. Seminario-García, C. Gonzalez-Moran and P. Arboleya, *"Theoretical Model for the Progression of Leader Steppers in a Thundercloud,"* 2018 IEEE International Conference on Environment and Electrical Engineering and 2018 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe), Palermo, 2018, pp. 1-4. doi: 10.1109/EEEIC.2018.8493835
- 2017 I. El-Sayed, B. Mohamed and P. Arboleya, *"Assessing the Impact of On-Board Storage Systems over the Railway Electrical Infrastructure,"* 2017 IEEE Vehicle Power and Propulsion Conference (VPPC), Belfort, 2017, pp. 1-5. doi: 10.1109/VPPC.2017.8330997
- 2017 P. Arboleya, B. Mohamed, C. Gonzalez-Moran and I. El-Sayed, *"BFS algorithm for voltage-constrained meshed DC traction networks with nonsmooth voltage-dependent loads and generators,"* 2017 IEEE Power & Energy Society General Meeting, Chicago, IL, 2017, pp. 1-1. doi: 10.1109/PESGM.2017.8273774
- 2017 P. Arboleya, Miguel Huerta, Bassam Mohamed, Cristina Gonzalez-Moran, Xavier Dominguez, *"Assessing the Effect of nearly-Zero Energy Buildings on Distribution Systems by Means of Quasi-Static Time Series Power Flow Simulations,"* 2017 IEEE Power and Energy Society General Meeting (PESGM), Chicago, IL, 2017, pp. 1-5.

- 2017 Hieu Ha Ngoc, Bassam Mohamed, P. Arboleya, *"Power flow in DC traction systems considering the embedded model of the trains and their control,"* 2017 IEEE Power and Energy Society PowerTech Conference (PowerTech), Manchester, UK, 2017, pp. 1-5.
- 2016 B. Mohamed, P. Arboleya and M. Plakhova, *"Current injection based Power Flow Algorithm for bilevel 2x25kV railway systems,"* 2016 IEEE Power and Energy Society General Meeting (PESGM), Boston, MA, 2016, pp. 1-5. Awarded as Best Papers in the field of Power System Planning and Operation
- 2016 S. Lakshminarayana, Z. T. Teo, R. Tan, D. K. Y. Yau and P. Arboleya, *"On False Data Injection Attacks Against Railway Traction Power Systems,"* 2016 46th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN), Toulouse, 2016, pp. 383-394.
- 2016 P. Arboleya, C. G. M. P. Garcia, J. Garcia and B. Mohamed, *"Hierarchical coordination of a hybrid AC/DC smartgrid with central/distributed energy storage,"* 2016 IEEE Energy Conversion Congress and Exposition (ECCE), Milwaukee, WI, 2016, pp. 1-7.
- 2016 E. X. Dominguez and P. Arboleya, *"Reliability assessment in photovoltaic nanogrids by means of Principal Components Analysis,"* 2016 IEEE Power and Energy Society General Meeting (PESGM), Boston, MA, 2016, pp. 1-5.
- 2015 M. Plakhova, B. Mohamed and P. Arboleya, *Static model of a 2x25kV AC traction system,* 2015 6th International Conference on Power Electronics Systems and Applications (PESA), Hong Kong, 2015, pp. 1-5.
- 2015 M. Plakhova, B. Mohamed and P. Arboleya, *Graph theory approach for a 2x25kV AC bivoltage traction system* 2015 6th International Conference on Power Electronics Systems and Applications (PESA), Hong Kong, 2015, pp. 1-5.
- 2015 Rejwanur M.D., Arboleya P. *Step-Voltage Regulator Model Test System* IEEE Power and Energy Society General Meeting (IEEE - PES GM'15)- Denver, USA, 26 - 31 July 2015 - Awarded as Best Papers in the field of Power System Planning and Operation
- 2015 Arboleya P., Dominguez E.X., Lorenzo F.M. *Unified Generating and Storing Capacity Reliability Evaluation in Nearly-Zero Energy Buildings* IEEE Power and Energy Society General Meeting (IEEE - PES GM'15)- Denver, USA, 26 - 31 July 2015
- 2015 Mohamed, B., Arboleya P. *OPGrid: Steady state analysis toolbox for systems with embedded FACTS and Droop-based devices* 15. International Conference on Environment and Electrical Engineering (IEEE - IEEEIC)- Rome, Italy, 10 - 13 June 2015
- 2015 Dominguez, E.X., Arboleya, P., Lorenzo, F.M. *Computer tool for assessing the selection of distributed generation systems in NZEB* 15. International Conference on Environment and Electrical Engineering (IEEE - IEEEIC)- Rome, Italy, 10 - 13 June 2015

- 2014 Martirano, L. Falvo, M.C., Sbordone, D., DiPietra, B., Bertini I., Arbolea, P., Gonzalez-Moran, C., Coto, M. *Zero Network-Impact Buildings and Smart Storage Systems in Micro-Grids* 13. International Conference on Environment and Electrical Engineering (EEEIC)- Wroclaw, Poland, 10 - 12 May 2014
- 2013 Arbolea, P., Gonzalez-Moran, C., Coto, M., Garcia, J. *Self-Supply and Net Balance: The Spanish Scenario* SmartMILE 2013 International Conference on New Concepts in Smart Cities, Gijon, Spain, 11-13 December 2013
- 2013 Garcia, J., Arbolea, P., Garcia, P. *Mastering the Career Development for Smart Electrical Systems: EECPS Master and EMMC STEPS Master* SmartMILE 2013 International Conference on New Concepts in Smart Cities, Gijon, Spain, 11-13 December 2013
- 2013 Mendez-Fuente, M., Alvarez, M.J., Garcia, J., Arbolea, P., Garcia, P., Guerrero, J.M., Gonzalez-Moran, C. *Hurdles for an Ubiquitous Electric Vehicle: The Experiences of Project ELEVTRA* SmartMILE 2013 International Conference on New Concepts in Smart Cities, Gijon, Spain, 11-13 December 2013
- 2013 Garcia, J., Garcia, P., Arbolea, P., Guerrero, J.M. *Laboratory: A project-based learning example on power electronics* 2th Brazilian Power Electronics Conference (COBEP2013) of the Brazilian Power Electronics Society (SOBRAEP), Gramado, Brazil, 27-31 October 2013
- 2012 Arbolea, P., Gonzalez-Moran, C., Coto, M., "A hybrid central-distributed control applied to microgrids with droop characteristic based generators," Power Electronics and Motion Control Conference (EPE/PEMC), 2012 15th International , pp. LS7a.5-1,LS7a.5-8, 4-6 Sept. 2012
- 2011 Arbolea, P., Coto, M., Coto, J., "An improved power transformer design for dynamic voltage restoration applications" CIRED 2011 The 21st Conference and Exhibition on Electricity Distribution (2011)
- 2010 Coto M., Coto J., Arbolea P., "Rogowski Coil Design Optimization for Partial Discharges Detection in Medium Voltage Underground Cables using Self Organizing Maps" Third International Conference on Multidisciplinary Design Optimization and Applications (2010)
- 2010 Reigosa, D., Arbolea, P., Guerrero, J.M., Garcia, P., Briz, F. "Analysis of grid connected converters using a feed-forward disturbance decoupling current control" (2010) 2010 International Power Electronics Conference - ECCE Asia -, IPEC 2010, art. no. 5543717, pp. 2976-2983.
- 2009 Reigosa, D., Arbolea, P., Gonzalez-Moran, C., Gomez-Aleixandre, J. "An improved control scheme based in droop characteristic control for microgrid converters" (2009) Proceedings - The 12th International Conference on Electrical Machines and Systems, ICEMS 2009, art. no. 5382834,
- 2009 Gonzalez-Moran, C., Arbolea, P., Reigosa, D., Diaz, G., Gomez-Aleixandre, J. "Improved model of photovoltaic sources considering ambient temperature and solar irradiation" (2009) 1st IEEE-PES/IAS Conference on Sustainable Alternative Energy, SAE 2009 - Proceedings, art. no. 5534859,.

- 2009 Arbolea, P., Diaz, D., Gonzalez-Moran, C., Coto, J., Gomez-Aleixandre, J. *"An inrush current limiter as a solution of injection transformer oversizing in dynamic voltage restores"* (2009) Proceedings - The 12th International Conference on Electrical Machines and Systems, ICEMS 2009, art. no. 5382735,
- 2008 Gonzalez-Moran, C., Arbolea, P., Diaz, G., Aleixandre-Fernandez, J.G. *"Classification of rotational losses zones in stator cores of induction motors using fuzzy-clustering"* (2008) Proceedings of the 2008 International Conference on Electrical Machines, ICEM'08, art. no. 4800079,
- 2008 Arbolea, P., Gonzalez-Moran, C., Diaz, G., Gomez-Aleixandre, J. *"Fuzzy-clustering as a tool for magnetic losses analysis in induction machines"* (2008) Proceedings of the 2008 International Conference on Electrical Machines, ICEM'08, art. no. 4799875.
- 2007 Gonzalez-Moran, C., Arbolea, P., Diaz, G., Gomez-Aleixandre, J. *"Modeling photovoltaic DC primary sources as grid connected inverter supplies considering non linear effects"* (2007) 2007 IEEE Canada Electrical Power Conference, EPC 2007, art. no. 4520305, pp. 50-55.
- 2007 Arbolea, P., Gonzalez-Moran, C., Diaz, G., Gomez-Aleixandre, J., Hidalgo, A. *"A new dynamic voltage restoration topology applied to a double connected solar plant"* (2007) 2007 IEEE Canada Electrical Power Conference, EPC 2007
- 2006 Arbolea, P., Diaz, G., Gonzalez-Moran, C., Gomez-Aleixandre, J., Barrera, A., *"Analysis of the core loss data fitting alternatives for induction motor loss computation"* (2006) ICEM 2006 International Conference on Electrical Machines
- 2006 Arbolea, P., Diaz, G., Gonzalez-Moran, C., Gomez-Aleixandre, J., Barrera, A., *"Influences of values of the coefficients in Bertottis statistical expression on the loss figure computation in induction motors"* (2006) ICEM 2006 International Conference on Electrical Machines
- 2005 Diaz, G., Arbolea, P., De Abajo, N., Reigosa, D. *"A case study of an electrolytic tinning line, with an analysis of faults in the power rectifiers"* (2005) EUROCON 2005 - The International Conference on Computer as a Tool, II, art. no. 1630182, pp. 1247-1250. art. no. 4520356, pp. 353-358.
- 2005 Arbolea, P., Diaz, G., Gonzalez-Moran, C., Gomez-Aleixandre, J. *"A wavelet approach applied to transformer fault protection: Signal processing"* (2005) EUROCON 2005 - The International Conference on Computer as a Tool, II, art. no. 1630283, pp. 1634-1637.
- 2005 Arbolea, P., Diaz, G., Gomez-Aleixandre, J., Barrera, A., *"Enhancement of study of MMF patterns in electrical machinery following a functional composition of temporal and spatial field variations"* ISEF 2005 International Symposium on Electromagnetic Fields and Mechatronics, Electrical and Electronic Engineering (2005)
- 2005 Arbolea, P., Diaz, G., Gil, T., Barrera, A., *"On the use of unsupervised neural networks to assist the dimensionality reduction in an induction motor redesign"* ISEF 2005 International Symposium on Electromagnetic Fileds and Mechatronics, Electrical and Electronic Engineering (2005)

- 2005 Arboleya, P., Diaz, G., Gonzalez-Moran, C., Gomez-Aleixandre, J., DeAbajo, N. *"An insightful approach on the representation of saturation and turn-to-turn faults in power transformers"* WSEAS/IASME International Conference on Electric Power Systems, High Voltages and Electric Machines (2005)
- 2005 Arboleya, P., Diaz, G., Gonzalez-Moran, C., Gomez-Aleixandre, J., *"Validation procedure for new relay designs based on the use of unsupervised learning ANN's"* WSEAS/IASME International Conference on Electric Power Systems, High Voltages and Electric Machines (2005)
- 2004 Arboleya, P., Diaz, G., Gomez-Aleixandre, J., DeAbajo, N. *"Application of Clarke transformation to the protection of multi-winding transformers"* ARWTR2004 Advanced Research Workshop on Modern Transformers (2004)
- 2004 Arboleya, P., Diaz, G., Gomez-Aleixandre, J., DeAbajo, N. *"Influence of harmonic polluted loads on the performance of a proposed relay based on orthogonal transformation of the differential signal"* ARWTR2004 Advanced Research Workshop on Modern Transformers (2004)
- 2004 Arboleya, P., Diaz, G., Gomez-Aleixandre, J., *"A closer view into progressive internal faults in transformers by means of the analysis of instantaneous current sequences"* ICEM 2004 International Conference on Electrical Machines (2004)
- 2004 Arboleya, P., Diaz, G., Gomez-Aleixandre, J., *"A new power transformer relaying technique based on delta residual current as applied to three and four wired systems"* ICEM 2004 International Conference on Electrical Machines (2004)
- 2004 Diaz, G., Arboleya, P., Gomez-Aleixandre, J., *"Clustering events related to restricted earth fault and differential relaying on the protection of power transformers"* ICEM 2004 International Conference on Electrical Machines (2004)
- 2004 Diaz, G., Arboleya, P., Gomez-Aleixandre, J., *"Power transformers overload forecasting using unsupervised learning neural networks"* ICEM 2004 International Conference on Electrical Machines (2004)

## Software and Patents

- 2017 Railneos 2.0: Software developed by the lemur group for the company CAF Turnkey and Engineering for the resolution of rail power systems in DC, AC and multilevel systems for high speed, which includes visual analytics module. CAF is the owner of this software although the intellectual property belongs to the LEMUR Group of the University of Oviedo.
- 2017 DCTS.exe: Calculation engine for continuous networks with distributed feeding system, storage systems and loads with non-derivable characteristics. (Property of the Lemur group of the University of Oviedo).
- 2017 ACTS.exe: Calculation engine for alternating and multilevel rail feed systems for high speed. (Owned by the LEMUR group of the University of Oviedo).
- 2015 GenMIx: Software for selecting the optimal distributed generation system (in terms of reliability and costs) to be installed in residential buildings. OpenSource tool available for download on the website of the LEMUR group of the University of Oviedo.



- 2014 Railneos 1.0: Software developed by the lemur group for CAF Transport and Engineering for the resolution and visualization of results in DC railway networks for trams and light trains. CAF is the owner of this software although the intellectual property corresponds to the LEMUR Group of the University of Oviedo.
- 2015 OPGrid: MATLAB-based tool for calculating balanced load flows in transmission systems that include FACTS.
- 2003 P200400001 2245580 Device for fault detection in power transformers or bus-bars through park transform. Spanish Patent.

## Awards

- 2016 Selection of the paper *"Current injection based Power Flow Algorithm for bilevel 2x25kV railway systems,"* 2016 IEEE Power and Energy Society General Meeting (PESGM) for the "Best Papers Section"
- 2015 Selection of the paper *Step-Voltage Regulator Model Test System* IEEE Power and Energy Society General Meeting (IEEE - PES GM'15)- Denver, USA for the "Best Papers Section"
- 2014 Third Prize EDP University Challenge as Supervising Professor of the project of a system of calculation of the system of generation and storage of the NZEB (Nearly-Zero Energy Buildings)
- 2008 Extraordinary PhD. Award from the Universidad de Oviedo. Thesis Title: "On the dilemma Failure/Connection in the differential protection of three-phase power transformers, approach and solution by means of transient characterization in the Park space/Sobre el dilema Fallo/Conexión en la protección diferencial de transformadores trifásicos de potencia, planteamiento y solución mediante la caracterización transitoria en el espacio de Park"

## Teaching in Official Degrees

### PhD. Thesis Advisor

- 2018 **Load Flow Resolution Algorithms in Special Networks with Non-Linear and Non-derivable devices/ Algoritmos de resolución de flujos de cargas en redes especiales con dispositivos no lineales y no derivables**, Author: Bassam Mohamed, Advisor: Pablo Arboleya, The University of Oviedo.
- 2012 **Unified AC/DC power flow applied to railway networks**, Author: Manuel Coto Garcia, Advisor: Pablo Arboleya, The University of Oviedo.

### M.S. and B.S. Thesis Advisor

- 2005-Present Advisor of more than 250 Thesis for B.S. degree in electrical engineering and M.S. degree in electrical engineering (University of Oviedo)

### PhD. Boards

- 2019 *Stability of Low Frequency AC Railways* Author: John Laury
- 2018 *Analysis, Simulation and Operation of Advanced Converter-based electrical railway power supply systems for high-speed lines* Author: Daniel Serrano Jimenez
- 2017 *Control and Stability of AC/DC Microgrids* Author: Eneko Unamuno

- 2016 *Intelligent multi-objective optimisation of energy dimensioning in signalled railway systems and software platforms in real time/Optimización multiobjetivo inteligente del dimensionamiento energético en sistemas ferroviarios señalizados y en plataformas software en tiempo real* Autor: Manuel Soler Nicolau. Universidad Politécnica de Madrid.
- 2016 *Optimising the electrical infrastructure of MTSS to improve the use of regenerative braking* Autor: Álvaro Jesús López López. Universidad Pontificia de Comillas
- 2011 *Integración en la red eléctrica de microrredes electrotérmicas: Dimensionado, estrategias de gestión energética e implementación experimental* Author: Javier Barriarte Rivas. Universidad Pública de Navarra
- 2010 *Algoritmo para reparto de niveles de generación de potencia activa entre generadores no renovables de una microrred eléctrica basado en funciones de coste.* Autor: Eduardo Alvarez. Universidad de Oviedo

#### Member of Societies

IEEE Senior Member

IEEE Member of the Vehicular Technology Society

IEEE Member of Power and Energy Society

IEEE Member of Transportation Electrification Community

IEEE Member of Transportation Electrification Community Educational Committee

IEEE Member of Electric Vehicles Community

IEEE Member of Smart Grid Community

#### Activities

- 2019 Member of the Editorial Board of the *World Electric Vehicle Journal* from MDPI, since July 2019 up to the date. <https://www.mdpi.com/journal/wevj/editors>
- 2019 Keynote Speaker at the 3rd International Symposium on Smart Grid Methods, Tools and Technologies (Jinan, China; 16-19 September 2019), Organized by The University of Manchester (UK) and Shandong University.
- 2019 Invited Speaker at IEEE VTS EMR Summer School, Presenting - "EMR of different models of DC railway system supplied with non-reversible substations", in collaboration with Clement Mayet, and Philippe Delarue
- 2019 Session chair at IEEE VTS EMR Summer School, "Modelling and Control Using Energetic Macroscopic Representation, Application to hybrid electric vehicles and others", Lille, France, Oral Session 8, OA -2, Other Applications, 16-19, June, 2019
- 2019 Invited speaker to the 3rd IEEE Workshop on Emerging Technology of Transportation Electrification, Organized by IEEE, University of Tsinghua, Southwest Jiaotong University, CRRC Zhuzhou Institute LTD. 2019/5/17-19, Chengdu, China.
- 2019 Session Chair at 13th IEEE PES PowerTech - 2019, Milan, Italy - Oral Session TS 4H - Innovative Grids in Energy Hybrid Systems Integration, Thursday, June 27
- 2019 International Advisory Committee Member of the 13th IEEE PES PowerTech Conference, IEEE, 2019, Milan, Italy

- 2015 Technical Committee member of the 2015 IEEE 15th International Conference on Environment and Electrical Engineering (EEEIC)
- 2016 Technical Committee member of the 2016 IEEE 16th International Conference on Environment and Electrical Engineering (EEEIC)
- 2017 Technical Committee member of the 2017 IEEE 17th International Conference on Environment and Electrical Engineering (EEEIC)
- 2018 Chairman of the regular track session in "Charging Systems and Infrastructures" of the conference "IEEE Vehicle Power and Propulsion Conference (VPPC)", Chicago, US, 2018
- 2017 Chairman of the special session "Innovative Efficient Systems for Future Railway Applications" of the conference "IEEE Vehicle Power and Propulsion Conference (VPPC)" Belfort - France, 2017
- 2014 Associate Editor, Springer Journal, Intelligent Industrial Systems (From 2014)
- 2015 Technical committee member, IEEE-PESA 2015 The 6th International Conference on Power Electronics Systems and Applications (PESA). Electric Transportation - Automotive, Vessel and Aircraft. December, 15-17, Hong Kong
- 2015 Chairman, 13<sup>th</sup> International Conference on Environment and Electrical Engineering, IEEE-EEEIC 2015, June 10-13, Rome, Technical Session 6 (E1-TS2): Power Systems And Smart GRid -1
- 2015 Technical committee member, IEEE-EEEIC 2015 International Conference on Environment and Electrical Engineering, Power Systems and Smart Grid Section
- 2010 R&D projects evaluator for AENOR (Spanish Agency for Standardisation)
- 2006 Member, Economic Commission of the Electrical Engineering Department of The University of Oviedo. (2006-Present)
- 2012 Chairman, 15<sup>th</sup> International Power Electronics and Motion Control Conference and Exposition, EPE-PEMC 2012, ECCE Europe, Session LS7
- 2013 Technical committee member, SmartMILE 2013 International Conference on New Concepts in Smart Cities, Microgrids and Smartgrids section
- Reviewer, IEEE Transactions on Power Systems
- Reviewer, IEEE Transactions on Energy Conversion
- Reviewer, IEEE Transactions on Smartgrids
- Reviewer, IEEE Transactions on Power Delivery
- Reviewer, IEEE Transactions on Vehicular Technology
- Reviewer, IEEE Power Engineering Letters
- Reviewer, IEEE Transactions on Industry Applications
- Reviewer, International Journal of Electrical Power & Energy Systems Elsevier
- Reviewer, Electric Power Systems Research, Elsevier
- Reviewer, International transactions on Electrical Energy Systems, Wiley