

# Charalambos A. Charalambous

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## **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](http://www.capcis.com/technologyproducts/straycalc.html)
- **B.Eng (Honours) in Electrical and Electronic Engineering.** UMIST, UK, June 2002.
  - *Grade:* First Class Honours.

## **EMPLOYMENT:**

<b>Associate Professor (Tenured):</b> Department of Electrical and Computer Engineering, University of Cyprus	Jan. 2016 – present
<b>Assistant Professor (Tenure Track Position):</b> Department of Electrical and Computer Engineering, University of Cyprus	Jun. 2010 – Dec. 2015
<b>Visiting Assistant Professor:</b> Department of Electrical and Computer Engineering, University of Cyprus	Sept. 2009 – Jun. 2010
<b>Senior Research Associate:</b> School of Electrical and Electronics Engineering, The University of Manchester, UK	Nov. 2006 – Aug. 2009
<b>Research Assistant/Associate:</b> School of Electrical and Electronics Engineering, The University of Manchester, UK	Sept. 2005 – Oct. 2006
<b>Teaching Assistant:</b> 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 – PV 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: ~ € 336,000**

### **A. University of Cyprus**

1. **Project Title:** Impact of Lightning Activity on Natural Gas Pipelines
  - Funding Agency: ELEMKO and Hellenic Gas Transmission System Operator (Oct. 2017 – Oct 2019)
  - Principal Investigator: C. A. Charalambous.**
2. **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)
  - Principal Investigator: C. A. Charalambous.**
3. **Project Title: Developing a Graphical User Interface for Designing External Lightning Systems in Buildings**
  - Funding Agency: ELEMKO, SA, Greece (April 2016-June 2016)
  - Principal Investigator: C. A. Charalambous.**
4. **Project Title: Stray Current Modelling for Photovoltaic Systems**
  - Funding Agency: Intertek UK (Nov. 2015-Nov. 2016)
  - Principal Investigator: C. A. Charalambous.**
5. **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)
  - Principal Investigators: C. A. Charalambous and G.E. Georghiou.**
6. **Project Title: Smartphone Application for Estimating Grounding Electrodes Dimensions and Resistance**
  - Funding Agency: ELEMKO, SA, Greece (April 2015-June 2015)
  - Principal Investigator: C. A. Charalambous.**
7. **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.
  - Principal Investigator: C. A. Charalambous.**

8. **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.  
**Principal Investigator: C. A. Charalambous.**
  
9. **Project Title: Reviewing and Optimising PV Earthing Policy and Practice (EARTHOPT)**
  - Funding Agency: Electricity Authority of Cyprus, Nov. 2013-May 2014.  
**Principal Investigator: C. A. Charalambous.**
  
10. **Project Title: Dynamic Stray Current and Interference Assessments**
  - Funding Agency: ELEMKO SA GR, Nov. 2013-Nov.2014  
**Principal Investigator: C. A. Charalambous.**
  
11. **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  
**Principal Investigator: C. A. Charalambous.**
  
12. **Project Title: Establishing Power Systems Modelling Laboratory**
  - Start Up Funding (Non-competitive), Jan 2010-Jan 2012  
**Principal Investigator: C. A. Charalambous.**

## **B. The University of Manchester**

13. **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.**
  
14. **Super Grid Power Transformer Ferroresonance and Degradation Mechanisms**
  - Funding Agency: National Grid, UK, Jan 2006 – Jan 2008, £240,000 (GBP), Principal Investigator: Z.D Wang, **Research Associate: C. A Charalambous.**
  
15. **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:**

1. **For Electricity Authority of Cyprus, September 2017**  
*“AC electromagnetic interference on a Water Pipeline aligned with 11kV Underground Cables (Sole Investigator: C. A. Charalambous)*
  - Modelling for estimating the AC interference impact under both steady state and fault conditions for 5km routing.
  
2. **For Intertek UK, May 2017**  
*“AC electromagnetic interference on a proposed subsea development with an armoured umbilical in the same trench with a Carbon Steel Pipeline” (Sole Investigator: C. A. Charalambous)*
  - Modelling for estimating the AC interference impact under both steady state and fault conditions for 11km routing.
  - AC corrosion assessment
  
3. **For Hellenic Gas Transmission System Operator (DESFA), March 2017**  
*“Mitigation Design for the effects of electromagnetic interference on DESFA natural gas pipeline by a 20, 8 MW Wind Park” (Sole Investigator: C. A. Charalambous)*
  - Modelling for estimating the AC interference impact under both steady state and fault conditions for 28km routing.
  - Proposal of an earthing wire oriented mitigation solution to ensure safety and mechanical integrity of DESFA pipeline
  - Technical Report with conclusions, design and implementation recommendations to DESFA.
  
4. **For C&M Engineering and ELEMKO for Trans-Adriatic Natural Gas Pipeline (TAP) Project, 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.
  
5. **For Intertek UK 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.

6. **Funded by Green+ NER 300 (EC, EIB, CY), Nicosia, Cyprus, October 2014**  
*"Helios Solar Power Plant Integration in Cyprus Power System"* (**Principal Investigators: C. A. Charalambous** and G.E. Georghiou).
  - Sizing Storage Requirements for Integrating Helios Solar Power Plant in Cyprus Power System and Energy Market (with *Alexandros Nikolaidis*).
  - Technical Report with Conclusions and Recommendations
  
7. **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.
  
8. **For Electricity Authority Cyprus, Nicosia, Cyprus, October 2012**  
*"Life-Cycle Loss Evaluation and Ownership Cost of Power and Distribution Transformers"* (**Sole Investigator: C. A. Charalambous**).
  - Calculation of Loss Evaluation Factors for Power & Distribution Transformers of E.A.C network.
  - Updating Specifications for Transformers' Tender Evaluations.
  
9. **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.
  
10. **For by 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.
  
11. **For Intertek CAPCIS Ltd, Manchester, UK, October 2004:**  
*"Risk assessment/analysis of the stray current corrosion resulting from the potential operation of 2<sup>nd</sup> 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. 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:***

#### **2. 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.

#### **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. Dr Stylianos Hirodantis (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.

### ***C. Graduated PhD Students:***

#### **1. Antonis Lazari - Spring 2011 – Fall 2016**

- **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

#### **2. Alexandros Nikolaidis - Fall 2012 – Fall 2017**

- **Academic Qualifications:** **MEng** in Electrical Engineering, Democritus University of Thrace (GR), 2010, **M.Sc.** in Sustainable Energy, University of Cyprus, 2012.
- **Thesis:** Hidden Implications of Net Energy Metering Practices: The cases of Prosumers and Storsumers
- Graduation Date: February 2018.

#### **D. Current PhD Students:**

##### **1. 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. Stylianos 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”.

### **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:**

1. **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:**

2. **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.
3. **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:**

4. **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)
- **IET – Electric Power Applications:** (Transformers)
- **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.
- **Alexandros Phinikarides**, *“PV Systems Degradation”*, PhD Final Report, University of Cyprus, January 2017. Advisor: G.E. Georgiou.

#### **Internal MSc Theses Examiner:**

- Served as an Internal Examiner in 17 M.Sc. Theses Examinations, ECE, University of Cyprus.

#### **C. Workshops/Events Organisation**

- **TECHNOPLEYSI**: Organiser of the 5<sup>th</sup> 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, May 24-25, 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**: Chairman, September 2017
- **Outreach Activities Committee, ECE Department, UCY**: Member, since September 2012.

- Erasmus Coordinator, ECE Department, UCY: September 2014 – September 2016

***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.
- **Member of the Scientific Committee,** 7<sup>th</sup> Conference on Metrology, 11-12 May 2018, Athens, Greece.

***I. Expert Member in International Standardisation Committees***

- **Member as an Expert,** International Standardisation Committee, ISO/TC 67/SC 2/WG 24 "DC stray current", Sept. 2017.
- **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).

***J. External Member in Academic Hiring Committees***

- **Regular Member** of the electoral committee for the position of Assistant Professor in High Voltage/Protection from Overvoltages, Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, March 2017.

**INVITED INDUSTRIAL TALKS & SEMINARS:**

1. **By EA Technology:** "Ferroresonance – A perspective from Academia" Apr. 8, 2008, Capenhurst, Chester, UK.

2. **By 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*)
3. **By CIGRE UK Transformer Liaison Meeting A1:** "The susceptibility of Power Transformers towards Ferroresonance", Dec. 3, 2008, Manchester, UK.
4. **By Electricity Authority of Cyprus:** "Life-cycle Cost Evaluation of Losses in Transmission Lines" Nicosia, Cyprus, Sep. 17, 2010, Electricity Authority of Cyprus Head Office.
5. **By ELEMKO SA and AEFEK Greece:** "Stray Current Design Options for Thessaloniki's DC Metro System", Nov. 19, 2010, Thessaloniki, Greece.
6. **By Cyprus Productivity Centre:** "Lightning Protection of Large Scale Photovoltaic Systems", Nicosia, Cyprus, Jan. 9, 2013, Productivity Centre, Cyprus.
7. **By Electricity Authority of Cyprus:** "Design, Evaluation and Installation of Lightning Protection Systems for Roof-top and Large Scale Field Photovoltaic Systems", Dec. 12, 2014, Electricity Authority of Cyprus Head Office.
8. **By Nicosia Development Agency:** "Critical Evaluation of Net-Metering Practice in Cyprus", Oct. 14, 2015, Nicosia Classic Hotel.
9. **By Intertek UK:** Dynamic Modelling for Diode-Bonded DC Traction Systems, Nov. 15, 2016, Technology Park, Head Office Manchester, UK.
10. **By Cyprus Energy Regulation Authority (CERA),** "Hidden Financial Implications of The Net Energy Metering Practice in Cyprus", October 14th, 2016, CERA Head Office, Nicosia.
11. **By Hellenic Gas Transmission System Operator (DESFA):** "AC and DC Interference Modelling – Overview of Power System Modelling (PSM) Research Projects", March 3, 2017, Elefsina Head Office, Greece.
12. **By Employers and Industrialists Federation (OEB), Cyprus:** Software Tools for Lightning Protection and Design Studies, June 13, 2017, OEB Head-Office, Cyprus.

## **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*]

### **Invited Papers:**

1. *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 Powertech Conference, Manchester, June 2017.

### **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 20015 (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. **C. A. Charalambous**, "Comprehensive Modelling to Allow Informed Calculation of DC Traction Systems' Stray Current Levels" *IEEE Transactions on Vehicular Technology*, Accepted Sep. 2017, DOI (identifier) 10.1109/TVT.2017.2748988.

2. *A.I. Nikolaidis* and **C.A Charalambous**, 'Hidden Cross-subsidies of Net Energy Metering Practice: Energy Distribution Losses Reallocation due to Prosumers' and Storsumers' Integration" *IET Generation Transmission & Distribution*, Accepted April 2017, GTD-2016-1473.R1.
3. *A.I. Nikolaidis* and **C.A Charalambous**, "Hidden Financial Implications of the Net Energy Metering Practice in an Isolated Power System: Critical Review and Policy Insights", *Renewable and Sustainable Energy Reviews*, Accepted April 2017, DOI:10.1016/j.rser.2017.04.032.
4. *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*, Volume 140, November 2016, Pages 193–200.
5. *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.
6. *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*. vol. 10, no. 5, pp. 735-742, 5 2016.
7. **C. A. Charalambous**, P. Aylott and D. Buxton, "Stray Current Calculation and Monitoring in DC Mass-Transit Systems: Interpreting Calculations for Real-Life Conditions and Determining Appropriate Safety Margins," in *IEEE Vehicular Technology Magazine*, vol. 11, no. 2, pp. 24-31, June 2016. doi: 10.1109/MVT.2015.2477419
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### **Technology Products:**

1. “**StrayCALC**”: [www.capcis.com/technologyproducts/straycalc.html](http://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.