

**CURRICULUM VITAE AND RESEARCH WORK**

**of**

**Soteris A. Kalogirou**

**November 2019**

## I. GENERAL INFORMATION

### I.1 PERSONAL:

*Name:* Soteris A. Kalogirou  
*Date of birth:* 11 November 1959  
*Place of birth:* Nicosia - Cyprus  
*Marital status:* Married, with two children  
*Nationality:* Greek Cypriot

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*Business address:* Cyprus University of Technology  
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*Home address:* 7 Athinas Str., Lacatamia 2310, Cyprus

### I.2 EDUCATION:

PRIMARY SCHOOL: **Strovolos Primary school** (1965-1971)

SECONDARY SCHOOL: **Nicosia Technical School** (1971-1977)

HIGHER: **Higher Technical Institute** (1979-1982) – [Mechanical Engineering]  
**The Polytechnic of Wales** (1989-1991) – [M.Phil. in Mechanical Engineering]  
**University of Glamorgan** (1991-1995) – [Ph.D. in Mechanical Engineering]  
**University of Glamorgan** (2011) – [Higher Doctorate – D.Sc.]

DIPLOMA / DEGREES: **Nicosia Technical School Leave Certificate**  
(Mechanical Engineering)  
**HTI Degree in Mechanical Engineering.**  
**Master of Philosophy** in Mechanical Engineering (**M.Phil.**).  
**Doctor of Philosophy** in Mechanical Engineering (**Ph.D.**)  
**Doctor of Science (D.Sc.)**

**I.3 LANGUAGES:** Greek and English

### I.4 MILITARY SERVICE:

During the 24 of the 26 months of my military service (1977-1979) I was responsible for the maintenance and repairs of two battalions' tracks and cars (about 40 vehicles).

### I.5 EMPLOYMENT:

Intersol Engineering Ltd  
\* Building Services Consultant

Jul 82 - Aug 87

Higher Technical Institute * Mechanical/Marine Instructor	Sep 87 - Dec 07
Cyprus University of Technology * Assistant Professor	Jan 08 – Jul 17
Cyprus University of Technology * Professor	Aug 17 – today

## I.6 INTERNATIONAL RECOGNITION:

### *Distinctions*

- **Recipient of the World Renewable Energy Network Award** for my research work and for the pioneering work on applying artificial intelligence methods for the modeling and performance prediction of energy and solar energy systems (2006).
- **Recipient of the WREN Pioneer Award** for more than twenty years of active involvement in research in the field of renewable energy (2008).
- **Recipient of the PROSE Award** for the book *Comprehensive Renewable Energy* (2013).
- **Nominator** for the **Global Energy Prize Award** (2014).
- **Fellow of European Academy of Sciences** (2019).
- **Founding Member of the Cyprus Academy of Sciences, Letters, and Arts**, (2019).

### *Reviews*

- **Editor-in-Chief** in one journal, **Deputy Editor-in-Chief** in one journal, **Associate Editor** in one journal and **Member of Editorial Board** of fifteen journals (see section IV.2 for details).
- **Reviewer of papers** in sixty-six scientific journals (see section IV for details).
- **Reviewer of WIRE** – Worldwide Information System for Renewable Energy (1999-2204).
- **Reviewer of chapters** for the **Encyclopedia of life support systems (EOLSS)** published by UNESCO.

### *Memberships*

- Member of World Renewable Energy Network (1997-today).
- **Representative of Cyprus in World Renewable Energy Network (WREN)**. Currently 83 countries are represented in WREN.
- **Member of Task 33 of International Energy Agency (IEA)**. This is an International research group which studies the industrial process heat (IPH) applications.
- **Member of Task 35 of International Energy Agency (IEA)**. This is an International research group which studies the hybrid photovoltaic/thermal (PV/T) collectors and systems.
- **Member of the Committee for the Energy Performance of Buildings** operated under the Institute of Energy of the Ministry of Commerce, Industry and Tourism.
- **External Research Associate** of the Cyprus Organisation for Standardisation.
- **Member of the Board of Directors** of the **World Society of Sustainable Energy Technologies (WSSET)**.
- **Chairman** of the National Technical Committee CYS TE 13 “Solar Thermal Systems”.
- **Member** of the **European Academies Science Advisory Council (EASAC) Working Group** on Decarbonising of Buildings.

### *Evaluations*

- **Expert for Evaluation and Assessment of Projects and Proposals** of the Fifth Framework (FP5) RTD Programmes.
- **Monitoring Expert of the Research and Technological Development (RTD)** of the Fifth Framework (FP5) Programmes.

- **Expert for Evaluation and Assessment of Projects and Proposals** of the sixth Framework (FP6) RTD Programmes.
- **Monitoring Expert of the Research and Technological Development (RTD)** of the sixth Framework (FP6) Programmes.
- **Extended Panel Expert** for the final selection of research projects submitted to the Community (FP6) with a total budget of 275 million Euros.
- **Evaluator of research proposals** submitted at **The Third World Academy of Sciences (TWAS)**.
- **Evaluator of research proposals** submitted in **UK-India Education and Research Initiative (UKIERI) collaborative Research Awards**.
- **Evaluator of Research Programs** for the *National Priorities Research Program (NPRP)* of the State of Qatar.
- **Evaluator of Eurostars Proposals** of **Eureka Program (FP7)**.
- **Evaluator of Research Proposals** for City University of Hong Kong.
- **Evaluator of Research Proposals** for General Secretariat for Research and Technology, Greece.
- **Evaluator of Research Proposals** for the National Sciences and Engineering Research Council (NSERC) of Canada.
- **Evaluator of Research Proposals** for the Slovenian Research Agency, Slovenia, (2012).
- **Evaluator** in *Academic Reputation Survey* for the **World University Rankings**, Thomson Reuters (2012, 2013).
- **Evaluator of ERC Proposals** (2017).
- **Member of International Advisory Panel**, Centre of Advanced Sustainable Energy (CASE), N. Ireland (2019).

#### **I.7 PROFESSIONAL QUALIFICATIONS:**

- Member of the Scientific Technical Chamber of Cyprus (ETEK). Member No. A133041
- European Federation of National Engineering Associations (FEANI) – European Engineer [Eur Ing].
- Engineering Council, UK - Chartered Engineer [CEng].
- Member of the Institute of Refrigeration [MIoR].
- Member ASHRAE (American Society of Heating Refrigeration and Air Conditioning Eng.).
- Member ISES (International Solar Energy Society).

## II. PUBLICATIONS

### Summary numbers:

A. Book contributions, thesis and research reports:.....	53
B. Papers appearing in scientific journals:.....	181
C. Papers published in refereed conference proceedings:.....	205

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**Total papers: 439**

**Total citations (scopus): >14800**

**h-index: 61**

### Summary Table of Publications and Citations

Year	Journals	Conferences	Total
1992	1 (0)	2 (0)	3 (0)
1993	-	2 (0)	2 (0)
1994	3 (0)	2 (0)	5 (0)
1995	-	1 (0)	1 (0)
1996	4 (3)	8 (5)	12 (8)
1997	5 (4)	8 (3)	13 (7)
1998	5 (3)	4 (3)	9 (6)
1999	5 (1)	4 (0)	9 (1)
2000	9 (3)	6 (1)	15 (4)
2001	7 (4)	8 (5)	14 (9)
2002	9 (3)	4 (1)	13 (4)
2003	6 (4)	5 (3)	11 (7)
2004	3 (3)	15 (5)	18 (8)
2005	6 (2)	9 (5)	15 (7)
2006	6 (2)	10 (3)	16 (5)
2007	10 (2)	3 (1)	13 (3)
2008	5 (1)	9 (3)	14 (4)
2009	5 (2)	12 (3)	17 (5)
2010	9 (3)	11 (1)	20 (4)
2011	8 (1)	6 (3)	14 (4)
2012	4 (2)	7 (3)	11 (5)
2013	12 (3)	15 (2)	27 (5)
2014	7 (1)	7 (1)	14 (2)
2015	4 (0)	7 (3)	11 (3)
2016	8 (1)	5 (0)	13 (1)
2017	16 (0)	18 (0)	34 (0)
2018	13 (0)	11 (0)	24 (0)
2019	10 (0)	6 (0)	16 (0)
2020	1 (0)	0 (0)	1 (0)
Total number of contributions in books			<b>53 (29)</b>
<b>Total</b>	<b>181 (48)</b>	<b>205 (54)</b>	<b>439 (131)</b>

**Notes:** 1. The number in parenthesis shows the number of single-authored papers.

## A. Thesis-Research Reports-Book Contributions

### I. Thesis

1. Kalogirou, S., 1985. **Energy Conservation in HVAC Systems Design**, Project submitted in part satisfaction of the conditions for the award of *Certificate in Energy Engineering*, HTI.
2. Kalogirou, S., 1991. **Solar Energy Utilisation Using Parabolic Trough Collectors in Cyprus**, *MPhil Thesis*, The Polytechnic of Wales.
3. Kalogirou, S., 1995. **The Application of Solar Desalination for Water Purification in Cyprus**, *PhD Thesis*, The University of Glamorgan.

### II. Research Reports

1. Kabezides, H.D., Petrakis, M., Lykoudis, A.D., Adamopoulos, P., Kassomenos, P., Michaelides, I.M., Kalogirou, S.A., Roditis, G., Chrysis, I., Hadjigianni, A., 1998. **Comparison of the Effectiveness of Static and Movable Thermosyphon Solar Water Heaters in Greece and Cyprus** (in Greek), Research project under the Greek-Cyprus intergovernmental co-operation. *Final Technical Report*.
2. Paschaloudis, D., Bekiaroglou, D., Ormanoudis, H., Kalogirou, S., Michaelides, I., Eleftheriou, P., Lo Cicero, V., Batista, A., Paes, P., 2000. **Sea-Water Desalination Using Renewable Energy Sources**. INCO project (DG-XII), Contract number: ERB3514PL950259. *Final Project Report*.
3. **Solar Thermal Vision 2030**, First version of the vision document for the start of the European Solar Thermal Technology Platform (ESTTP), 2006.
4. Kalogirou, S., Tripanagnostopoulos, Y., Tsipas, D., **Hybrid PV/T collectors – Thermal and ecological design**. Contract number KY-EΛ(0406)/10. *Final Project Report*.
5. Kalogirou, S., Lallot, S., **Fault detection of solar water heaters using artificial neural networks**. Contract number KY-ΓΑ/0305/02. *Final Project Report*.
6. Kalogirou, S., **Classification of buildings according to their energy performance**. Contract number ΑΕΙΦΟΡΙΑ/ΑΣΤΙ/0308(BIE)/02. *Final Project Report*.
7. Kalogirou, S., **Advanced absorber coatings for parabolic trough collectors**, Internal University Research Project. Code: ADVANCED. *Final Project Report*.
8. Kalogirou, S., **Development of a test method for thermosyphon operated solar collectors**, Code: ΤΕΧΝΟΛΟΓΙΑ/ΕΝΕΡΓ/0311(BIE). *Final Project Report*.

### III. Book Contributions

1. SAE: SP-1417, 1999. **Advances in Electric Vehicle Technology**. Book published by SAE International, ISBN: 0-7680-0349-0. Contribute a paper on *Expert System for Energy Management of Electric Cars*, pp. 43-50. Paper originally presented in SAE 1999 Congress and Exposition, co-authored with Papadimitropoulos, J., Chondros, T., Panteliou, S.,

- Carisson, B. and Dimarogonas, A., *Technical Paper Series*, 1999-01-1154.
2. Ohta, T., Editor, 2000. **Energy Systems: Their Adaptive Complexity**, Book published by Elsevier, ISBN: 0-08-0438776. Contribute a chapter on “*Applications of Neural Networks for Energy Systems*”, pp. 17-35. Contents of the book originally published as a special issue (Vol. 67:1-2) of *Applied Energy Journal*.
  3. SAE: SP-1507, 2000. **Design and Technologies for Automotive Safety-Critical Systems**. Book published by SAE International, ISBN: 0-7680-0557-4. Contribute a paper on *Development of an Artificial Neural Network Based Fault Diagnostic System of an Electric Car*, pp. 61-68. Paper originally presented in SAE 2000 Congress and Exposition co-authored with Chondros, T. and Dimarogonas, A., *Technical Paper Series*, 2000-01-1055.
  4. Cutler J. Cleveland, Editor, 2004. **Encyclopaedia of Energy**. ISBN-13: 978-0-12-176480-7 and ISBN-10: 0-12-176480-X. Contribute a chapter on *Neural Network Modelling of Energy Systems*, Academic Press, Elsevier Science. Vol. 4, pp. 291-299.
  5. Hough, T.P., Editor, 2006. **Solar Energy: New Research**, ISBN: 1-59454-630-4. Contribute a chapter on *Solar Energy for Domestic Heating and Cooling and Hot Water Production*. Nova Science Publishers Inc. Edited collection, articles by invitation only. Chapter 4, pp. 97-148.
  6. Blanco, J. and Malato, S., Honorary Theme Editors, 2007. **Solar Energy Conversion and Photoenergy Systems**, Part of the Encyclopedia of Life Support Systems. Contribute a Chapter on *Low Temperature Solar Collectors*, Vol. 6, Section 106, Part 4, UNESCO.
  7. Delgado, D.J., Moreno, P., Editors, 2008. **Desalination Research Progress**, ISBN: 978-1-60456-567-6. Contribute a chapter on *Renewable Energy Sources Used for Seawater Desalination*, Nova Science Publishers Inc. Edited collection, articles by invitation only. Chapter 2, pp. 67-144.
  8. Chwieduk, D., Domanski, R., Jaworsk, M., Editors, 2008. **Renewable Energy: Innovative Technologies and New Ideas**, ISBN: 978-83-7207-783-7, Contribute the chapter co-authored with Souliotis, M., Tripanagnostopoulos, Y., Florides, G., Ekhrawat, M., Tsipas, D., *Experimental Study of a Thermosiphonic Hybrid PV/T Solar System*, pp. 376-381.
  9. Chwieduk, D., Domanski, R., Jaworsk, M., Editors, 2008. **Renewable Energy: Innovative Technologies and New Ideas**, ISBN: 978-83-7207-783-7, Contribute a chapter on *Life Cycle Analysis of Thermosyphon Solar Water Heaters*, pp. 187-194.
  10. Sorensen, B., Editor, 2009. **Renewable Energy Focus Handbook**, ISBN: 978-0-12-374705-1. Contribute a chapter on *Solar Collectors and Applications*, Chapter 6.2, Academic Press, Elsevier, pp. 333-399.
  11. Metaxiotis, K., Editor, 2010. **Intelligent Information Systems and Knowledge Management for Energy: Applications for Decision Support, Usage and Environmental Protection**, ISBN: 978-1-60566-737-9, IGI Global. Contribute a chapter on *Artificial Intelligence Techniques for Modern Energy Applications*, Chapter 1, pp. 1-39.
  12. Reccab M. Ochieng, Editor, 2010. **Solar Collectors and Panels, Theory and Applications**, ISBN: 978-953-307-142-8, Contribute the chapter co-authored with Sencan, A., *Artificial Intelligence Techniques in Solar Energy Applications*, Chapter 15, pp. 315-

340, Sciyo publisher.

13. Axaopoulos, P., Editor, 2011. **Solar Thermal Conversion**, ISBN: 978-960-266-328-8, Contribute a chapter on *Solar Collectors*, chapter 7, pp. 151-202, published by Euronetres and the support of UNESCO.
14. Axaopoulos, P., Editor, 2011. **Solar Thermal Conversion**, ISBN: 978-960-266-328-8, Contribute a chapter on *Solar Thermal Systems*, chapter 9, pp. 273-296, published by Euronetres and the support of UNESCO.
15. Gopalakrishnan, K, Khaitam, S.K., Kalogirou, S.A., Editors, 2011. **Soft Computing in Green and Renewable Energy Systems**, Contribute a chapter co-authored with Sencan, A., on *Soft Computing in Absorption Cooling Systems*, pp. 65-95, Springer.
16. Gopalakrishnan, K, Khaitam, S.K., Kalogirou, S.A., Editors, 2011. **Soft Computing in Green and Renewable Energy Systems**, Contribute a chapter co-authored with Mellit, A., and Pavan, A.M., on *Application of Artificial Neural Networks for the Prediction of a 20-kWp Grid-Connected Photovoltaic Plant Power Output*, pp. 261-283, Springer.
17. Kalogirou, S., Volume Editor, 2012. **Comprehensive Renewable Energy**, Contribute a chapter on *Introduction*, Major Reference Work (MRW) published by Elsevier.
18. Kalogirou, S., Volume Editor, 2012. **Comprehensive Renewable Energy**, Contribute a chapter co-authored with Florides, G., on *Solar Thermal Application – Heating and Hot Water*, Major Reference Work (MRW) published by Elsevier.
19. Kalogirou, S., Volume Editor, 2012. **Comprehensive Renewable Energy**, Contribute a chapter on *Low Concentration Ratio Solar Collectors*, Major Reference Work (MRW) published by Elsevier.
20. Kalogirou, S., Volume Editor, 2012. **Comprehensive Renewable Energy**, Contribute a chapter co-authored with Yianoulli, M., and Yianoulis, P., on *Solar selective coatings*, Major Reference Work (MRW) published by Elsevier.
21. Kalogirou, S., Volume Editor, 2012. **Comprehensive Renewable Energy**, Contribute a chapter co-authored with Athienites, A., and Candanedo, L., on *Modeling and Simulation of Passive and Active Solar Thermal Systems*, Major Reference Work (MRW) published by Elsevier.
22. Kotchekov, V., Editor, 2012. **Solar Energy Conversion and Photoenergy Systems**, Part of the Encyclopedia of Life Support Systems. Contribute a Chapter on *Modeling and Design of Solar Energy Systems including Solar Economics*, Vol. 6, Section 106, Part 35, UNESCO.
23. Kotchekov, V., Editor, 2012. **Solar Energy Conversion and Photoenergy Systems**, Part of the Encyclopedia of Life Support Systems. Contribute a Chapter on *Solar Energy, Power Generation and Desalination Systems*, Vol. 6, Section 106, Part 36, UNESCO.
24. Enteria, N., Akbarzadeh A., Editors, 2013. **Solar Energy Sciences and Engineering Applications**, Contribute a Chapter on *Thermal Modelling of Parabolic Trough Collectors*, Chapter 6, CRC Press, Taylor & Francis Group.
25. Cavallaro, F., Editor, 2013. **Assessment and Simulation Tools for Sustainable Energy**

- Systems: Methodology and Applications**, Contribute a Chapter on *Artificial Neural Networks and Genetic Algorithms for the Modelling, Simulation and Performance Prediction of Solar Energy Systems*, Vol. 129, pp. 225-245, Springer.
26. Elias, S. Editor, 2013. **Earth Systems and Environmental Sciences**, Contribute a Chapter on *Neural Network Modeling of Energy Systems*, Elsevier.
27. Perez-Higueras, P., Fernandes, E.F., 2015, **High Concentrator Photovoltaics**, *Green Energy and Technology* series, Contribute a chapter co-authored with Almonacid, F. and Mellit, A., on *Applications of ANNs in the field of the HCPV technology*, Vol. 190, pp. 333-351, Springer.
28. Kalogirou, S.A., Florides, G.A., 2016, **Solar Space Heating and Cooling Systems**, *Reference Module in Earth Systems and Environmental Sciences*, Elsevier.
29. Kalogirou, S.A., Kennedy, D., 2017. **BIRES 2017 Book of Abstracts**, *First International Conference on Building Integrated Solar Thermal Systems*, Dublin, Ireland, COST Action TU1205 (BISTS).
30. Gude, V.G., Editor, 2018. **Renewable Energy Powered Desalination Handbook**, Contribute a chapter on *Introduction to Renewable Energy Powered Desalination*, pp. 3-46, Butterworth-Heinemann, An imprint of Elsevier.

#### IV. Books

1. Kalogirou, S., 1997. **HELIODYNAMICS-Engineering of Solar Energy Systems and Processes**. ISBN: 9963-8235-0-5.
2. Kalogirou, S., 1999. **Artificial Neural Networks in Solar Energy Applications**. ISBN: 9963-8235-1-3.
3. Kalogirou, S., 2002. **Seawater Desalination Using Renewable Energy Sources**. ISBN: 9963-38-252-5, P.I.O. 5/2002-500. OPET-Cyprus. Publication financed by the Applied Energy Centre, Ministry of Commerce, Industry and Tourism.
4. Kalogirou, S., Editor, 2006. **Artificial Intelligence in Energy and Renewable Energy Systems**, ISBN: 1-60021-261-1, Nova Science Publishers Inc., New York.
5. Kalogirou, S., 2009. **Solar Energy Engineering: Processes and Systems**, ISBN: 978-0-12-374501-9, Academic Press, Elsevier Science.
6. Gopalakrishnan, K, Khaitam, S.K., Kalogirou, S.A., Editors, 2011. **Soft Computing in Green and Renewable Energy Systems**, under *Studies in Fuzziness and Soft Computing* book series, Vol. 269, Springer-Verlag Inc.
7. Kalogirou, S., Volume Editor, 2012. **Comprehensive Renewable Energy**, 21 chapters, Major Reference Work (MRW) published by Elsevier. *This book was awarded PROSE award (American Publishers Awards for Professional and Scholarly Excellence), 2013.*
8. Kalogirou, S., 2013. **Solar Energy Engineering: Processes and Systems**, Second Edition, ISBN: 978-0-12-397270-5, Academic Press, Elsevier Science.

9. Kalogirou, S., Editor, 2016. **Overview of BISTS State of the Art, Models and Applications**, ISBN: 978-9963-697-16-8. COST Action TU1205 (BISTS).
10. Kalogirou, S., Belessiotis, V., Delyannis, E., 2016. **Thermal Solar Desalination**, ISBN: 978-0-12-809656-7, Academic Press, Elsevier Science.
11. Kalogirou, S., Editor, 2017. **Building Integrated Solar Thermal Systems: Design and Applications Handbook**, ISBN: 978-9963-697-22-9. COST Action TU1205 (BISTS).
12. Kalogirou, S., Editor, 2018. **McEnvoy's Handbook of Photovoltaics-Fundamentals and Applications**, ISBN: 978-0-12-809921-6, Academic Press, Elsevier Science.

Total Contributions: **53**

## B. Papers in International Scientific Journals

1. Kalogirou, S. and Lloyd, S., 1992. **Use of Solar Parabolic Trough Collectors for Hot Water Production in Cyprus - A Feasibility Study**, *Renewable Energy*, Vol. 2, No. 2, pp. 117-124.
2. Kalogirou, S., Eleftheriou, P., Lloyd, S. and Ward, J., 1994. **Design and Performance Characteristics of a Parabolic-Trough Solar-Collector System**, *Applied Energy*, Vol. 47, No. 4, pp. 341-354.
3. Kalogirou, S.A., Eleftheriou, P., Lloyd, S. and Ward, J., 1994. **Low Cost High Accuracy Parabolic Troughs: Construction and Evaluation**, *Renewable Energy*, Vol. 5, Part I, pp. 384-386.
4. Kalogirou, S.A., Lloyd, S. and Ward, J., 1994. **Sea Water Solar Desalination: An Alternative to Water Imports in Cyprus**, *Renewable Energy*, Vol. 5, Part III, pp. 1868-1871.
5. Kalogirou, S., 1996. **Parabolic Trough Collector System for Low Temperature Steam Generation: Design and Performance Characteristics**, *Applied Energy*, Vol. 55, No. 1, pp. 1-19.
6. Kalogirou, S., 1996. **Design and Construction of a One-Axis Sun-Tracking Mechanism**, *Solar Energy*, Vol. 57, No. 6, pp. 465-469.
7. Kalogirou, S.A., 1996. **Economic Analysis of Solar Energy Systems Using Spreadsheets**, *Renewable Energy*, Vol. 9, No. 1-4, pp. 1303-1307.
8. Kalogirou, S.A., Lloyd, S. and Ward, J., 1996. **A Simplified Method for Estimating Intercept Factor of Parabolic Trough Collectors**, *Special Issue of Renewable Energy Journal*, pp. 1782-1786.
9. Kalogirou, S., 1997. **Survey of Solar Desalination Systems and System Selection**, *Energy-The International Journal*, Vol. 22, No. 1, pp. 69-81.
10. Kalogirou, S., 1997. **Solar Water Heating in Cyprus. Current Status of Technology and Problems**, *Renewable Energy*, Vol. 10, No. 1, pp. 107-112.
11. Kalogirou, S., Lloyd, S. and Ward, J., 1997. **Modelling, Optimisation and Performance Evaluation of a Parabolic Trough Collector Steam Generation System**, *Solar Energy*, Vol. 60, No. 1, pp. 49-59.
12. Kalogirou, S., 1997. **Design, Construction, Performance Evaluation, and Economic Analysis of an Integrated Collector Storage System**, *Renewable Energy*, Vol. 12, No. 2, pp. 179-192.
13. Kalogirou, S., 1997. **Economic Analysis of a Solar Assisted Desalination System**, *Renewable Energy*, Vol. 12, No. 4, pp. 351-367.
14. Petrakis, M., Kabezides, H. D., Lykoudis, A. D., Adamopoulos, P., Kassomenos, P., Michaelides, I. M., Kalogirou, S. A., Reditis, G., Chrysis, I., Hadjigianni, A., 1998.

- Generation of a “Typical Meteorological Year” for Nicosia, Cyprus, *Renewable Energy*, Vol. 13, No. 3, pp. 381-388.**
15. Kalogirou, S., 1998. **Use of Parabolic Trough Solar Energy Collectors for Sea-Water Desalination**, *Applied Energy*, Vol. 60, No. 2, pp. 65-88.
  16. Kalogirou, S., Neocleous, C. and Schizas, C., 1998. **Artificial Neural Networks for Modelling the Starting-up of a Solar Steam Generator**, *Applied Energy*, Vol. 60, No. 2, pp. 89-100.
  17. Kalogirou, S.A., 1998. **Performance Enhancement of an Integrated Collector Storage Hot Water System**, *Renewable Energy*, Vol. 16, No. 4, pp. 652-655.
  18. Kalogirou, S.A., 1998. **Artificial Neural Networks for the Design of a Solar Steam Generation System**, *Renewable Energy*, Vol. 16, No. 4, pp. 2057-2060.
  19. Florides, G., Wrobel, L., Kalogirou, S. and Tassou, S., 1999. **A Thermal Model for Reptiles and Pelicosaur**s, *Journal of Thermal Biology*, Vol. 24, No. 1, pp. 1-13.
  20. Kalogirou, S., 1999. **Applications of Artificial Neural Networks in Energy Systems: A Review**, *Energy Conversion and Management*, Vol. 40, No. 10, pp. 1073-1087.
  21. Michaelides, I. M., Kalogirou, S. A., Chrysis, I., Reditis, G., Hadjigianni, A., Kabezides, H. D., Petrakis, M., Lykoudis, A. D. and Adamopoulos, P., 1999. **Comparison of the Performance and Cost Effectiveness of Solar Water Heaters at Different Collector Tracking Modes, in Cyprus and Greece**, *Energy Conversion and Management*, Vol. 40, No. 12, pp. 1287-1303.
  22. Kalogirou, S., Panteliou, S. and Dentsoras, A., 1999. **Artificial Neural Networks Used for the Performance Prediction of a Thermosyphon Solar Water Heater**, *Renewable Energy*, Vol. 18, No. 1, pp. 87-99.
  23. Kalogirou, S., Panteliou, S. and Dentsoras, A., 1999. **Modelling of Solar Domestic Water Heating Systems Using Artificial Neural Networks**, *Solar Energy*, Vol. 65, No. 6, pp. 335-342.
  24. Kalogirou, S., 2000. **Long-Term Performance Prediction of Forced Circulation Solar Domestic Water Heating Systems Using Artificial Neural Networks**, *Applied Energy*, Vol. 66, No. 1, pp. 63-74.
  25. Kalogirou, S. and Bojic, M., 2000. **Artificial Neural Networks for the Prediction of the Energy Consumption of a Passive Solar Building**, *Energy-The International Journal*, Vol. 25, No. 5, pp. 479-491.
  26. Kalogirou, S., 2000. **Applications of Artificial Neural Networks for Energy Systems**, Special Issue of *Applied Energy Journal on Energy Systems: Adaptive Complexity*, Vol. 67, No. 1-2, pp. 17-35. Also published as a Book Chapter, Ohta, T., Editor, *Energy Systems: Their Adaptive Complexity*, Book published by Elsevier, ISBN 0-08-0438776.
  27. Kalogirou, S. and Panteliou, S., 2000. **Thermosyphon Solar Domestic Water Heating Systems Long-Term Performance Prediction Using Artificial Neural Networks**, *Solar Energy*, Vol. 69, No. 2, pp. 163-174.

28. Kalogirou, S. and Papamarcou, C., 2000. **Modelling of a Thermosyphon Solar Water Heating System and Simple Model Validation**, *Renewable Energy*, Vol. 21, No. 3-4, pp. 471-493.
29. Florides, G., Kalogirou, S., Tassou, S. and Wrobel, L., 2000. **Natural Environment and Thermal Behaviour of Dimetrodon Limbatus**, *Journal of Thermal Biology*, Vol. 26, No. 1, pp. 15-20.
30. Florides, G., Kalogirou, S., Tassou, S. and Wrobel, L., 2000. **Modelling of the Modern Houses of Cyprus and Energy Consumption Analysis**, *Energy-The International Journal*, Vol. 25, No. 10, pp. 915-937.
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186. Argyrou, M.C., Christodoulides, P., Marouchos, C.C., Kalogirou, S.A., 2017. **A Grid-connected Photovoltaic System: Mathematical Modeling using MATLAB/Simulink**, *Proceedings of 52<sup>nd</sup> International Universities' Power Engineering Conference (UPEC 2017), Heraklion, Crete, Greece.*
187. Georgiou, G.S., Christodoulides, P., Georgiou, A., Kalogirou, S.A., 2017. **A Linear Programming Approach to the Optimal Utilization of Renewable Energy Sources in Buildings**, *Proceedings of 52<sup>nd</sup> International Universities' Power Engineering Conference (UPEC 2017), Heraklion, Crete, Greece.*
188. Vassiliades, C., Michael, A., Savvides, A., Kalogirou, S.A., 2017. **Environmental Assessment of the Integration of Active Solar Energy Systems on Building Envelopes in Southern Europe**, 10th International Conference on Sustainable Energy and Environmental Protection (SEEP 2017), *Proceedings volume "Renewable Energy*

*Sources*”, pp. 179-190, Bled, Slovenia.

189. Argyrou, M.C., Christodoulides, Kalogirou, S.A., 2018. **Modeling of a Photovoltaic System with Different MPPT techniques using MATLAB/Simulink**, *Proceedings of 2018 IEEE International Energy Conference (ENERGYCON)*, Limassol, Cyprus.
190. Georgiou, G.S., Christodoulides, P., Georgiou, A., Kalogirou, S.A., 2018. **Implementing Artificial Neural Networks in Energy Building Applications – A Review**, *Proceedings of 2018 IEEE International Energy Conference (ENERGYCON)*, Limassol, Cyprus.
191. Sattler, J.C. Alexopoulos, S., Caminos, R.A.C., Mitchell, J., Ruiz, V., Kalogirou, S.A., Ktistis, P., Boura, C.T., Herrmann, U., 2018. **Dynamic Simulation Model of a Parabolic Trough Collector System with Concrete Thermal Energy Storage for Process Steam Generation**, *Proceedings of SolarPACES Conference*, Casablanca, Morocco. AIP Conference Proceedings 2126, 150007 (2019).
192. Fokaides, P.A., Valancius, R., Kylili, A., Ioannides, A., Souliotis, M., Jurelionis, A., Kalogirou, S.A., 2018. **Environmental Assessment of industrial solar thermal systems**, *Proceedings of Eurosun 2018 Conference*, Rapperswil, Switzerland.
193. Argyrou, M.C., Christodoulides, P., Marouchos, C.C., Kalogirou, S.A., 2018. **Hybrid battery-supercapacitor mathematical modeling for PV application using Matlab/Simulink**, *Proceedings of 53rd International Universities' Power Engineering Conference (UPEC)*, IEEE, 2018.
194. Ktistis, P.K., Agathokleous, R., Kalogirou, S.A., 2018. **Potential of the parabolic trough collectors use in the industry of Cyprus: Current status and proposed scenarios**, *SEEP 2018, International conference Sustainable Energy and Environmental Protection*, Glasgow, Scotland.
195. Ktistis, P.K., Agathokleous, R., Kalogirou, S.A., 2018. **Potential of the parabolic trough collectors use in a food and beverage industrial factory in Cyprus: Simulation analysis for performance prediction**, *ESCC 2018, International conference on Energy, Sustainability and Climate Change*, Mykonos, Greece.
196. Agathokleous, R., Kalogirou, S.A., 2018. **A BIPV demonstration building: On site monitoring and simulation-based investigation**, *PRES 2018, Chemical Engineering Transactions*, Prague, Czech Republic.
197. Ktistis, P., Agathokleous, R., Kalogirou, S.A., 2018. **A Pilot PTC System Installed in an Industrial factory of Cyprus: Feasibility for the Wider Use in the Cyprus Industry**, *PRES 2018, Chemical Engineering Transactions*, Vol. 70, pp. 1039-1044, Prague, Czech Republic.
198. Ktistis, P., Agathokleous, R., Kalogirou, S.A., 2018. **Simulation based Performance Investigation of an industrial PTC system in Cyprus**, *CPOTE 2018, 5th International Conference Contemporary Problems of Thermal Engineering*, Gliwice, Poland.
199. Agathokleous, R., Bianchi, G. Panayiotou, G.P. Aresti, L. Argyrou, M.C. Georgiou, G.S. Tassou, S., Kalogirou, S.A., Florides, G.A., Christodoulides P., 2018. **Waste Heat**

- Recovery in the EU industry and proposed new technologies**, 2nd International Conference on Sustainable Energy and Resource Use in Food Chains, ICSEF 2018, Pafos, Cyprus, *Energy Procedia*, in press.
200. Ktistis P.K., Agathokleous R.A., Kalogirou S.A., 2019. **Testing of the 1st PTC system in Cyprus' Biggest Soft Drinks Factory**, International conference on 'Energy, Sustainability and Climate Change', ESCC 2019, Chania, Greece.
201. Ktistis P.K., Agathokleous R.A., Kalogirou S.A., 2019. **Testing of the first PTC system in Cyprus' biggest soft drinks factory**. International conference Sustainable Energy and Environmental Protection, SEEP 2019, Sharjah, UAE.
202. Sattler, J.C., Caminos, R.A.C., Ürlings, N., Dutta, S., Ruiz, V., Kalogirou, S.A., Ktistis, P., Agathokleous, R., Jung, C., Alexopoulos, S., Atti, V., Boura, C.T., Herrmann, U., 2019. **Operational Experience and Behaviour of a PTC System with Concrete Thermal Energy Storage for Process Steam Generation in Cyprus**, Solar Power and Chemical Energy Systems, SolarPACES 2019, Daegu, South Korea
203. Sattler, J.C., Caminos, R.A.C., Atti, V., Ürlings, N., Dutta, S., Ruiz, V. Kalogirou, S.A., Ktistis, P., Agathokleous, R., Alexopoulos, S., Boura, C.T., Herrmann, U., 2019. **Dynamic Simulation Tool for a Performance Evaluation and Sensitivity Study of a Parabolic Trough Collector System with Concrete Thermal Energy Storage**, Solar Power and Chemical Energy Systems, SolarPACES 2019, Daegu, South Korea.
204. Argyrou, M.C., Spanias, C., Marouchos, C.C., Kalogirou, S.A., Christodoulides, P., 2019. **Energy management and modeling of a grid-connected BIPV system with battery energy storage**, 54th International Universities Power Engineering Conference, UPEC 2019, Article number 8893495, Bucharest; Romania.
205. Agathokleous, R., Kalogirou, S.A., 2019. **Investigation of the flow between a PV panel and building's outer skin comprising a naturally ventilated BIPV system**, Building Simulation Conference, Roma, Italy.

### III. PROFESSIONAL ACTIVITIES

#### III.1 Participation in Conferences

##### Summary numbers:

A. Conference Activities:.....	82
B. Chairing of Sessions:.....	35
C. Invited Talks:.....	56

##### A. Conference Activities:

Participated in more than hundred International Conferences and review abstracts and papers for a number of them. In addition, I was:

1. Member of International Steering Committee for World Renewable Energy Congress (WREC) V, Florence, Italy, 1998.
2. Member of International Steering Committee for WREC VI, Brighton, UK, 2000.
3. Organiser and speaker, Seminar on Desalination and Water Reuse, CY-ISES section, Nicosia, 1998.
4. Member of the Technical Committee, Sharjah Solar Energy Conference Incorporating the Regional World Renewable Energy Congress and the 7<sup>th</sup> Arab Conference on Solar Energy, UAE, 2001.
5. Ambassador of Cyprus in International Conference CLIMA'2000, Naples, Italy, 2001.
6. Organiser and speaker of the SunDay 2001, Applications of Solar and Other Renewable Energy Sources, 2001.
7. Member of International Steering Committee for WREC VII, Cologne, Germany, 2002.
8. Ambassador of Cyprus in Construction Industry's Fourth International Conference on the Environment, Challenges and Solutions for the Cities of Tomorrow, Stockholm, Sweden, 2002.
9. Reviewer of papers for the IEEE Symposium on Intelligent Systems, Bulgaria, 2002.
10. Member of the Scientific Committee and reviewer of papers for the 8<sup>th</sup> International Conference on Building Simulation, Eindhoven, Netherlands, 2003.
11. Member of the International Steering Committee of the 8<sup>th</sup> Arab International Solar Energy Conference and the Regional World Renewable Energy Congress, Kingdom of Bahrain, 2004.
12. Member of the Organizing Committee of the 3<sup>rd</sup> International Conference on Heat Power

- Cycles (HPC 2004), Larnaca, Cyprus, 2004.
13. Member of the Solar Thermal Technical Committee and the International Steering Committee for WREC VIII, Denver, Colorado, USA, 2004.
  14. Member of the Scientific Committee and reviewer of papers for the 3<sup>rd</sup> International Conference on Sustainable Energy Technologies (SET'2004), University of Nottingham, School of the Built Environment, UK, 2004.
  15. Member of the Scientific Committee and reviewer of papers for the conference "The Integration of the Renewable Energy Systems into the Building Structures", Technological Educational Institute of Patras, 2005.
  16. Reviewer of papers for the Heat Transfer in Components and Systems for Sustainable Energy Technologies (Heat-SET 2005) Conference, Grenoble, France, 2005.
  17. Ambassador of Cyprus in International Conference CLIMA'2005, Lausanne, Switzerland, 2005.
  18. Reviewer of papers for the Fifth IASTED International Conference on Modeling, Simulation and Optimization (MSO' 2005), Oranjestad, Aruba (Caribbean), 2005.
  19. Ambassador of Cyprus in International Conference Cold Climate 2006, the 5<sup>th</sup> International Conference on Cold Climate Heating, Ventilation and Air Conditioning, Moscow, Russia, 2006.
  20. Member of the International Steering Committee for WREC IX, Florence, Italy, 2006.
  21. Member of the International Scientific Committee for International Conference on Sustainable Energy Technologies (SET 2006), Vicenza, Italy, 2006.
  22. Ambassador of Cyprus in International Conference CLIMA'2007, Helsinki, Finland, 2007.
  23. Member of the International Steering and Solar Thermal Applications Technical Committees of the WREC X, Glasgow, Scotland, UK, 2008.
  24. Member of the International Scientific Committee for International Conference on Sustainable Energy Technologies (SET 2008), Seoul, Korea, 2008.
  25. Reviewer of abstracts and papers for Eurosun 2008, Lisbon, Portugal, 2008.
  26. Reviewer of papers for the 6<sup>th</sup> International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics Conference (HEFAT2008), Pretoria, South Africa, 2008.
  27. Member of the International Scientific and Steering Committee, and reviewer of papers for SOLPOL 2008 International Conference, Warsaw, Poland, 2008.
  28. **Chairman of the Organising Committee** of 9<sup>th</sup> IHT Conference, Geroskipou, Cyprus, 2009.

29. Review papers for the Heat Powered Cycles 2009 conference, Berlin, Germany, 2009.
30. Member of the Scientific Program Committee, Renewable Energy Sources & Energy Efficiency, Nicosia, Cyprus, 2009.
31. Member of the International Scientific Committee of the 8<sup>th</sup> International Conference on Sustainable Energy Technologies, Aachen, Germany, 2009.
32. Member of the Technical Program Committee and reviewer of papers of the Biogreen'2010 Conference, Cancun, Mexico, 2010.
33. Member of the International Program Committee of the Control, Methodologies and Technology for Energy Efficiency, CMTEE 2010 Conference, Vilamoura, Portugal, 2010.
34. Review papers for the Eurosun 2010 Conference, Graz, Austria, 2010.
35. Member of the International Steering and Solar Thermal Applications Technical Committees and reviewer of papers for the WREC X, Abu Dhabi, United Arab Emirates, 2010.
36. Member of the International Steering Committee and Technical Committee for the World Renewable Energy Congress (WREC) 2011, Linkoping, Sweden, 2011.
37. Member of the Technical Program Committee, Bionature 2011 conference, Venice, Italy, 2011.
38. Member of the International Scientific Committee and Track Director for Solar Thermal Systems for the ICAE 2011 International Conference, Perugia, Italy, 2011.
39. Member of the Scientific Committee for the First International Seminar on Water, Energy and Environment (ISWEE'11), Algiers, Algeria, 2011.
40. Member of the International Steering Committee and for the Solar Thermal and Desalination Technical Committee for the World Renewable Energy FORUM (WREF) 2012, Denver, Colorado, USA, 2012.
41. Member of the Scientific Advisory Board and reviewer for the SDEWES 2012 Conference, Ohrid, FYROM, 2012.
42. Member of the International Advisory Board and reviewer of the Energy & Materials Research Conference (EMR'2012), Torremolinos, Spain, 2012.
43. Member of the Technical Review Committee and reviewer of the International Multi Disciplinary Conference on Solar Energy (IMDCSE), Chennai, India, 2012.
44. Member of the International Advisory Committee of the 5<sup>th</sup> International Conference on Sustainable Energy and Environmental Protection (SEEP 2012), Dublin, Ireland, 2012.
45. Reviewer of papers for the First international conference on Renewable Energies and Vehicular Technology (REVET 2012), Hammamet, Tunisia, 2012.

46. Reviewer of papers for ASME 2012, 11<sup>th</sup> Biennial Conference on Engineering Systems Design and Analysis (ESDA-2012), Nantes, France, 2012.
47. Reviewer of papers for the 7<sup>th</sup> Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES 2012), Ohrid, FYROM, 2012.
48. Member of International Advisory Committee, Energy and Materials Research Conference (EMR2012), Terrelinos, Malaga, Spain, 2012.
49. Member of the Scientific Committee for the POEM 2012 Conference, Limassol, Cyprus, 2012.
50. Member of the Scientific Committee for the SDEWES 2013 Conference, Dubrovnik, Croatia, 2013.
51. Member of the International Scientific Committee and reviewer for ICAE 2013 conference, Pretoria, South Africa, 2013.
52. Member of the Scientific Committee of WIN4Life Conference, Tinos Island, Greece, 2013.
53. Member of the International Program Committee for the ICGET Conference, Fukuoka, Japan, 2013.
54. Member of the International Organising Committee for the Sustainable Energy Storage in Buildings Conference (SESB 2013), Dublin, Ireland, 2013.
55. Member of the International Advisory Committee for the 6<sup>th</sup> International Conference on Sustainable Energy & Environmental Protection (SEEP), Maribor, Slovenia, 2013.
56. Member of the International Advisory Committee for the ICONCE – 2014 Conference, Kalyani, West Bengal, India, 2014.
57. Member of the International Scientific Committee for the International Conference on Applied Energy (ICAE), Taipei, Taiwan, 2014.
58. Member of the International Scientific Committee for the PRES 2014 Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, Prague, Czech Republic, August 22-27, 2014.
59. Member of the Solar Thermal Technical Committee for WREC XIII congress, Kingston University, UK, 2014.
60. Member of the Scientific Committee for the SDEWES 2014 Conference, Venice-Istanbul, 2014.
61. Member of the Scientific Committee for the CERE 2014 Conference, Tunisia, 2014.
62. Member of the Scientific Committee for the Places and Technologies 2014 Conference, Belgrade, Serbia, 2014.

63. Member of the Scientific Advisory Board for the SDEWES 2015 Conference, Dubrovnik, Croatia, 2015.
64. Member of the Scientific Board of the SOLARTR 2014, Izmir, Turkey, 2015.
65. Member of the Scientific Committee of EURO-ELECS'2015 conference, Guimaraes, Portugal, 2015.
66. Member of the International Scientific and Advisory Committee of the 4th International Exergy, Life Cycle Assessment, and Sustainability Workshop & Symposium (ELCAS-4), 2015, Nisyros, Greece.
67. Member of the International Advisory Committee of the 8<sup>th</sup> Sustainable Energy & Environmental Protection (SEEP) 2015 Conference, University of the West of Scotland, 2015.
68. Member of the International Advisory Committee of the International Conference on Recent Trends in Energy Technologies (ICRTET) 2016, West Bengal 2016.
69. Member of the Scientific Committee of ECOS 2016, Portoroz, Slovenia, 2016.
70. Member of the Program Committee of the Renewable Energy & Innovative Technologies Conference, Bulgaria, 2016.
71. Member of the Scientific Board of SolarTR 2016 conference, Istanbul, Turkey, 2016.
72. Member of the Advisory Committee of the Energy & Material Research Conference - EMR2017, Lisbon, Portugal, 2017.
73. Member of Scientific Advisory Board of the SDEWES Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2017), Dubrovnik, Croatia, 2017.
74. Member of the Scientific Committee of SEED 2017 conference, Krakow, Poland, 2017.
75. Chairman of the Scientific Committee of BIRES 2017 conference, Dublin, Ireland, 2017.
76. Program Committee Member for the 10th International Conference on Sustainable Energy and Environmental Protection (SEEP 2017), Bled, Slovenia.
77. Member of the International Advisory Committee of SEEP 2018, Glasgow, Scotland, 2018.
78. Member of the Scientific Board of SOLARTR conference, Istanbul, Turkey, 2018.
79. Member of the Scientific Committee of AESMT 2018, Blodiv, Bulgaria, 2018.
80. Member of the Scientific Committee of Energy Security and Chemical Engineering Congress 2019, Malaysia, 2019.

81. Member of the Scientific Committee of 2019 Applied Energy MIT A+B Conference, Boston, USA.
82. Member of the Scientific Committee of the 3rd International Conference on the Sustainable Energy and Environment Development, SEED2019, Crakow, Poland, 2019.
83. Member of the Scientific Committee of the 6th International Conference on Contemporary Problems of Thermal Engineering, CPOTE 2020, Crakow, Poland, 2020.

## **B. Chairing of Sessions:**

1. Chairman of Session on Concentrating Collectors, World Renewable Energy Congress (WREC) III, Reading, UK, 1994.
2. Chairman of Session on Mechanical Engineering, Engineering Applications of Artificial Neural Networks Conference EANN'97, Stockholm, Sweden, 1997.
3. Chairman of Session 3.2, International Conference on Energy and Environment, Limassol, 1997.
4. Chairman of Session on Renewables, Melecon 2000 Conference, Limassol, 2000.
5. Chairman of Session on Solar Thermal Utilization for Seawater Desalination, Sharjah Solar Energy Conference, UAE, 2001.
6. Chairman of Session on Solar Thermal, 25<sup>th</sup> National Renewable Energy Convection NREC'2001. Energy Security for India: Role for Renewables, Warangal, India, 2001.
7. Chairman of Session on Solar Thermal: Rural applications, World Renewable Energy Congress VII, Cologne, Germany, 2002.
8. Chairman of Session on Other Major Topics: Hydrogen Technology, World Renewable Energy Congress VII, Cologne, Germany, 2002.
9. Chairman of three Sessions on Solar Thermal, Related Topics and Renewable Energy and Water, World Renewable Energy Congress VIII, Denver, Colorado, 2004.
10. Chairman of a Session for the conference "The Integration of the Renewable Energy Systems into the Building Structures", Technological Educational Institute of Patras, 2005.
11. Chairman of the Session on Solar Thermal Systems, 8<sup>th</sup> National Conference for the Renewable Energy Sources, Thessalonica, 2006.
12. Chairman of Session on Solar Thermal Applications, World Renewable Energy Congress IX, Florence, Italy, 2006.
13. Chairman of session on Integrated Design for Passive Cooling, 2nd PALENC Conference and 28th AIVC Conference on Building Low Energy Cooling and

- Advanced Ventilation Technologies in the 21st Century, Heraklion, Crete, 2007.
14. Chairman of sessions on Collector Technology and Solar Water and Other Systems in World Renewable Energy Congress X, Glasgow, UK., 2008.
  15. Chairman of session on Mathematical Modeling and Simulation of Energy Processes in Buildings, SOLPOL 2008 International Conference, Warsaw, Poland, 2008.
  16. Chairman of two sessions on Concentrating Solar Power in World Renewable Energy Congress XI, Abu Dhabi, UAE, 2010.
  17. Chairman of two sessions on Solar Thermal Applications (STH) in World Renewable Energy Congress 2011, Linkoping, Sweden, 2011.
  18. Chairman of session on Solar Energy Utilisation in International Conference of Applied Energy (ICAE) 2011, Perugia, Italy, 2011.
  19. Chairman of session on Energy Systems in Power Options for the Eastern Mediterranean (POEM) Region, POEM 2012 Conference, Limassol, Cyprus, 2012.
  20. Chairman of session on Exergy Analysis of Heat Exchangers in ECOS 2012 Conference, Perugia, Italy, 2012.
  21. Chairman of session on GreenHouse Gases, in World Renewable Energy Congress (WREC) International Conference on Renewable Energy for Sustainable Development and Decarbonisation, Perth, Australia, 2013.
  22. Chairman of session on Current Research at Archimedes Solar Energy Lab of CUT in Power Options for the Eastern Mediterranean (POEM) Conference, Nicosia, Cyprus, 2013.
  23. Chairman of session on Integration of Renewables Including Supply Chains, *PRES 2014 Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction*, Prague, Czech Republic, August 22-27, 2014.
  24. Chairman of session on High Temperature Applications, WREC XIII congress, Kingston University, UK, August 3-8, 2014.
  25. Chairman of a plenary session, WREC XIV congress, Bucharest, Romania, June 8-12, 2015.
  26. Chairman of session on PV & Solar Thermal Technologies and Systems, WREC XIV congress, Bucharest, Romania, June 8-12, 2015.
  27. Chairman of two sessions on Nonbiomass renewable energy, ECOS 2015, Pau, France, 29 June-3 July 2015.
  28. Chairman two sessions on Building Integrated Solar Thermal Systems, EURO-ELECS 2015 Conference, Guimaraes, Portugal, 21-23 July 2015.
  29. Chairman of panel 6: Building Integrated Solar as an Enabling Technology for Net-Zero Energy Resilience, *Smart Net Zero Resilient Buildings and Communities*,

CZEBS-iiSBE-APEC Net Zero Built Environment, 2015 Symposium, Montreal, Canada. August 20-21, 2015.

30. Chairman of section on District energy systems & Smart Cities, ECOS 2016, Portoroz, Slovenia.
31. Chairman of session on Renewable energy systems, NURER 2016, Hefei, China.
32. Chairman of two session, BIRES 2017, Dublin, Ireland.
33. Chairman of session on Solar Energy, SEEP 2018, Glasgow, Scotland, 2018.
34. Chairman of session on Solar Thermal Technologies for Buildings, Solaris 2018, Chengdu, China.
35. Chairman of session on Renewable Energy, CPOTE 2018, Gliwice, Poland.

### **C. Invited Talks:**

1. *Seawater Desalination Using Renewable Energy Sources*, Conference of the German-Cypriot Forum “Sustainable Development in Cyprus – The Example of Water Management”, Nicosia, Cyprus, 2000.
2. *Solar Water Heating in Cyprus: Facts and Prospects*, Sharjah Solar Energy Conference Incorporating the Regional World Renewable Energy Congress and the 7<sup>th</sup> Arab Conference on Solar Energy, UAE, 2001.
3. *A Review of Solar Thermal Applications*, SunDay’ 2001 Conference on Applications of Solar and Other Renewable Sources of Energy, Nicosia, Cyprus, 2001.
4. *Solar Thermal Potential of Cyprus*, Symposium on Solar Energy Conversion – Scientific Concepts, Technologies and Applications, organised by the University of Stuttgart, Germany, Nicosia, Cyprus, 2001.
5. *The Potential of Solar Energy in Food-Industry Process Heat Applications*, 25<sup>th</sup> National Renewable Energy Convection NREC’2001. Energy Security for India: Role for Renewables, Warangal, India, 2001.
6. *Artificial Intelligence in Renewable Energy Systems Modelling and Prediction*, World Renewable Energy Congress (WREC) VII, Cologne, Germany, 2002.
7. *Use of Artificial Neural Networks and Genetic Algorithms for the Optimisation of Solar Industrial Process Heat Systems*, IEEE Symposium on Intelligent Systems, Bulgaria, 2002.
8. *Seawater Desalination Using Renewable Energy Sources*. International Seminar on RES Applications, Nicosia, Cyprus, 2002.
9. *Environmental Impact of Domestic Solar water and Space Heating Systems*, World Renewable Energy Congress (WREC) VIII, Denver, Colorado, USA, 2004.
10. *Environmental Life Cycle Analysis of Thermosyphon Solar water Heaters*, Mali

- Symposium on Applied Sciences (MSAS' 2004), Bamako, Mali, 2004.
11. *Environmental Friendly Alternatives in Cyprus*, Sustainability for Cyprus, Workshop of the German-Cypriot Forum (DZF), Nicosia, Cyprus, 2004.
  12. *Performance of a Hybrid PT/T Thermosyphon System*, Regional World Renewable Energy Congress, Aberdeen, Scotland, 2005.
  13. *Solar Water Heaters in Cyprus: Manufacturing, Performance and Applications*, Forth Congress on Energy Conservation in Buildings and Renewable Energy, Tehran, Iran, 2005.
  14. *Solar Space Heating, Cooling and Hot Water Production for a House*, International Conference on the Integration of the Renewable Energy Systems (RES) into the Building Structures, Patra, Greece, 2005.
  15. *Artificial Intelligence in Renewable Energy Applications in Buildings*, International Conference on the Integration of the Renewable Energy Systems (RES) into the Building Structures, Patra, Greece, 2005.
  16. **Keynote speaker on:** *Environmental Benefits of Domestic Solar Water Heating Systems*, International Conference on the Integration of the Renewable Energy Systems (RES) into the Building Structures, Patra, Greece, 2005.
  17. *Artificial Neural Networks and Genetic Algorithms for the Optimization of Solar Thermal Systems*, World Renewable Energy Congress IX, Florence, Italy, 2006.
  18. *Environmental Friendly Energy Sources in Cyprus*, Second Eco Forum Conference in Cyprus, 2006.
  19. *Use of genetic algorithms for the optimum selection of the fenestration openings in buildings*, PALENC conference, Heracleon, Crete, 2007.
  20. *Cyprus solar water heating cluster: A missed opportunity?* Europe-Mediterranean Clusters Conference, Marseille, France, 2007.
  21. *Economic and Environmental Benefits of Thermosyphon Solar Water Heaters*, World Renewable Energy Congress X, Glasgow, Scotland, UK, 2008.
  22. **Keynote speaker on:** *Life cycle analysis of thermosyphon solar water heater*, SOLPOL 2008 International Conference, Warsaw, Poland, 2008.
  23. *Solar thermoelectric power generation in Cyprus: Selection of the best system*, World Renewable Energy Congress XI, Abu Dhabi, UAE, 2010.
  24. **Keynote speaker on:** *Solar thermoelectric power plants combined with desalination*, ISWEE'11 International Seminar, Algeria, 2011.
  25. *Concentrating solar power plants for electricity and desalinated water production*, WREC 2011, Linkoping, Sweden.
  26. *Combination of Taguchi method and artificial intelligence techniques for the optimal*

- design of flat-plate collectors*, WREF 2012, Denver, Colorado.
27. *Solar Desalination Systems*, invited speech at Energy-Water Nexus: International Perspective, WREF 2012, Denver, Colorado.
  28. **Keynote speaker on:** *On-Site PV Characterization and the Effect of Shading and Soiling on their Performance*, SEEP 2012, Dublin, Ireland.
  29. **Keynote speaker on:** *Building Integration of Renewable Energy Systems towards Zero or Nearly Zero Energy Buildings*, Energodom 2012, Krakow, Poland.
  30. **Keynote speaker on:** *Flat-Plate Collector Construction and System Configuration to Optimise the Thermosiphonic Effect*, WREC 2013, Murdoch, Australia.
  31. **Keynote speaker on:** *Building integration of solar thermal systems Power Options for the Eastern Mediterranean (POEM) Conference*, Nicosia, Cyprus.
  32. **Keynote speaker on:** *Effect of the Air Flow on the Temperature of the PV Panel Examined for Two BIPV Panels of Different Shape*, PRES 2014 Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, Prague, Czech Republic, August 22-27, 2014.
  33. *Building Integrated Solar Thermal Systems*, WREC XIII congress, Kingston University, UK, August 3-8, 2014.
  34. **Keynote speaker on:** *Building Integrated Solar Thermal Systems - A new era of renewables in buildings*. WREC XIV congress, Bucharest, Romania, June 8-12, 2015.
  35. *Building Integrated Solar Thermal Systems: Technology Appraisal*. Smart Net Zero Resilient Buildings and Communities, CZEBS-iiSBE-APEC Net Zero Built Environment, 2015 Symposium, Concordia University, Montreal, Canada. August 20-21, 2015.
  36. **Invited talk on:** *Building Integrated Solar Thermal Systems*. Building Integrated Solar Energy Technologies workshop, Athens, 5 September 2015.
  37. **Keynote speaker on:** *Renewable Energy Systems: Current status, Prospects and Outlook of the technology*, NURER2016, Hefei, China, 20 September 2016.
  38. **Invited speaker on:** *Building Integrated Renewable Energy Systems-A NewEra of Renewables in Buildings*, Energy in Buildings – Cyprus, ASHRAE Cyprus Chapter, Limassol Cyprus, May 2017.
  39. **Keynote speaker on:** *Renewable Energy Systems: Current Status, Prospects and Hot Research Areas*, Hellenic Association for Energy economics (HAEE), Athens, Greece, May 2017.
  40. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, 7<sup>th</sup> Asian Pacific Forum on Renewable Energy, Busan, Korea, November 2017.
  41. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, 11<sup>th</sup> IHT Solar Institute, Thessaloniki, Greece, March 2018.

42. **Keynote speaker on:** *Renewable Energy Sources in the Islands: Current Status and Prospects*, Clean Energy on European Islands 2018. Athens, Greece, April 2018.
43. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, Thermal Energy Storage for Energy Efficient Buildings (TESS-E<sup>2</sup>-B), Athens, Greece, April 2018.
44. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, Hellenic Association for Energy economics (HAEE), Athens, Greece, May 2018.
45. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, SEEP Conference, Glasgow, UK, May 2018.
46. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, ESCC Conference, Mykonos, Greece, June 2018.
47. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, Solaris Conference, Chengdu, China, August 2018.
48. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, CPOTE Conference, Glinwice, Poland, September 2018.
49. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, SDEWES Conference, Palermo, Italy, October 2018.
50. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, ASET - Renewable and Sustainable Energy International Conference, Dubai, UAE, March 2019.
51. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, 6th International Conference on Energy, Sustainability and Climate Change, ESCC 2019, Hania, Crete, Greece, June 2019.
52. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, ECOS 2019, Wrocław, Poland, June 2019.
53. **Keynote speaker on:** *Building Integrated Solar Thermal Systems A new era of renewables in buildings*, International Conference on Energy and Cities, Southampton, UK, July 2019.
54. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, Qatar Sustainability Summit, Doha, Qatar, October 2019.
55. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, SEEP 2019, Sharjah, UAE, November 2019.
56. **Keynote speaker on:** *Renewable Energy Systems: Current Status and Prospects*, Conference on Research and Development in Power Engineering, Warsaw, Poland, December 2019.

### III.2 Editorial

- **Editor-in-Chief** of *Renewable Energy Journal* (2014-today).
- **Deputy Editor-in-Chief** of *Energy-The International Journal* (2013-today).
- **Section Editor** (Thermal Engineering) of *Journal of Engineering and Technology Research* (2009-today).
- **Member of the Editorial Board** of:
  1. *International Journal of Low Carbon Technologies* (2005-today).
  2. *Recent Patents in Engineering Journal* (2006-today).
  3. *International Journal of Engineering Simulation-with Industrial Applications* (2006-today).
  4. *The Open Nanoscience Journal* (2007-today).
  5. *The Open Environmental Sciences Journal* (2007-today).
  6. *Recent Patents on Mechanical Engineering Journal* (2007-today).
  7. *The Open Thermodynamics Journal* (2007-today).
  8. *The Open Environmental Journal* (2008-today).
  9. *The Open Chemical Engineering Journal* (2008-today).
  10. *Applied Energy Journal* (2009-today).
  11. *International Journal of Sustainable Cities and Society*. (2010-today).
  12. *ISRN Renewable Energy (open access)* - (2012-today).
  13. *Progress in Energy and Combustion Science Journal*. (2012-today).
  14. *Journal of Energy (open access)* - (2012- today).
  15. *Frontiers in Energy (FIE)* – (2018-today).
  16. *International Journal of Ocean Systems Management* – (2020-today).

### III.3 Reviewer of Scientific Journals

#### Reviewer of 66 journals (only a few are given here):

- Renewable Energy Journal (1997-today).
- Energy – The International Journal (1998-today).
- ASME Journal of Solar Energy Engineering (2000-today).
- International Journal of Heat and Mass Transfer (2001-today).
- Solar Energy (2002-today).
- Applied Thermal Engineering (2004-today).
- International Journal of Low Carbon Technologies (IJLCT) (2005-today).
- Desalination (2005-today).
- Heat and Mass Transfer (2006-today).
- Solar Energy Materials and Solar Cells (2007-today).
- Applied Energy (2007-today).
- Journal of Renewable and Sustainable Energy (2009- today).
- Journal of Energy Engineering (2010- today).
- Energy Conversion and Management (2011-today).

## **IV. INDUSTRIAL AND ACADEMIC EXPERIENCE**

### **IV.1 Industrial Experience**

#### **Intersol Engineering Ltd, Building Services Consulting Engineer (July 1982-August 1987)**

My work with Intersol Engineering Ltd, as a consulting engineer, comprised the following:

- Decision on the type of system to be employed (negotiations with building owners and/or architects).
- Techno-economic analysis of systems.
- Estimation of the cooling and heating load requirements of buildings.
- Design of the building Heating Ventilating and Air conditioning (HVAC) systems.
- Preparation of technical specifications.
- Supervision of draftsmen for the preparation of drawings.

Moreover, it included:

- (i) Tender evaluation and preparation of contract documents.
- (ii) Supervision of the work executed to ensure compliance with drawings and specifications and issue of periodic payment certificates.
- (iii) Design and supervision of other building services systems such as plumbing (hot and cold water services and drainage), solar systems, swimming pools, compressed air networks, fire fighting systems and cold stores.
- (iv) Supervision of the commissioning of the systems.

### **IV.2 Academic Experience**

#### **1. Higher Technical Institute, Instructor (September 1992-December 2007)**

#### **2. Cyprus University of Technology:**

- (i) Assistant Professor – CUT (2008-2017)
- (ii) Professor – CUT (2017-today)

#### **3. Other Academic Appointments**

- I. Associate Research Fellow, Brunel University, UK (1996-2001)
- II. Visiting Research Fellow, London South Bank University, UK (2005-2009)
- III. Visiting Fellow, University of Glamorgan, UK (2006-2011)
- IV. Visiting Professor, Brunel University, UK (2011-2014)
- V. Adjunct Professor, Dublin Institute of Technology, Ireland (2012-2017)
- VI. Visiting Professor, University of Corsica, France (2018)

### **IV.3 Post-Graduate Project Supervisions**

#### **1. Thermal analysis of the dorsal sail and body of *Dimetrodon Limbatus***

Mr. George Florides, MPhil, 1998.

Brunel University-UK, Department of Mechanical Engineering.

Supervised jointly with Professors S. Tassou and L. Wrobel.

**2. Financial appraisal of a CHP/absorption chiller system for a hotel**

Mr. Mercouris Papamarcou, MSc, 1999.

Brunel University-UK, Department of Mechanical Engineering.

Supervised jointly with Dr. D. Datta.

**3. Modelling and performance evaluation of a thermosyphon solar water heating system**

Mr. Christos Papamarcou, MSc, 1999.

Brunel University-UK, Department of Mechanical Engineering.

Supervised jointly with Dr. B. E. Smith.

**4. Development of low cooling energy technologies for the Cypriot environment**

Mr. George Florides, PhD, 2001.

Brunel University-UK, Department of Mechanical Engineering.

Supervised jointly with Professors S. Tassou and L. Wrobel.

**5. Modelling and testing hybrid photovoltaic-thermal solar collectors for Cyprus**

Mr. Petros Charalambous, PhD, 2008.

London South Bank University, Department of Mechanical Engineering, UK.

Supervised jointly with Professor Graeme Maidment and Dr. Kika Yiakoumetti.

**6. A probabilistic approach to the modelling and analysis of solar thermal system performance**

Mr. Marios Kalli, MSc (2010)

Loughborough University, UK. Supervised jointly with Dr. Paul Rowley

**7. A study on high-speed Magnetic Induction Tomography instrumentation aiming at low conductivity applications**

Mr. George Panayi, PhD (2003-2013)

University of South Wales, UK.

Supervised jointly with Professor R.J. Williams and Dr. Ralf Patz

**8. Investigation of the energy behavior of the residential building stock of Cyprus and application of commercial and innovative insulation materials to achieve net zero energy buildings.**

Mr. Gregoris Panayiotou, PhD (2009-2014)

Brunel University, Department of Mechanical Engineering, UK.

Supervised jointly with Professor Savvas Tassou.

**9. Thermal analysis of Building Integrated PV (BIPV)**

Mrs. Rafaella Agathokleous, PhD (2014-2017)

Cyprus University of Technology, Department of Mechanical Engineering and Materials Sciences and Engineering

**10. Optimum solutions for the integration of solar systems into the building envelope**

Mr. Constantinos Vasiliades, PhD (2013-2017)

University of Cyprus, Department of Architecture

Supervised jointly with Professor Andreas Savvides

#### **IV.4 PhD Examiner**

1. Ph.D. in Mechanical Engineering of Mr. A. Valan Arasu, Anna University, India (2006).
2. Ph.D. in Mechanical Engineering of Mr. K. Kalidasa Murugavel, Anna University, India (2008).
3. Ph.D. in Mechanical Engineering (confirmation examination) of Mr. Lacour Ayompe, Dublin Institute of Technology (2009).
4. Ph.D. in Industrial Engineering of Mr. Eduard Oró Prim, University of Lleida, Spain (2012).
5. Ph.D. in Mechanical Engineering of Mr. Agrrey Mwesigye, University of Pretoria, South Africa (2014).
6. Ph.D. in Mechanical Engineering of Mr. Ben M. Ekman, Faculty of Engineering and Industrial Science, Swinburne University of Technology, Australia (2015).
7. Ph.D. in Mechanical Engineering of Mr. Marios Georgiou, Cyprus Institute (2015).
8. Ph.D. in Mechanical Engineering of Mr. Georgios Georgiou, Department of Civil and Building Engineering, Loughborough University (2015). Thesis: Assessing Energy and Thermal Comfort of Domestic Houses in the Mediterranean Region.
9. Ph.D. in Mechanical Engineering of Mrs. Vassiliki Drosou, Dimikritio University of Thrace (2017).
10. Ph.D. in Mechanical Engineering of Mrs Maria Herrando Zapater, University of Zaragoza, Spain, 2017.
11. Ph.D. in Mechanical Engineering of Mr James Bambara, Concordia University, Montreal, Canada (2018).
12. Ph.D. in Faculty of Engineering and the Build Environement by Ronald Muhumuza, University of Ulser, UK (2019).

#### **IV.5 Courses Taught**

1. Computer Aided Design and Drafting (MME 213).
2. Heat and Mass Transfer (MME 323).
3. Energy Resources and Buildings Energy Performance (MME 426)
4. Renewable Energy Systems (HMY 426)
5. Solar Engineering (MMY 537), Master
6. Research Methods (MMY 504), Master
7. Seminars (MMY 505), Master

#### **IV.6 Promotion Evaluations**

1. Promotion of Dr. Jayanta Deb Mondol to the position of Senior Lecturer, University of Ulster, UK.
2. Promotion of Dr. Aggelos Zacharopoylos to the position of Senior Lecturer, University of Ulster, UK.
3. Promotion of Dr Huge Cereira to the position of Associate Project Scientist, Center for Energy Research, University of California, 2017.
4. Promotion of Dr Elias Yfantis for the position of Professor, University of Nicosia, 2018.
5. Member of the Electoral Committee for a position in the rank of Assistant Professor in the area of “Energy Systems and Indoor Climate in Buildings”, University of Western Macedonia, 2018.
6. Promotion of Dr Timothy Nicholas Anderson for the position of Associate Professor, Auckland University of Technology, New Zeland, 2018.
7. Chairman of the Electoral Body for the recruitment of Mrs Chryso Lanmantou as

Assistant Professor, University of Lleid, Spain, 2020.

#### **IV.7 Evaluator of Educational Programs**

1. Hellenic Quality Assurance Agency for Higher Education, Hellenic Republic.
  - a. Department of Mechanical Engineering & Aeronautics – Universty of Patras.
  - b. Department of Natural Resources and Environment – Technological Educational Institute of Crete.
2. Ministry of Education, Republic of Cyprus
  - a. Automobile Engineering – Ledra College, Nicosia.
  - b. Mechanical Engineering Technology – Intercollege, Nicosia.

## V. RESEARCH ACTIVITIES

**Total research budget handled:** €5,684,780 (excluding labour cost).

### Description of Research Projects

#### 1. Energy conservation in HVAC systems design.

**Period:** 1985.

**Funding:** Intersol Engineering - Building Services Consultants €500

**Description:** The project covers energy conservation in various aspects of building services design such as, building exterior structure thermal requirements, calculation of heating and cooling loads, controls, mechanical ventilation systems, economiser cycles, piping and ducting insulation, HVAC energy recovery systems, and heat storage systems.

#### 2. Solar energy utilisation using parabolic trough collectors in Cyprus.

**Period:** 1989-1991.

**Funding:** Higher Technical Institute Research Budget €4000

**Description:** The objective of the project was to develop a parabolic trough collector system for use in Cyprus and evaluate its performance characteristics. This was achieved by following an analysis of the incident radiation geometry for a number of modes of tracking using a computer program written for this purpose. The solar radiation available at the geographic location of Nicosia-Cyprus was analysed and a reference year was developed. The characteristics of a parabolic trough collector were analysed and equations describing its performance were developed. Computer programs were developed for the optical and thermal design, and the optimisation and simulation of the collector system. The polar mode of tracking was selected and the tracking mechanism was designed and tested. The collector performance evaluation was undertaken by using a data acquisition system developed for this purpose. A financial appraisal of the collector system was carried out followed by a feasibility study of using the parabolic trough collector against the flat plate collectors in a number of applications.

#### 3. The application of solar desalination for water purification in Cyprus.

**Period:** 1992-1995.

**Funding:** Higher Technical Institute Research Budget €5300

**Description:** A solar desalination system was developed as part of this project. A review of the history of solar desalination was first carried out followed by an analysis of the Cyprus water shortage problem. A survey of desalination and distillation systems was carried out. The selection of the best desalination method to be used was based on energy consumption, equipment cost, sea-water treatment requirements and suitability for operation under variable steam supply conditions. The design of the solar parabolic trough collector system was based on previous work. Special consideration was given to the development of methods for estimating the collector intercept factor, and to the estimation of the radiation intensity distribution on the collector receiver and mode of tracking selection. Computer programs were developed for all the above analyses and for modelling of the steam generation system. A suitable system was selected to separate steam from high temperature and pressure water based on capital cost of the system and the avoidance of flow instability problems. A new method of accurate parabola construction was developed using fibreglass. Some modifications to the tracking mechanism developed before were carried out. A data acquisition system was set up for the system performance evaluation. Preliminary tests indicated the need to reduce start-up energy requirements. A modelling program was developed to optimise the system and this was validated for both steady state and transient conditions. An economic analysis of the collector system was carried out followed by a feasibility study, performed with a spreadsheet program, for using the system in a

number of applications.

#### **4. Development of an integrated collector storage (ICS) system for sanitary water production.**

**Period:** 1995-1997.

**Funding:** Higher Technical Institute Research Budget €4000

**Description:** This project deals with the design and construction of an Integrated Collector Storage (ICS) system. System modelling and optimisation is carried out by the use of a computer code written for this purpose. Performance measurements were used to validate the model. Additionally, the costing of the system was carried out followed by an economic analysis, performed with the F-Chart program. On a subsequent research, modifications were used in the original design in order to reduce the night thermal losses. A second tank was introduced at the space between the main cylinder and the glass cover in order to reduce the convection currents thus reducing the night thermal losses. Also as the cold water is introduced first to the primary tank there is no direct mixing of this water and the hot water which greatly improves the collector draw-off characteristics.

#### **5. Thermodynamic properties of exothermic animals.**

**Period:** 1996-1999.

**Funding:** Higher Technical Institute Research Budget €2400

**Description:** Appointed Associate Research Fellow by the Brunel University in UK in order to supervise the MPhil in Mechanical Engineering of Mr. Georgios Florides. The thermal analysis considered heat transfer by conduction, convection and radiation as well as by metabolism and evaporation. The finite differences method has been used for the estimation of the energy balance of the animal. The natural environment and the thermal behaviour of the animal were studied and the weather of the Permian period was reconstructed.

#### **6. Engineering applications of artificial neural networks.**

**Period:** 1996-today.

**Funding:** University of Cyprus (part) €7000

**Description:** Application of artificial neural networks for modelling, mapping and predictions in various engineering problems such as:

- modelling of parabolic trough collector steam generation system start-up energy requirements
- calculation of intercept factor, and of local concentration ratio of parabolic trough collectors
- estimation of performance and design of a solar steam generator
- building heating load and daily heating and cooling loads estimation
- estimation of overall heat transfer coefficients (U-values)
- rainfall prediction and generation of isohyets
- performance prediction and modelling of solar water heating systems long-term performance prediction of solar water heating systems
- natural ventilation of buildings and pressure coefficients estimation
- wind speed prediction
- development of an electric car fault diagnostic system
- prediction of maximum solar radiation, forecast of total radiation and clearness index in remote areas
- prediction of collector performance parameters
- thermodynamic analysis of absorption systems
- stand-alone photovoltaic systems
- solar system fault diagnostic system
- modelling integrated collector storage systems in combination with TRNSYS
- FPGA implementation of a real-time PV module simulator
- Sizing of PV systems

## **7. Desalination of sea-water using renewable energy sources.**

**Period:** 1996-2000.

**Funding:** EU grant of €996,000 under the INCO program (DG-XII). Contract number: ERB3514PL950259.

**Partners:** DimMan Consultants,  
Aristotle University of Salonika,  
Higher Technical Institute,  
EDP/PROET Portugal,  
Conphoebus Italy, and  
Royal Scientific Society Jordan

**Description:** Design, performance analysis and economic analysis of two desalination systems one installed in Thessaliniki, Greece and one in Aqaba, Jordan. The first pilot plant is of the vapour compression type whereas the second employs a multiple effect evaporator and parabolic trough collectors.

**Role:** *Local scientific and financial co-ordinator.*

## **8. Comparison of the performance of stationary and tracking solar collectors for thermosyphon water heaters in Greece and Cyprus.**

**Period:** 1996-1998.

**Funding:** The program is under the Greek-Cyprus inter-government agreement for scientific and technological co-operation and financed with 2,650,000Drh (€9100).

**Partners:** Higher Technical Institute,  
Athens Observatory, and  
Applied Energy Centre

**Description:** This project deals with a comparison of the performance of stationary and tracking collectors for thermosyphon water heaters in Cyprus and Greece. As part of this project the development of typical meteorological year for Cyprus and the evaluation through modelling and simulation of the best orientation and/or tracking mode of thermosyphon flat-plate collectors, and economic analysis of the various systems proposed were carried out.

## **9. Solar water heating.**

**Period:** 1997-today.

**Funding:** Higher Technical Institute Research Budget €1700

**Description:** This subject is studied in a number of small projects as follows:

- i. The current status and problems of solar water heating in Cyprus were studied. The status and potential of the industry and the factors on which the success of Cyprus in this area depends were also analysed. Current status shows that the number of units in operation today in Cyprus corresponds to one heater for every 3.7 people in the island, which is a world record.
- ii. The possibility of using a hybrid photovoltaic (PV) and thermal collector (PV/T) was studied in another project. Such a system can provide electricity and heat simultaneously whereas at the same time the PV system works at lower temperature and thus at higher efficiency.
- iii. In another study a model of a solar water heating system based on time marching was developed. The results of this investigation may be used to design new solar collector systems, and to operate already designed systems, effectively.

- iv. A comparison of the simulated performance of solar water heaters by using typical meteorological year and mean monthly data was investigated and the two models are found to be in agreement which is due to the stable weather present in Cyprus.
- v. In another project the energy subsidisation policies of Cyprus and their effect on renewable energy systems economics are examined.
- vi. A new technique is developed for the optimisation of solar systems using artificial neural networks and genetic algorithms. In this technique, the solar system under investigation is modelled with TRNSYS and a small number of simulations are carried out. Selected results from the simulations are used to train the neural network and the trained network is used with a genetic algorithm to select the optimum system characteristics which maximise the output of the system or the life cycle savings.
- vii. Environmental impact and benefits of solar water heating systems. In this project, the environmental impact of energy utilization and the potential benefits that solar systems offer has been investigated. With respect to life cycle assessment of the systems, the energy spent for the manufacture and installation of the solar systems is recovered in about 1.2 years.

#### **10. Modelling and performance evaluation of a thermosyphon solar water heating system.**

**Period:** 1998-1999.

**Description:** Supervision of the MSc Project by Mr. Christos Papamarcou. As part of this project a thermosyphon solar water heater was modelled with TRNSYS program. This was followed by performance evaluation of the system in order to validate the model.

#### **11. Financial appraisal of a CHP/absorption chiller system for a hotel.**

**Period:** 1998-1999.

**Description:** Supervision of the MSc Project by Mr. Mercouris Papamarcou. The energy consumption of a hotel was analysed and the financial viability of the combined heat and power system was investigated. Special attention was given to the use of absorption chiller to cover the cooling load of the hotel.

#### **12. Investigation into the effectiveness of measures to reduce the energy requirements of domestic dwellings in Cyprus.**

**Period:** 1998-2001.

**Funding:** Higher Technical Institute Research Budget €6000

**Description:** Appointed Associate Research Fellow by the Brunel University in UK in order to supervise the PhD in Mechanical Engineering of Mr. George Florides. The project covers detailed analysis of heating and cooling loads of typical Cypriot houses, evolution and energy analysis of buildings in Cyprus and measures to lower the building energy consumption and their cost effectiveness. It includes also a review of solar and low energy cooling technologies for buildings, the design, construction and performance evaluation of an absorption LiBr refrigerator, the modelling, optimisation and economic analysis of the system and global warming impact assessment. The effect of the use of thermal mass in buildings was also studied.

#### **13. MED-POL: Innovative decentralised energy and water management policies can encourage the creation of a market economy and help rural development.**

**Period:** 1999-2002.

**Funding:** EU grant of €327,000 under the INCO program (DG-XII) for the research project.

Contract number: IC 18 CT98-0289.

**Partners:** 12 European and third Mediterranean countries (concerted action project).

**Description:** This project aimed to achieve the establishment of a new model for sustainable rural development in non-electrified small-medium villages of the third Mediterranean countries. This was achieved by using as much as possible the new renewable energies and water management technologies. The feasibility of this project was demonstrated and the policy programs suitable for the region were identified.

#### **14. Design a low-cost spray evaporator for desalination of seawater.**

**Period:** 2000-2003.

**Funding:** Higher Technical Institute Research Budget €2900

**Description:** The evaporator is designed based on the theory of cooling towers, i.e., the evaporation is enhanced by spaying the water. The simulation of the evaporator was carried out with a computer program written for this purpose. The whole unit was constructed from Perspex so as to be able to visually check the various effects taking place within the evaporator. As part of this project the effect of water price on the cost of desalinated water, produced with conventional fuels, and the case of using renewable energy sources was investigated.

#### **15. Solar industrial process heat.**

**Period:** 2001- today.

**Funding:** Higher Technical Institute Research Budget €850

**Description:** Despite the success of Cyprus in solar water heating, which ranks our country to the first place internationally with respect to the number of installed solar water heaters per inhabitant, no industrial application exists. The possibility of using solar energy in food industry was studied. Additionally, the use of parabolic trough collectors for industrial process heat applications in Cyprus was investigated. Finally, the potential of solar industrial process heat in other sectors of the industry like textile, plastics, bricks and blocks, timber and chemical and the use of a number of collector types are examined.

#### **16. Optimisation of building design characteristics for houses in Cyprus.**

**Period:** 2001-2006.

**Funding:** Higher Technical Institute Research Budget €4600

**Partners:** Dr. George Florides, Mr. Evangelos Evangelou and Mr. George Alexandrou

**Description:** The main objectives of this project are to analyse the energy requirements of existing houses in Cyprus and to optimise the design characteristics of walls, roof, openings and overhangs with respect to thickness, type of material, combinations of materials and building orientation. Finally, economic viability studies of the above alternatives will be carried out. Additionally, as part of the project a comparison of the thermal loads of buildings erected at four typical locations in Cyprus has been carried out.

#### **17. Design, construction and performance evaluation of an air collector system for domestic applications in Cyprus.**

**Period:** 2001-2004.

**Funding:** Higher Technical Institute Research Budget €850

**Partner:** Mr. Charalambos Tsioutis

**Description:** The main achievements of this project were the design and construction of an air collector for use in Cyprus at the lower possible cost. The performance characteristics of the designed system were determined. Other work carried out in this project includes simulation studies for the application of this type of collector for various systems in Cyprus and economic viability studies for a number of applications.

#### **18. Design of a fuzzy single-axis sun tracking controller.**

**Period: 2002**

**Description:** The objective of this project was to design a fuzzy single-axis tracking controller. The controller was developed in Matlab environment and proved to be very effective and accurate. The tracking accuracy was found not to be dependent on the magnitude of the solar irradiance, as in other systems, and the maximum deviation from zero was  $0.23^\circ$  which is very acceptable.

**19. Solar collectors and applications.**

**Period:** 2001-today.

**Funding:** Higher Technical Institute Research Budget €2900

**Description:** This subject is studied in a number of small projects as follows:

- A. Use of genetic algorithms for the optimal design of flat plate collectors. In particular, the optimum number of riser pipes has been decided based on their cost and relative effectiveness; the bigger the number of pipes the better the collector efficiency but the cost is more.
- B. The impact of the optical properties on the performance of flat-plate solar collectors. The parameters investigated are the number of glazing, absorber plate absorptance and emittance.
- C. Entropy generation minimisation of imaging concentrating solar collectors.
- D. Environmental impact of solar collectors. World renewable energy Congress, Denver, Colorado.
- E. Investigated through experimentation and simulation the use of color collectors for various applications.

**20. Thermal load of buildings and ground heat exchangers.**

**Period:** 2003-2006

**Funding:** Higher Technical Institute Research Budget €15200

**Partner:** Dr. G. Florides

**Description:** The objective of this project is to study the weather conditions of Cyprus including ground temperatures and humidity. Typical building loads were determined using extreme weather conditions. Subsequently, the possibility of using ground as energy source/sink, which offer large storage capacity and can be used either for overnight or for seasonal storage, was investigated. Building simulations using ground heat exchangers in combination with a heat pump under various weather conditions was performed. A review of ground heat exchangers is undertaken and the first in-situ determination of a thermal performance of a U-pipe borehole heat exchanger in Cyprus was carried out.

**21. Thermal analysis of windows constructed in Cyprus.**

**Period:** 2003-2006

**Funding:** Higher Technical Institute Research Budget €1000

**Partner:** Dr. G. Florides

**Description:** The objective of this project is to review the various types of windows constructed in Cyprus and classify them into categories, perform thermal analysis of windows by considering both glass area and frame, investigate the effect of type of window and area on building thermal loads and perform optimisation studies on the optimum window area for various types of windows. For the thermal analysis specialised software (Window 5.2 and Therm 5.2) provided by LBL, USA was used.

**22. Precise phase measurements in Magnetic Induction Tomography (MIT).****Period:** 2003-2011**Description:** Supervision of Mr. George Panayi for MPhil/PhD in Electronics Engineering in collaboration with the University of Glamorgan, School of Electronics, UK. The prime aim of the investigation was to review the availability and suitability of existing phase measurement techniques to achieve low millidegrees precision on sinusoidal signals in the 0.1 MHz region. This included an evaluation of phase noise in amplification and MIT system signal distribution.**23. Modelling and testing hybrid photovoltaic-thermal solar collectors for Cyprus.****Period:** 2003-2008**Funding:** Higher Technical Institute Research Budget €1200**Description:** Supervision of Mr. Petros Charalambous for PhD in Mechanical Engineering in collaboration with the London South Bank University, Department of Mechanical Engineering, UK. The objective of the project is to design a hybrid PV/T collector which produces both thermal and electrical energy. As the performance of the PV at elevated temperatures is reduced, keeping the PV at a low temperature increases its efficiency and the collected thermal energy can be used for other useful purposes, like water heating.**24. Utilisation of existing wind mills for the production of electricity from wind energy****Period:** 2003-2004**Description:** Supervision of students from Xenion High School in Paralimni as Expert Researcher for the project aiming to utilise the existing wind mills of their area for the generation of electricity. The project was submitted in (Research Promotion Foundation (RPF) under the program MERA 2003-2004 and took the second price.**25. Thermal analysis of absorption refrigeration systems****Period:** 2004-today**Partners:** Arzu Sencan**Description:** Using artificial neural networks performed thermal analysis of absorption refrigeration systems employing various working fluids, thermodynamic analysis of absorption systems and investigated the effects of subcooling and superheating. Work includes also systems employing solar ponds, second law (exergy) analysis of absorption refrigeration systems and thermoeconomic optimisation of the systems.**26. Fault detection of solar water heating systems using artificial neural networks****Period:** 2006-2007**Funding:** €6800 Research Promotion Foundation and ADEME France. Contract KY-ΓA/0395/02**Partner:** Sylvain Lalot, University of Valenciennes, France.**Description:** Project carried out under the Cyprus-France Bilateral Research Program of the Research Promotion Foundation. As part of this project various TRNSYS models were created in order to model various faults in solar systems. The results of these models were used to train suitable artificial neural networks to predict and classify the faults.**Role:** *Responsible Scientist.*

### **27. Use of artificial intelligence tools for the modelling and prediction of photovoltaic systems**

**Period:** 2006-today

**Partner:** Mellit Adel, Department of Electronics, Institute of Engineering Sciences, University Centre of Medea, Algeria.

**Description:** In this project, various artificial intelligence techniques have been used for the modelling of photovoltaic (PV) systems. In particular, ANNs were used for the prediction of total radiation and for the sizing of stand-alone PV systems. Additionally, an ANFIS was used for the modelling of PV systems and a combination of ANN and GA for predicting the optimal coefficients of PV systems. The work included also modelling and simulation of stand-alone systems, predicting sequences of mean monthly clearness index and daily solar radiation in remote areas and review papers.

### **28. Hybrid photovoltaic/thermal collectors – Thermal and ecological design.**

**Period:** 2007-2008

**Budget:** €47,000 Research Promotion Foundation under the Greece-Cyprus intergovernmental research agreement. Contract KY-EΛ/0406/10

**Partners:** Demetris Tsipas, Aristotle University of Salonica, Greece  
Yiannis Tripanagnostopoulos, University of Patras, Greece.

**Description:** In this project a hybrid photovoltaic/thermal collector was designed and constructed by taking into consideration ecological factors in all stages of the design. The collector tests were carried out both in Patra, Greece and Nicosia, Cyprus, both in force circulation and thermosiphonic mode.

**Role:** *Responsible Scientist.*

### **29. Multi-APprOach for high efficiency integrated and intelLLigent CONcentrating PV modules (Systems) [APOLLON]**

**Period:** 2008-2010

**Budget:** €11.8 million (Cyprus €211,000) European Union FP7

**Partners:** A total of fifteen partners from ten European countries. Participated as collaborator of CYS and as an external associate of the University of Cyprus.

**Description:** This is a large scale integrated research project. The main objective is to develop a new generation of high performance concentrating photovoltaics. The Cyprus team has undertaken the testing of the developed products.

### **30. Advanced absorber coatings for parabolic trough collectors**

**Period:** 2010-2013

**Budget:** €75,000 University internal project.

**Partners:** Pantelis Kelires, CUT  
Panos Patsalas, University of Ioannina

**Description:** The objective of this project is to develop selective coatings for solar applications and in particular for parabolic trough collectors, which is a high temperature solar system.

### **31. Research unit for nanostructured materials systems**

**Period:** 2010-2013

**Budget:** €1,999,560 by the Cyprus Research Promotion Foundation, Code: NEA ΥΠΙΟΔΟΜΗ/ΣΤΡΑΤΗ/0308.

**Description:** The development of a research center on nanostructured materials. One of the areas of research of the center is on solar energy materials. In this project, I am the project

coordinator of one of the projects on design and development of advanced absorber coatings for solar energy applications, and coordinator together with another colleague of the Industry Liaison, Education, Training and Outreach activities. As part of the latter action I am member of the Steering, Guiding, Industry Liaison, Education Outreach and Advisory Committees.

### **32. Investigation and determination of the geothermal parameters of the ground in Cyprus, the use of the design of ground heat exchangers and heat pumps**

**Period:** 2009-2012

**Budget:** €176,000 by the Cyprus Research Promotion Foundation, Code: TEXNOΛΟΓΙΑ/ΕΝΕΡΓ/0308(BIE).

**Partner:** Geological Survey Department

**Description:** The examination of the ground characteristics of Cyprus and the development of the geothermal map of the island.

### **33. Classification of buildings according to their energy efficiency**

**Period:** 2009-2010

**Budget:** €132,000 by the Cyprus Research Promotion Foundation, Code: ΑΕΙΦΟΡΙΑ/ΑΣΤΙ/0308 (BIE)

**Partners:** University of Cyprus  
Scientific Technical Chamber of Cyprus  
Energy Services  
Talos Consultants

**Description:** The determination of the energy efficiency of the housing stock of Cyprus, through a structured questionnaire and the classification of buildings into categories.

**Role:** *Coordinator*

### **34. Research and Development Study for a Concentrated Solar-Power – Desalination of Seawater Project**

**Period:** 2009-2010

**Description:** The study of various concentrating solar systems and their combination with a desalination system for the environmental conditions of Cyprus.

### **35. Next generation cost effective phase change materials for increased energy efficiency in renewable energy systems in buildings (NeCoE-PCM)**

**Period:** 2009-2011

**Budget:** €388,000 European Cooperation in the field of Scientific and Technical research (COST) COST action TU0802.

**Description:** This action's objective is to foster and accelerate long-term advancement of renewable energy systems and phase change materials research in Europe through design, development, characterisation and simulation of new generation modified hybrid phase change materials for use in energy storage for heating, cooling and renewable energy applications.

### **36. Investigation of the energy behavior of the residential building stock of Cyprus and application of commercial and innovative insulation materials to achieve net zero energy buildings.**

**Period:** 2009-2014

**Description:** Supervision of Mr. Gregoris Panayiotou, PhD, carried out in collaboration with Brunel University, Department of Mechanical Engineering, UK. The object of the project is to analyze the energy behavior of the houses in Cyprus and the application of commercially

available insulating materials as well as phase-change materials for the reduction of the energy consumption and achievement of houses with net zero energy consumption.

### **37. Building-integrated fibre-reinforced solar technology (BFirst)**

**Period:** 2012-2016

**Budget:** €5,389,910, Cyprus part €507,040, FP7.

**Partners:** Tecnalía (Spain), coordinator, Acciona (Spain), Atersa (Spain), ENEA (Italy), CRES (Greece), Heron (Greece), KOW (Netherlands), VSM (Belgium).

**Description:** BFIRST project will deal with the design, development and demonstration of a portfolio of innovative photovoltaic products for building integration, based on cell encapsulation within fibre-reinforced composite materials. Currently available photovoltaic products will be expanded with new standardized solutions developed to a pre-industrial stage. Composite material manufacturing and cell encapsulation take place in a single-step process. The consortium is composed by architects, construction companies, photovoltaic manufacturers, universities and private research centres.

### **38. Development of a test method for thermosyphon operated solar collectors**

**Period:** 2012-2014

**Budget:** €99,880 by the Cyprus Research Promotion Foundation, Code: TEXNOΛΟΓΙΑ/ΕΝΕΠΓ/0311(BIE).

**Partners:** Applied Energy Centre, Institute of Energy, Cyprus Standards Organisation, Talos.

**Description:** This project aims to develop an adequate test method for determining the ability of a solar flat plate collector to operate thermosyphonically or to generate thermosyphon-loop, since EN12975:2-2006 (Thermal solar systems and components – Solar collectors’) and other similar standards do not cover this technical issue. The task of the project is to suggest to the Cyprus National Technical Committee CYS TC 13 “Thermal Solar Systems” a special method for testing solar collectors used in thermosyphon solar water heaters. A testing method to estimate the ability of a solar collector to generate thermosyphon-loop was drafted and consequently simulated by using TRNSYS software. The necessary test rig to apply test method and carry out tests was then be prepared. Finally, a proposal was prepared and submitted to Cyprus National Technical Committee CYS TC 13 “Thermal Solar Systems”. The implementation activity was accepted by CEN/TC 312 “Thermal Solar Systems and Components” Committee for the inclusion of a method for testing and evaluating the ability of solar flat plate collectors to generate thermosyphon-loop, in the next revision of standard EN12975.

**Role:** *Coordinator*

### **39. Building Integration of Solar Thermal Systems (BISTS)**

**Period:** 2012-2016

**Budget:** €550,000 European Cooperation in the field of Scientific and Technical research (COST) COST action TU1205.

**Description:** The Action helped to accelerate long-term development in STS through critical review, experimentation, simulation and demonstration of viable systems for full incorporation and integration into the traditional building envelope. Viable solutions considered economic constraints, resulting in cost effective Building Integrated STS. Additionally, factors like structural integrity, weather impact protection, fire and noise protection were considered. The most important benefit of this Action was the increased adoption of RES in buildings. Three generic European regions are considered; Southern Mediterranean, Central Continental and Northern Maritime Europe. The Action consortium

presents a critical mass of European knowledge, expertise, resources, skills and R&D in the area of STS, supporting innovation and conceptual thinking.

**Role:** *Action Chair*

**40. Evaluation of the Dispatchability of a Parabolic Trough Collector System with Concrete Storage (EDITOR)**

**Period:** 2016-2019

**Budget:** €923,761 Solar ERA-NET (€100,000 CUT part).

**Partners:** Protarget AG (Coordinator), Solar-Institut Jülich of the Aachen University of Applied Sciences (SIJ), German Aerospace Center (DLR), Soluciones de Ingeniería, S.L. (CADE).

**Description:** The objective of EDITOR is to carry out industrial research that demonstrates and verifies the dispatchability and performance of a solar power system designed for continuous operation. The system will consist of a mid-sized parabolic trough collector loop combined with a concrete thermal energy storage and is experimentally designed for industrial applications requiring heating or cooling on a 24-hour basis. The solar power plant was installed in Cyprus, which has excellent solar resources.