

Charalambos A. Charalambous

Department of Electrical and Computer Engineering
University of Cyprus
P.O. Box 20537, 1678 Nicosia, Cyprus
Tel: +357 - 22892285, Fax: +357 - 2289 5079
E-mail: cchara@ucy.ac.cy
Webpage: <http://psm.ucy.ac.cy/>

EDUCATION:

- **Ph.D. Electrical Power Engineering.** The University of Manchester UK, June 2006.
 - *Received:* "Overseas Research Student (O.R.S) Award" (Based on Performance & Research Potential).
 - *Thesis:* "Stray Current Control and Corrosion Limitation for DC Mass Transit Systems".
 - *Outcome:* www.capcis.com/technologyproducts/straycalc.html
- **B.Eng (Honours) in Electrical and Electronic Engineering.** UMIST, UK, June 2002.
 - *Grade:* First Class Honours Degree.

EMPLOYMENT:

Associate Professor (Tenured): Department of Electrical and Computer Engineering, University of Cyprus	Jan. 2016 – present
Assistant Professor (Tenure Track Position): Department of Electrical and Computer Engineering, University of Cyprus	Jun. 2010 – Dec. 2015
Visiting Assistant Professor: Department of Electrical and Computer Engineering, University of Cyprus	Sept. 2009 – Jun. 2010
Senior Research Associate: School of Electrical and Electronics Engineering, The University of Manchester, UK	Nov. 2006 – Aug. 2009
Research Assistant/Associate: School of Electrical and Electronics Engineering, The University of Manchester, UK	Sept. 2005 – Oct. 2006
Teaching Assistant: Manchester Science Enterprise Centre, The University of Manchester, UK	Feb. 2007 – May 2009

RESEARCH INTERESTS:

- Electrical Control and Analysis of DC/AC Interference & Corrosion.
- Engineering Cost/Benefit Analysis and Risk Management.

- Earthing/ Lightning Protection – Solar Applications and LV systems.
- Loss Evaluation Distribution Systems.
- Earthing Design for AC/DC Microgrids.
- Power System Analysis

SCHOLARSHIPS:

- **Overseas Research Students Award Scheme (O.R.S), Committee of Vice-Chancellors Principals, Universities UK, 2003:**
Awarded based on outstanding performance and research potential for PhD studies.
- **The AG Leventis Foundation, France, 2003-2006:**
Awarded based on PhD Research proposal and Undergraduate performance.
- **UMIST Graduate School, UK, 2003:**
Tuition scholarship based on exceptional performance during the undergraduate degree.
- **State Scholarship Organization of Cyprus (IKYK),CY, 2002:**
A single year scholarship awarded for postgraduate studies based on outstanding performance during the undergraduate degree.
- **CAPCIS,UK, 2002:**
A three-year scholarship awarded for postgraduate studies (PhD) in Stray Current Control and Corrosion of DC Mass Transit Systems.

AWARDS AND HONOURS:

- **Certificate of Excellence in Reviewing, Journal of Natural Gas Science and Engineering, ELSEVIER, 2013:**
Awarded in recognition of an outstanding contribution to the quality of the journal.
- **COST ACTION (Information and Communication Technologies) – DC Hearing Stage, September 2012, Brussels:**
Coordinator of a COST Action Proposal “Energy Harvesting in Wireless Networks with Relays” with a consortium formed by 6 European Countries. The proposal was selected among the 12 top-ranked proposals submitted in the ICT Domain and has reached the DC hearing stage (Note: The proposal has not been funded).
- **Royal Academy of Engineering Teaching Certificate, UK, 2007 and 2008:**
For selection and teaching in the Royal Academy of Engineering course unit Sustainable Development for Engineers and Scientists (MSEC30052/ Level 3).
- **Green Gown Educational Award, UK, 2008:**
Part of the team highly commended in the course category of the Higher Education Environmental Performance Improvement (HEEPI) Green Gown Awards.
- **Corrosion and Protection Centre, UMIST,UK, June 2004:**
Diploma in Corrosion Engineering (Distinction).

RESEARCH PROJECTS:

Total Funding as Principal Investigator: ~ € 306,000

A. University of Cyprus

1. **Project Title:** Dynamic Distribution Loss Factors (DLFs) Calculation for the Emerging Competitive Energy Market Rules
 - Funding Agency: Distribution System Operator Cyprus (October 2016 -April 2018), €36,400 (Euros)**Principal Investigator: C. A. Charalambous.**

2. **Project Title:** Developing a Graphical User Interface for Designing and Positioning External Lightning Systems in Buildings
 - Funding Agency: ELEMKO, SA, Greece (April 2016-June 2016), € 5,000 (Euros)**Principal Investigator: C. A. Charalambous.**

3. **Project Title:** Stimulating scientific excellence through twinning in the quest for sustainable energy (TwinPV)
 - Funding Agency: European Commission H2020-TWINN-2015, (Dec.2015-Dec.2018), €1.012.173 (Euros), Coordinator UCY.**Principal Investigator: G. E. Georghiou**
Partner: C. A. Charalambous.

2. **Project Title:** Stray Current Modelling for Photovoltaic Systems
 - Funding Agency: Intertek UK (Nov. 2015-Nov. 2016), ~€ 18,000 (Euros)**Principal Investigator: C. A. Charalambous.**

4. **Project Title:** Analysis of the Present and Future Power Distribution System in Cyprus
 - Funding Agency: Joint Research Centre (J.R.C), European Commission, Netherlands (July 2015-January 2016), € 42,000 (Euros)**Principal Investigators: C. A. Charalambous and G.E. Georghiou.**

5. **Project Title:** Smartphone Application for Estimating Grounding Electrodes Dimensions and Resistance
 - Funding Agency: ELEMKO, SA, Greece (April 2015-June 2015), € 3,600 (Euros)**Principal Investigator: C. A. Charalambous.**

6. **Project Title:** Engineering a Socio-Intelligent Class of Energy Users
 - Funding Agency: University of Cyprus Grant “New Researchers” to support PhD Candidates (Awarded to C.A. Charalambous and *Alexandros Nikolaidis*), Feb. 2015- Feb 2016, €12,000 (Euros).**Principal Investigator: C. A. Charalambous.**

7. **Project Title: Identifying The Hidden Costs of Net Metering Practices and Extrapolating Their Impact on Losses Cost and Benefit Allocation (HIDNET)**
 - Funding Agency: Distribution System Operator (DSO), Cyprus, Jan. 2015-Apr. 2016, ~€40,000 (Euros).**Principal Investigator: C. A. Charalambous.**

8. **Project Title: Reviewing and Optimising L.V. Earthing Policy and Practice (EARTHOPT)**
 - Funding Agency: Electricity Authority of Cyprus, Nov. 2013-May 2014, ~€24,000 (Euros),**Principal Investigator: C. A. Charalambous.**

9. **Project Title: Dynamic Stray Current and Interference Assessments**
 - Funding Agency: ELEMKO SA GR, Nov. 2013-Nov.2014, €16,000 (Euros)**Principal Investigator: C. A. Charalambous.**

10. **Project Title: Life Cycle Loss Evaluation of Power Transformers Serving Large Scale Renewable Energy Plants (EVLOCOST)**
 - Funding Agency: Electricity Authority of Cyprus, Nov. 2012-Nov. 2014, ~€24,000 (Euros),**Principal Investigator: C. A. Charalambous.**

11. **Project Title: Establishing Power Systems Modelling Laboratory**
 - Start Up Funding (Non-competitive), Jan 2010-Jan 2012, €79,810 (Euros),**Principal Investigator: C. A. Charalambous.**

B. The University of Manchester

12. **Transformer Core Modelling and Guide on Over Fluxing Generators**
 - Funding Agency: National Grid, UK and AREVA T&D, Jan 2009 – Jan 2010, £105,000 (GBP), Principal Investigator: Z.D Wang, **Research Associate: C. A Charalambous.**

13. **Super Grid Power Transformer Ferroresonance and Degradation Mechanisms**
 - Funding Agency: National Grid, UK, Jan 2006 – Jan 2008, £240,000 (GBP), Principle Investigator: Z.D Wang, **Research Associate: C. A Charalambous.**

14. **Low Frequency Power Transformer Modelling**
 - Funding Agency: EPSRC (RAIS funding) UK, Sep. 2005-Sep 2006, £100,000 (GBP), Principal Investigator: Z.D Wang, **Research Associate: C. A. Charalambous.**

INDUSTRIAL/ CONSULTING PROJECTS:

Total Funding as Sole Investigator: ~ € 100,000

1. **For C&M Engineering and ELEMKO on behalf of *Trans-Adriatic Pipeline (TAP) Operator, April –Sep 2016***
“Mitigation Design for the effects of electromagnetic interference on Trans-Adriatic Pipeline caused by HV AC traction Systems and HV/MV AC power supply Systems” (Sole Investigator: C. A. Charalambous)
 - Modelling for estimating the AC interference impact under both steady state and fault conditions for ~400km of TAP routing. [Modelling embraced: a) 38 HV circuits (400kV and 275kV), b) 20kV MV circuits, and c) AC Electrified Traction routings in the nearby vicinity]
 - Designing an earthing wire oriented mitigation solution to ensure safety and mechanical integrity of TAP
 - Technical Report with conclusions, design and implementation recommendations to TAP consultants.

2. **For Intertek on behalf of *UK Network Rail, UK, April –May 2015***
“Stray Current Corrosion Performance of Concrete and Steel Sleepers on the tram train project between Sheffield and Rotherham” (Sole Investigator: C. A. Charalambous)
 - Developing and validating a hybrid model for estimating the resistance to earth values of traction’s concrete and steel sleepers sections under a range of operational conditions.
 - Technical Report with Conclusions and Recommendations to Intertek.

3. **For Helios Project, Funded by *Green+ NER 300 (EC, EIB, CY), Nicosia, Cyprus, October 2014***
“Helios Solar Power Plant Integration in Cyprus Power System” (Principal Investigators: G.E. Georgiou and C. A. Charalambous).
 - Sizing Storage Requirements for Integrating Helios Solar Power Plant in Cyprus Power System and Energy Market (with *Alexandros Nikolaidis*).

4. **For ELEMKO SA, AEGEK-IMPREGILO-ANSALDO, Thessaloniki, Greece, *January 2013***
“Stray Current Control Design of Thessaloniki’s DC Metro System” (Sole Investigator: C. A. Charalambous)
 - Providing and Evaluating Stray Current Design for Thessaloniki’s New Metro System (9.6 km Underground Line (with twin tunnels, Bored & Cut-and-Cover), 13 stations and a depot area).
 - Developing of Stray Current Monitoring Specifications.
 - Technical Report with Conclusions and Recommendations to ATTIKO METRO.

5. **For Electricity Authority Cyprus, Nicosia, Cyprus, *October 2012***
“Life-Cycle Loss Evaluation and Ownership Cost of Power and Distribution Transformers” (Principal Investigator: C. A. Charalambous) – (Overheads generated for UCY 10%).
 - Calculation of Loss Evaluation Factors for Power & Distribution Transformers of E.A.C network.
 - Updating Specifications for Transformers’ Tender Evaluations.

6. **For United Utilities, Preston, UK, July 2008:**
"Possible power transformer - 132/33 kV 90 MVA, damage during de-energisation process"
 (Principal Investigator: Zhongdong Wang, **CO-Principal Investigator: C. A. Charalambous**)
 - Development of the ATP Simulation Model to reproduce 33 kV Circuit Conditions captured by monitoring devices.

7. **For National Grid, Warwick, UK, May 2008:**
"Investigation Main Protection Mal-operation due to Phase-to-earth fault on 275 kV Gas Insulated Busbar" (Principal Investigators: **C.A Charalambous**, Zhongdong Wang and Peter Crossley).
 - Assessing network's topology and designing of an appropriate simulation model to reproduce fault conditions monitored.
 - Technical Report on investigation analysis and recommendations.

8. **For Intertek CAPCIS Ltd, Manchester, UK, October 2004:**
"Risk assessment/analysis of the stray current corrosion resulting from the potential operation of 2nd Avenue Subway in New York City" (Principal Investigator: Ian Cotton).
 - Developing and driving CDGES detailed simulation model for assessing stray current activity on a single underground line.

STUDENTS AND RESEARCH ASSOCIATES ADVISING:

A. Current Research Associates/Special Scientists:

1. **Dr. Mathaios Panteli (Sep. 2015 – Dec. 2016)**
 - **Academic Qualifications:** **MEng** in Electrical and Computer Engineering, Aristotle University of Thessaloniki (AUTH), 2009, **PhD** in Electrical Power Engineering, The University of Manchester, 2013.
 - **Research Theme:** Reliability and Assessment of Future Distribution/LV networks.

2. **Dr. Antonis Lazari (June 2016 - Present)**
 - **Academic Qualifications:** **MEng**. (Honours) in Electrical and Electronic Engineering, University of Bristol, UK, 2010, **PhD** UCY 2016.
 - **Research Theme:** Modelling for Assessing Large Scale Power System Infrastructure under AC and DC Interference

B. Alumni Research Associates/Special Scientists:

3. **Mr. Konstantinos Metallinos (Spring 2015 – Fall 2015)**
 - **Academic Qualifications:** **B.Sc** in Electrical and Computer Engineering, University of Cyprus, 2013, **MSc** in Electrical Engineering, University of Cyprus, 2014.
 - **Research Theme:** Load Modelling Accommodating Distributed Energy Generation.

4. **Ms. Cleopatra Charalambous (Spring 2014)**
 - **Academic Qualifications:** **BSc** in Chemistry, Aristotle University of Thessaloniki, 2013,
 - **Research Theme:** Quantifying Corrosion Impact from DC Stray Currents.

5. Dr Stylianos Hirodonitis (Fall 2011- Fall 2012)

- **Academic Qualifications:** **B.Eng** (Honours) in Electrical and Electronic Engineering 2006, UMIST, UK, **M.Sc.** in Electrical Power Engineering with Business, University of Strathclyde 2008, **PhD** in Electrical Power Engineering, The University of Manchester, 2010.
- **Research Theme:** Life- Cycle Loss Evaluation of Distribution Transformers.

6. Mr. Savvas Constantinou (Fall 2013)

- **Academic Qualifications:** **MEng** in Computer Engineering and Informatics, University of Patras, 2012, **M.Sc.** in Information Security, University College London (UCL), UK, 2013
- **Specific Duties:** In-house Software Development.

C. Graduated PhD Students:

1. Antonis Lazari - admitted Spring 2011

- **Academic Qualifications:** **MEng.** (Honours) in Electrical and Electronic Engineering, University of Bristol, UK, 2010.
- **Thesis:** Life-Cycle Loss Evaluation of Power Transformers Serving Large Scale Renewable Energy Plants
- **Graduation Date:** June 2016

D. Current PhD Students:

1. Alexandros Nikolaidis - admitted Fall 2012

- **Academic Qualifications:** **MEng** in Electrical Engineering, Democritus University of Thrace (GR), 2010, **M.Sc.** in Sustainable Energy, University of Cyprus, 2012.
- **Research Topic:** Identifying Hidden Costs of PV Net-Metering Policies
- **Qualifying Exam:** Passed (December 2013) – Expected Graduation December 2016.

2. Andreas Demetriou - admitted Spring 2016

- **Academic Qualifications:** **MEng** in Electrical Engineering, National Technical University of Athens (GR), 2013, **M.Sc.** in Electrical Engineering, University of Cyprus, 2015.
- **Research Topic:** Stray Current Control and Corrosion of PV Applications
- **Qualifying Exam:** TBD – Expected Graduation TBD.

E. Graduated MSc Students:

1. Andreas Andreou - Spring 2012

Thesis: “Life Cycle Loss Evaluation of Transmission Lines”

2. Alexandros Nikolaidis - Spring 2012

Thesis: “Indices to Assess the Integration of Renewable Energy Resources in Transmission Systems”

3. Christos Kallonas - Fall 2013

Thesis: “Earthing Design Assessments for Large Scale Photovoltaic Systems”

4. George Frangou - Fall 2013

Thesis: “Lightning Protection Assessments of Large Scale Photovoltaic Systems”

5. Andreas Demetriou - Spring 2015

Thesis: “Technical Guide for Lightning and Surge Protection in large-scale field Photovoltaic installations”.

6. **Stylianou Christina - Spring 2015**

Thesis: “Assessing Industrial and Commercial Electricity Tariffs for Sizing PV Modules under Own-Generation (pseudo-Net-Metering) Scenarios provided by Cyprus Energy Regulatory Authority”.

F. Undergraduate Students:

1. **Andreas Papandreou (Spring 2010)**

Final Year Project: Validation of SC and OC tests on Power Transformer ATP Models

2. **Andreas Georgiou (Spring 2011)**

Final Year Project: Modeling and Validation of Ferroresonance Conditions in HV networks

3. **Panagiotis Philippou (Spring 2011)**

Final Year Project: Modeling and Simulation of a PV park Associated to a LV Network

4. **Panagiotis Papadopoulos (Spring 2012)**

Final Year Project: An IEEE 80 based G.U.I for Designing Earthing Systems for GIS substations

5. **Yiannis Ioannou (Spring 2012)**

Final Year Project: On the Equivalence of the IEEE-Test Bus Systems on the Cyprus Transmission Network.

6. **Antonis Geropapa (Spring 2013)**

Final Year Project: An IEC 62305-2 based G.U.I for Lightning Protection Risk Assessments

7. **Constantinos Tilliros (Spring 2013)**

Final Year Project: An IEC 62305-2 based G.U.I for Lightning Protection Risk Assessments

8. **Stylianou Christina (Fall 2013)**

Final Year Project: A thorough Net-Metering Policy Analysis for the Electricity Market of Cyprus.

9. **Natsikas Photis (Spring 2014)**

Final Year Project: Impact of Volumetric Retail Electricity Tariff Designs on PV Net-Metering Compensation Mechanisms.

10. **Ioannou Antonis (Fall 2014)**

Final Year Project: Smartphone Application for an Earthing System Estimation Tool

11. **Eleni Ioannou (Fall 2015)**

Final Year Project: Assessing Industrial and Commercial Electricity Tariffs for Sizing PV Modules under Own-Generation

12. **Stefani Kouni (Fall 2015)**

Final Year Project: Time of Use (TOU) Net-Metering Implementation

13. **Fani Papamichael & Stelios Solomi (Fall 2016)**

Final Year Project: Thermal Rating and Design of Lattice Towers for HV OHL

14. **Angela Stavrou (Fall 2016)**

Final Year Project: Assessing Industrial and Commercial Electricity Tariffs for Sizing PV Modules under Own-Generation

COURSE DEVELOPMENT AND TEACHING:

A. University of Cyprus:

Courses (Developed & Taught):

- **ECE 685:** Power System Plant Design and Operation, *ECE. (Graduate Level)*
- **ECE 686:** Power System Modelling Laboratory, *ECE. (Graduate Level)*
- **ECE 723/724:** M. Eng. Capstone Design Study, *ECE. (Graduate Level)*
- **ECE 792:** Power Systems Earthing and Protection, *ECE. (Graduate Level)*
- **ECE 105:** Engineering Analysis and Modelling, *ECE. (Undergraduate Level)*

Undergraduate Courses (Taught):

- **ECE 401/402:** Final Year Design Project, *ECE.*
- **ECE 340:** Power Engineering (Spring 2011), *ECE.*
- **ECE 101:** Engineering Laboratory (Fall 2009), *ECE.*

B. The University of Manchester:

Undergraduate Courses:

- **MSEC30052/Level 3:** *Sustainable Development for Engineers and Scientists* (PBL – Supported by Royal Academy of Engineering, UK) Manchester Science Enterprise Centre, Faculty of Engineering and Physical Sciences, Semester 2 in 2007& 2008.

Tutoring:

- **Undergraduate Tutor:** Tutoring for students covering material from undergraduate modules in the areas of Power Engineering, Control Systems and Engineering Mathematics, UMIST Tutoring Scheme, 2002-2005.
- **Disability Tutor:** One-to-one tutoring with an undergraduate diagnosed with specific Learning Disability (dyslexia, dyspraxia), UMIST Tutoring Scheme, 2002-2005.

C. Invited External Teaching:

- **Invited Lecturer:** *“Lightning Protection for Photovoltaic Applications”* 8hours Series of Lectures, Cyprus Productivity Centre, Nicosia, Cyprus, April 2013.

PROFESSIONAL SERVICE:

A. Reviewer:

- **IEEE Transactions on Power Delivery:** (Ferroresonance, Stray Current Control)
- **IEEE Transactions on Vehicular Technology :** (Stray Current Control and Corrosion)
- **IET – Generation Transmission & Distribution:** (Ferroresonance, Transformer Modelling)
- **ELSEVIER - Journal of Natural Gas Science and Engineering:** (Cathodic Protection)
- **IEEE Transactions on Industry Applications:** (Earthing/ Corrosion/Transformer Losses)
- **ELSEVIER - Electric Power System Research :** (Traction Systems, HVDC, Lightning)

B. Thesis Examination:

External Theses Examiner:

- **Feng Xu**, “*Dynamic Thermal Rating Monitoring and Analysis for Overhead Lines*”, MPhil, The University of Manchester UK, February 2014. Advisor: K. Kopsidas.
- **Zaipatimah Ali**, “*Development of a Numerical Algorithm for Ferroresonance Monitoring*”, PhD, The University of Manchester UK, July 2014. Advisor: V. Terzija.

Internal PhD Theses Examiner:

- **Zenonas Achillides**, “*Partial Discharge Modelling and Associated Transients along Medium Voltage Distribution Cables*”, PhD Final Report, University of Cyprus, February 2013. Advisors: E. Kyriakides and G.E. Georgiou.
- **Minas Patsalides**, “*PV System Models for Assessing the Power Quality Behaviour of Distribution Grids in the Presence of High PV Penetration Levels*”, PhD Final Report, University of Cyprus, May 2015. Advisor: G.E. Georgiou.
- **Markos Asprou**, “*Real Time Monitoring of Power Systems through a Hybrid State Estimator Using Synchronised Measurements*”, PhD Final Report, University of Cyprus, May 2015. Advisor: E. Kyriakides.

Internal MSc Theses Examiner:

- Served as an Internal Examiner in 16 M.Sc. Theses Examinations, ECE, University of Cyprus.

C. Workshops/Events Organisation

- **TECHNOPLEYSI:** Organiser of the 5th Annual Robotics Competition for High School Students, April 2011, Cyprus. (Funding Received from Green DOT Cyprus: €3000).
- **Power System Dynamics and Wind Power Using DigSILENT Power Factory:** Workshop Organiser for Graduate Students and Utilities, Presenter: Francisco Gonzalez-Longatt, May24-25, 2011, Nicosia, Cyprus.

- **Earthing and Lightning Protection Design, Evaluation and Installation:** Workshop Organiser for Electricity Authority of Cyprus' Engineers and Technical Staff: Presenters: C. A Charalambous and A. Demetriou, December 9, 2014, EAC Head office, Nicosia, Cyprus.

D. Invited Expert Opinion

- **By Committee on Trade and Industry, House of Parliament, Cyprus:** “*Understanding the Implications of a Wide-Scale Net Metering Policy in Cyprus Electricity Market and System*”, July 2013.
- **By Nicosia Chamber of Industry and Commerce (NCIC):** “*Understanding and Evaluating of Industrial and Commercial Electricity Tariffs and Prices*”, May 2012.
- **By Cyprus Energy Regulatory Authority (C.E.R.A):** “*Promotion of Renewable Energy Sources in Cyprus – PV early deployment study*”, September 2011.

E. University Administrative Service

- **Hiring Committee: PV Park Project Management Vacancy, UCY:** President, September 2013.
- **Health and Safety Committee, Senate, UCY:** Member, since September 2012.
- **Undergraduate Studies Committee, ECE Department, UCY:** Member, since September 2010
- **Outreach Activities Committee, ECE Department, UCY:** Member, since September 2012.
- **Erasmus Coordinator, ECE Department, UCY:** Since September 2014

F. National Educational Council

- **Cyprus Council for the Recognition of Higher Education Qualifications (KYSATS):** Service on a National Committee for evaluating courses and diplomas in Engineering, since January 2013.

G. Engineering and Technical Chamber of Cyprus (ETEK)

- **Member of the Scientific Committee, Energy Policy, 2014-2017.**
- **Member of the Scientific Committee, Research and Innovation, 2014-2017.**

H. Conference Scientific Committees

- **Member of the Scientific Committee, in Conference Power Options in Eastern Mediterranean POEM 2012, November 2012.**
- **Member of the Scientific Committee, in Conference Power Options in Eastern Mediterranean POEM 2013, October 2013.**
- **Member of the Scientific Committee, 2nd Hellenic IEEE Student Branches Congress (HSBC2013), Nicosia, Cyprus, 1-3 Nov. 2013.**

I. Expert Member in International Standardisation Committees

- **Member as an Expert, International Standardisation Committee IEC TC/81 Lightning Protection for Structures, Buildings, Persons, Installations. WG11, June 2015.**

- **Invitation to participate in IEEE working Group in Stray Current Corrosion/Mitigation in DC Rail Transit Systems**, IEEE Vehicular Technology Society/Rail Transportation Standards Committee (VT/RTSC).

INVITED INDUSTRIAL TALKS & SEMINARS:

- **EA Technology:** “Ferroresonance – A perspective from Academia” Apr. 8, 2008, Caperhurst, Chester, UK.
- **National Grid UK:** ‘Investigation of “*” to “*” Main Protection Mal-operation due to Phase-to-earth fault on “*” 275 kV Gas Insulated Busbar”, Jun. 30, 2008, Warwick, UK. (* *Substation names omitted for confidentiality issues*)
- **CIGRE UK Transformer Liaison Meeting A1:** “The susceptibility of Power Transformers towards Ferroresonance”, Dec. 3, 2008, Manchester, UK.
- **Electricity Authority of Cyprus:** “Life-cycle Cost Evaluation of Losses in Transmission Lines” Nicosia, Cyprus, Sep. 17, 2010.
- **ELEMKO SA and AEFEK Greece:** “Stray Current Design Options for Thessaloniki’s DC Metro System”, Thessaloniki, Greece, Nov. 19, 2010.
- **Cyprus Productivity Centre:** “Lightning Protection of Large Scale Photovoltaic Systems”, Nicosia, Cyprus, Jan. 9, 2013.
- **Electricity Authority of Cyprus:** “Design, Evaluation and Installation of Lightning Protection Systems for Roof-top and Large Scale Field Photovoltaic Systems”, Dec. 12, 2014.
- **Nicosia Development Agency:** “Critical Evaluation of Net-Metering Practice in Cyprus”, Oct. 14, 2015.

PROFESSIONAL MEMBERSHIPS:

- Member of the Institute of Engineering and Technology, UK – MIET, 2002.
- Member of the Engineering Technical Chamber of Cyprus (ETEK), 2002.
- Member of the Institute of Electrical and Electronic Engineers, USA – MIEEE, 2011.

LIST OF PUBLICATIONS:

[Names of co-authors (students and RAs) that have worked under my supervision indicated in *italic type*]

Authored Books:

1. **Charalambous, C A**; Cotton, I, "Stray current control and corrosion limitation for DC mass transit systems", Publisher: The University of Manchester Press.
(<https://www.escholar.manchester.ac.uk/uk-ac-man-scw:141928>), Release date: 2011.)
2. *A. Demetriou* and **C.A. Charalambous**, "Technical Guide for Lightning and Surge Protection in small Photovoltaic installations on roofs of domestic structures" Publisher: Electricity Authority of Cyprus, ISBN Pending, March 2015 (in Greek).
3. *A. Demetriou* and **C.A. Charalambous**, "Technical Guide for Lightning and Surge Protection in large-scale field Photovoltaic installations" Publisher: Electricity Authority of Cyprus, ISBN Pending, March 2015 (in Greek).

Book Chapters:

1. F. Gonzalez-Longatt, J.M. Roldan, J.L. Rueda, **Charalambos A. Charalambous**, and B. S. Rajpurohit, "Implementation of Simplified Models of Local Controller for Multi-terminal HVDC Systems in DigSILENT Power Factory", in "*Power Factory Applications for Power System Analysis*", Publisher: Springer, 2014, pp: 447-472.
2. F. Gonzalez-Longatt, J.L. Rueda, **Charalambos A. Charalambous**, and P. De Oliveira, " Estimation of Equivalent Model for Clusters of Induction Generators based on PMU Measurements" in "*Power Factory Applications for Power System Analysis*", Publisher: Springer, 2014, pp: 473-489.
3. *A. Nikolaidis*, F. Gonzalez-Longatt and **Charalambos A. Charalambous**, "Indices to Assess the Integration of Renewable Energy Resources on Standard Test Networks through DigSILENT's Programming Language (DPL)" in "*Power Factory Applications for Power System Analysis*", Publisher: Springer, 2014, pp: 135-156.

Peer Reviewed Journal Papers:

1. *K. Metallinos*, T.A. Papadopoulos and **C.A. Charalambous**, "Derivation and Evaluation of Generic Measurement-Based Dynamic Load Models", Electric Power System Research (EPSR) Journal, Accepted June 2016 (EPSR-4742).
2. *A. Demetriou*, D. Buxton and **C.A. Charalambous**, "Stray Current Corrosion Blind Spots Inherent to PV Systems Fault Detection Mechanisms: Elaboration of a Novel Concept, IEEE Transactions on Power Delivery, Accepted March 2016, 10.1109/TPWRD.2016.2538789.
3. *A. Nikolaidis*, I. Koumparou, G. Makrides, V. Efthymiou, G.E. Georghiou and **C. A. Charalambous**, "Reliable integration of a concentrating solar power plant in a small isolated system through an

appropriately-sized battery energy storage system" IET Renewable Power Generation. (Manuscript ID: RPG-2015-0337 Accepted November 2015).

4. **C.A. Charalambous** Aylott, P. and D. Buxton, "Practical Contemplation of Stray Current Calculation and Monitoring in DC Mass Transit Systems", IEEE Vehicular Technology Magazine, (Accepted June 2015).
5. **C.A Charalambous**, N. Kokkinos and *A. Demetriou*, "Impact of Photovoltaic Oriented DC Stray Current Corrosion on Large Scale Solar Farms' Grounding and Third-Party Infrastructure: Modelling and Assessment," IEEE Transactions on Industry Applications, vol. PP, no.99, pp.1-1, doi: 10.1109/TIA.2015.2416241 (Special issue on grounding systems – invited paper).
6. *A. Nikolaidis*, A. Milidonis and **C. A. Charalambous**, "Impact of Fuel-Dependent Electricity Retail Charges on the Savings Value of Net-Metered PV Applications in Vertically Integrated Systems". Energy Policy - Elsevier, Volume 79, Issue C, pages 150-160, 2015.
7. *A. Lazari* and **C. A. Charalambous**, "Life-Cycle Loss Evaluations of Power Transformers Serving Large Photovoltaic Plants in Vertically Integrated and Decentralised Systems". IET Generation Transmission and Distribution (formerly IEE Proceedings), vol.9, no.8, pp.759-766, 5 21 2015
8. *A. Lazari* and **C. A. Charalambous**, "Probabilistic Total Ownership Cost of Power Transformers Serving Large-Scale Wind Plants in Liberalized Electricity Markets", IEEE Transactions on Power Delivery, vol.30, no.4, pp.1923-1930, Aug. 2015.
9. **C.A. Charalambous** and Aylott, P., "Dynamic Stray Current Evaluations on Cut-and-Cover Sections of DC Metro Systems", Vehicular Technology, IEEE Transactions on, vol.63, no.8, pp.3530, 3538, Oct. 2014.
10. **C. A. Charalambous**, Z.D. Wang, P. Jarman and J.P Sturgess; 'A Time Domain Finite Element Technique for Quantifying the Effect of Sustained Ferroresonance on Power Transformer Core Bolts', Electric Power Applications, IET (formerly IEE Proceedings), Volume 8, Issue 6, July 2014, p. 221 – 231.
11. **C. A. Charalambous**, N. Kokkinos, N. Christofides, "External Lightning Protection and Grounding in Large Scale Photovoltaic Applications", Electromagnetic Compatibility, IEEE Transactions on, vol.56, no.2, pp.427,434, April 2014.
12. **Charalambous, C.A.**; Milidonis, A.; *Lazari, A.*; *Nikolaidis, A.I.*, "Loss Evaluation and Total Ownership Cost of Power Transformers—Part I: A Comprehensive Method," Power Delivery, IEEE Transactions on, vol.28, no.3, pp.1870 - 1880, July 2013.
13. **Charalambous, C.A.**; Milidonis, A.; *Hirodontis, S.*; *Lazari, A.*, "Loss Evaluation and Total Ownership Cost of Power Transformers—Part II: Application of Method and Numerical Results," Power Delivery, IEEE Transactions on, vol.28, no.3, pp.1881 - 1889, July 2013.

14. **Charalambous, C.A.**; Cotton, I.; Aylott, P., "Modeling for Preliminary Stray Current Design Assessments: The Effect of Cross Track Regeneration Supply," *Power Delivery, IEEE Transactions on*, vol.28, no.3, pp.1899, 1908, July 2013.
15. *A. Lazari* and **C. A. Charalambous**, "Integrating Greenhouse Gas Emissions Costs in Lifecycle Loss Evaluations: A Case Study for Transmission Lines," *Journal of Conference Papers in Energy*, vol. 2013, Article ID 682130, 6 pages, 2013. doi:10.1155/2013/682130, July 2013. (Best Paper in POEM 2013 – Published in Journal)
16. *A. Nikolaidis*, F.G. Longatt and **C.A. Charalambous**, "Indices to Assess the Integration of Renewable Energy Resources on Transmission Systems," *Journal of Conference Papers in Energy*, vol. 2013, Article ID 324562, 8 pages, 2013. doi:10.1155/2013/324562, July 2013. . (Best Paper in POEM 2013 – Published in Journal)
17. **Charalambous, C.A.**; Cotton, I.; Aylott, P.; Kokkinos, N.D., "A Holistic Stray Current Assessment of Bored Tunnel Sections of DC Transit Systems," *Power Delivery, IEEE Transactions on* , vol.28, no.2, pp.1048,1056, April 2013.
18. **C. A. Charalambous**, Z.D. Wang, P. Jarman and J.P Sturgess; "Facilitating an Electromagnetic Finite Element Analysis of a Power Transformer Experiencing Ferroresonance, in Frequency Domain", *Generation, Transmission & Distribution, IET (formerly IEE Proceedings)*, Volume: 5 Issue: 6, page(s): 640 – 649, June 2011.
19. **C. A. Charalambous**, Z.D. Wang, Paul Jarman, Mark Osborne, "2-D Electromagnetic Finite Element Analysis of an Autotransformer Experiencing Ferroresonance" *Power Delivery, IEEE Transactions on*, Volume: 24, Issue: 3, Page(s): 1275 – 1283, July 2009.
20. **C. A. Charalambous**, I. Cotton, P. Aylott, "A simulation tool to predict the impact of soil topologies on coupling between a light rail system and buried third party infrastructure" , *Vehicular Technology, IEEE Transactions on*, Vol. 57, No. 3, pages: 1404-1416, May 2008.
21. **C. A. Charalambous**, Z.D. Wang, Mark Osborne, Paul Jarman, "Sensitivity Studies on a Power Transformer Model for Ferroresonance on a 400 kV Circuit", *IET Generation Transmission and Distribution Systems (formerly IEE Proceedings)*, Volume 2, Issue 2, pages: 159-166, March 2008.
22. **C. Charalambous**, I. Cotton, "Influence of soil structures on corrosion performance of floating DC Transit Systems", *IET Electric Power Applications (formerly IEE Proceedings)*, Vol. 1, Issue 1, pages: 9-16, January 2007.
23. I. Cotton, **C. Charalambous**, P. Ernst, P. Aylott, "Stray Current Control in DC Mass Transit Systems", *IEEE Transactions on Vehicular Technology*, Vol. 54, No. 2, pages: 722 – 730, March 2005.

Refereed International Conference Papers:

1. **C. Charalambous**, I Cotton, "Impact of Earthing Topologies on Stray Current Performance of a DC Mass Transit System", Proceedings of the 14th International Symposium on High Voltage Engineering (ISH 2005), 25-29 Aug. Beijing-China, paper number: B-19.
2. D. Kokkinos, N. Kokkinos, J. Koutsoubis, M. Klabana, Ath. Triantafillides, ELEMKO SA, **Ch. Charalambous**, University of Manchester, "Effect of Direct Lightning Strike in the Down Conductors Embedded into the Reinforcement", Proceedings of the International Conference on Lightning Protection (ICLP 2006) ,18-22 Sep. Kanazawa – Japan, paper number: IX-9.
3. D. Kokkinos, G. Valirakis, N. Kokkinos, ELEMKO SA, **Ch. Charalambous**, I. Cotton, University of Manchester, "Lightning Protection of Cable Bridges", Proceedings of the International Conference on Lightning Protection (ICLP 2006) , 18-22 Sep. Kanazawa – Japan, paper number: IX-20.
4. **C. Charalambous**, I Cotton, University of Manchester, Pete Aylott CAPCIS "The influence of soil characteristics on coupling between DC Traction systems and Buried Utilities", Proceedings of the N.A.C.E International Corrosion Conference 2007- **Symposium** on Interference Issues, 11-15 March Nashville, Tennessee, USA, paper number 07645.
5. M. Osborne, P. Jarman, National Grid UK, **C. Charalambous**, Z.D. Wang, the University of Manchester UK, "The impact of Ferroresonance and low frequency phenomena on Power Transformers and Transmission systems", CIGRE Symposium – Transient Phenomena in Large Electric Power systems, Topic 1: Insulation coordination aspects, April 18-21, 2007, Zagreb, Croatia, paper number: 0704.
6. **C. Charalambous**, Z.D Wang, The University of Manchester UK, **M. Osborne**, P. Jarman, National Grid UK, " Validation of a Power Transformer Model For Ferroresonance with system tests on a 400kV circuit", The 7th International Conference on Power Systems Transients (IPST 2007), Lyon-France 4-7 June 2007 , paper number: 50.
7. Jie Li, **C. Charalambous**, Z.D. Wang, "Interpretation of FRA Results Using Low Frequency Transformer Modelling", Proceedings of the 15th International Symposium on High Voltage Engineering - ISH, Ljubljana Slovenia 24- 29 Aug. 2007, paper number: T7-456.
8. N. Kokkinos, D. Kokkinos, J. Koutsoubis, I. Cotton, **C. Charalambous**: "Effect of direct lightning strike on the LPS of a structure with respect to the induced voltage and current inside the structure – Experimental study", Proceedings of the 29th International Conference on Lightning Protection, Uppsala, Sweden, 2008, paper number: 3A-05.
9. N. Kioupis, N. Kokkinos, J. Koutsoubis, I. Cotton, **C. Charalambous**, "Analysis of induced overvoltages in a natural gas transmission pipeline due to nearby lightning strike", Proceedings of the 29th International Conference on Lightning Protection, Uppsala, Sweden, 2008, paper number: 3A-11.

10. **C.A. Charalambous**, Zhongdong Wang, P. Jarman M. Osborne, " Core Structure and its Association with Transformer Susceptibility towards Ferroresonance", International Conference of Power System Transient, IPST 2009, at Doshisha University, Kyoto, Japan, 2-6 June 2009, paper ID number: 80.
11. P. Aylott, I. Cotton, **C.A. Charalambous**, "Impact and Management of Stray Current on DC Rail Systems", The 4th Institution of Engineering and Technology Course on: Railway Electrification Infrastructure and Systems (REIS), 1-5 June 2009, Royal Institute for British Architects, London, UK.
12. **C. A. Charalambous**, R. Zhang, Z. D. Wang "Simulating Thermal Conditions around Core Bolts when Transformer Experiencing Ferroresonance" , International Conference of Power System Transient, IPST 2011, at Delft , The Netherlands June 2011, paper ID number: 211.
13. Aylott, P.; Cotton, I.; **Charalambous, C.A.**, "Impact and management of stray current on DC rail systems," Railway Electrification Infrastructure and Systems (REIS 2011), 5th IET Professional Development Course on , vol., no., pp.273,280, 6-9 June 2011
14. *C. Kallonas, G. Frangou, C. A Charalambous*, N. D. Kokkinos, "Lightning Protection Requirements for Large - Extended Photovoltaic Installations", 3rd International Conference on Renewable Energy Sources and Energy Efficiency, May 2011, Nicosia, Cyprus, Paper ID: 130.
15. F. Gonzalez-Longatt, J. Roldan, **C. A. Charalambous** "Power Flow Solution on Multi-Terminal HVDC Systems: SuperGrid Case" International Conference on Renewable Energies and Power Quality (ICREPQ'12) Santiago de Compostela (Spain), 28th to 30th March, 2012, paper number 799.
16. F. González-Longatt, Senior *Member, IEEE*, *J.M. Roldan, Member, IEEE*, **C.A. Charalambous**, *Member, IEEE*, "Evaluation of Power Flow Variability in the Paraguayaná Transmission System due to Integration First Venezuelan Wind Farm," , IEEE PES General Meeting 2012.
17. N. Kokkinos, N. Christophides, **C. A Charalambous**, "Lightning Protection Practice for Large-Extended Photovoltaic Installations", 2012 International Conference on Lightning Protection (ICLP), Vienna, Austria, 2-7th September 2012.
18. F. González-Longatt, Senior *Member, IEEE*, *J.M. Roldan, Member, IEEE*, **C.A. Charalambous**, *Member, IEEE*, "Solution of AC/DC Power Flow on a Multi- Terminal HVDC System: Illustrative Case Supergrid Phase I", 47th International Universities' Power Engineering Conference (UPEC 2012), London, UK.
19. Aylott, P.; Cotton, I.; **Charalambous, C.A.**, "Impact and management of stray current on DC rail systems," Railway Electrification Infrastructure and Systems (REIS 2013), 5th IET Professional Development Course on , vol., no., pp.,280, 3-6 June 2013.
20. *A. Lazari*, **C. A. Charalambous**, "A Software Tool to Evaluate the Total Ownership Cost of Distribution Transformers", Power Options for the Eastern Mediterranean Region Conference (POEM 2013), 7-8 October 2013, Nicosia, Cyprus.

21. *A. Nikolaidis, C. A. Charalambous*, "Action Steps for Refining the Cyprus National Action Plan on RES Penetration for Electricity Generation- *should we reconsider?*", Power Options for the Eastern Mediterranean Region Conference (POEM 2013), 7-8, October 2013, Nicosia, Cyprus.
22. *A. Lazari and C. A. Charalambous*, "Integrating Fossil Fuel Mix and Pricing in Evaluating the Total Ownership Cost of Distribution Transformers of Vertically Integrated Utilities", IEEE EnergyCON 2014, Dubrovnik, Croatia, 13-16 May 2014.
23. **C. A Charalambous**, N. Kokkinos, N. Christophides "A Simulation Tool to Assess the Lightning Induced Over-Voltages on dc Cables of Photovoltaic Installations", 2014 International Conference on Lightning Protection (ICLP), Shanghai-China, 13-17 October 2014.
24. *A. Lazari and C. A. Charalambous*, "Contemplation of Transformer Loss Evaluation Methods in Vertically Integrated and Decentralized Energy Systems", IEEE PowerTech, Conference, Eindhoven 2015.
25. Buxton, D.; Cotton, I.; **Charalambous, C.A.**, "Stray Current and Civil Infrastructure Protection," The 7th IET Professional Development Course on Railway Electrification Infrastructure and Systems (REIS) Monday 8 – Thursday 11 June 2015 | Royal College of Physicians, London, UK.
26. *A. Nikolaidis, C. A. Charalambous*, "Critical Evaluation of Net-Metring Policy in Cyprus", IEEE EnergyCON 2016, Leuven, Belgium, 4-8 May 2016.
27. *M. Panteli, A.I. Nikolaidis, C.A. Charalambous, Y. Zhou, F.R. Wood, S. Glynn, P. Mancarella*, "Analyzing the Resilience and Flexibility of Power Systems to Future Demand and Supply Scenarios", 18th Mediterranean Electrotechnical Conference – IEEE MELECON April, 2016.
28. *A. Demetriou, N. Kokkinos and C.A. Charalambous* "Integrating the Loss of Economic Value in Lightning-Related Risk Assessments of Large Scale Photovoltaic Systems Participating in Regulated and Competitive Energy Markets", ICLP 2016, Estoril Portugal, Oct. 2016.

Major Technical/Consulting Reports:

1. **C.A Charalambous**, Zhongdong Wang and Peter Crossley: "*Investigation of 'Main Protection Mal-operation due to Phase-to-earth fault on '275 kV Gas Insulated Busbar'*". Technical Report Submitted to National Grid, UK, April 2008.
2. Zhongdong Wang, **C.A Charalambous** and Keith Cornick "*Transformer De-energisation study for Substation Commissioning*", Technical Report Submitted to United Utilities, UK, June 2008.
3. **C. A Charalambous**, "Updated Power/Distribution Transformers Loss Evaluation Factors For Use in Tender Evaluation", Submitted to Electricity Authority of Cyprus, October 2012.
4. **C. A. Charalambous** "*Stray Current Control Assessment for Thessaloniki DC Metro System*", Technical Report evaluated by ATTIKO METRO, April 2013.
5. *A. Lazari and C.A Charalambous* "*Loss Evaluation of Power Transformer Serving Large Scale Photovoltaic Plants*", Interim Report submitted to Electricity Authority of Cyprus, August 2013.

6. *A. Lazari and C.A Charalambous "Loss Evaluation of Power Transformer Serving Large Scale Wind Plants"*, Final Report submitted to Electricity Authority of Cyprus, November 2014.
7. *A. Dimitriou and C.A Charalambous "Technical Guide on the Design, Evaluation and Installation of Lightning Protection Systems of roof-top and large scale field Photovoltaic Systems"*, Final Report submitted to Electricity Authority of Cyprus, December 2014.
8. *A. Nikolaidis, C.A Charalambous et al "Reliable Integration of Helios Power Plant in the Cyprus Power System"*, Final Consulting Report submitted for Helios Project, Funded by Green+ NER 300 (EC, EIB, CY), December 2014.
9. **C. A. Charalambous** *"Modelling to allow comparison of the steel and concrete sleeper performance for the tram train project between Sheffield and Rotherham"*, Technical Report Submitted to Intertek and UK Network Rail, May 2015.
10. *A. Nikolaidis and C.A Charalambous*, Analysis of Future Aggregate Demand, Technical Report submitted to JRC, European Commission, January 2016.
11. *A. Nikolaidis, M. Panteli and C.A Charalambous*, Identification and Modelling of Reference LV feeders in Cyprus' Distribution Network, Technical Report submitted to JRC, European Commission, January 2016.
12. *A. Nikolaidis and C.A Charalambous*, Identifying the Hidden Costs of Net Metering Practice in Cyprus', Technical Report submitted to Cyprus Energy Regulatory Authority and Distribution System Operator Cyprus, March 2016.
13. **C.A Charalambous** and N. Kokkinos, AC Interference and Mitigation Study for Trans-Adriatic Pipeline (TAP) – Kavalla to Albania Section, October 2016.
14. **C. A. Charalambous** *"Dynamic Modelling for Diode-Bonded DC Traction Systems- Validation of Manchester's City Centre Single Tram Test"*, Technical Report Submitted to Intertek UK, October 2016.

Technology Products:

1. **“StrayCALC”**: www.capcis.com/technologyproducts/straycalc.html - *(Marketed by Intertek, UK)*
The product of a three year PhD project (**C.A Charalambous**) sponsored by Intertek CAPCIS, UK. StrayCalc is a mix of software and methods to model the stray current interactions of dc rail systems under dynamic operation. Applied in conjunction with static models for geometrically correct representations of stations, tunnels, depots and associated infrastructure. StrayCalc provides the opportunity for: (a) Impact assessment on railway and third party assets, (b) design analysis for stray current collection system, (c) design verification, (d) audit and verification of third party design, (e) realistic target setting for construction validation programmes.