



## **Prof. Socrates Kaplanis Curriculum Vitae**

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**Academic background:** Physics Degree, University Thessaloniki, Greece, MSc in Nuclear Reactors, Aston University in Birmingham, UK, PhD in radiation detection and modelling (University Patra, Greece and Weizmann Institute of Science, Rehovot, Israel)

**Academic positions held:** Prof. of Renewable Energy Systems in the TEI of Patra, and TEI of Western Greece, Head of the RES lab., Honorary Professor and d.h.c. in the Transylvania University of Brasov, and University of Pitesti, Romania, Visiting Professor, 1998-2008, in the University of Applied Sciences in Aachen, Germany

**Research background:** Solar radiation, prediction modelling, Zero and Intelligent Energy Buildings, PV systems engineering, Solar thermal engineering, PV based hybrid systems. Coordinator of national, international and European projects related to Renewable Energies and Sustainable Development, PV systems and coordinator of the European Summer University in PV systems (2002-20015).

**Posts held;** President of the Technological Educational Institute of Patra, 1993-1998, 2008-2013 and President of the the Technological Educational Institute of Western Greece 2013-2015.

Head of the RES Laboratory 1994-2015 and Director of the MSc course in Renewable Energies, Vice-President and President of the European Institutions in Higher Education, (EURASHE),(1990-1995),

Nominee of the Erasmus Prize, Board member in many Institutions and invited speaker, Organizer and committee member in many International Conferences.

**Prof. Socrates Kaplanis research interests are mainly reflected by published articles in International recognized Journals and in Conferences, as shown below.**

1.RG Stokstad, Y Eisen, S Kaplanis, D Pelte, U Smilansky, I Tserruya.” <i>Fusion of <math>O^{16} + Sm^{148,150,152,154}</math> at sub-barrier energies</i> ” Physical Review C 21, 2427, 1980
2.RG Stokstad, Y Eisen, S Kaplanis, D Pelte, U Smilansky, I Tserruya “ <i>Effect of nuclear deformation on heavy-ion fusion</i> ” Physical Review Letters 41 (7), 465, (1978)
3. S Kaplanis, E Kaplani “ <i>A model to predict expected mean and stochastic hourly global solar radiation <math>I(h; n_j)</math> values</i> ” Renewable energy 32 (8), 1414-1425, (2007)
4. SN Kaplanis “ <i>New methodologies to estimate the hourly global solar radiation: comparisons with existing models</i> ” Renewable Energy 31 (6), 781-790 (2006)
5.DT Cotfas, PA Cotfas, S Kaplan “ <i>Methods to determine the dc parameters of solar cells: A critical review</i> ” Renewable and Sustainable Energy Reviews 28, 588-596 (2013)
6. S Kaplanis, E Kaplani “ <i>Energy performance and degradation over 20 years performance of BP c-Si PV modules</i> ” Simulation Modelling Practice and Theory 19 (4), 1201-1211 (2011)
7. E Kaplani, S Kaplanis “ <i>Thermal modelling and experimental assessment of the dependence of PV module temperature on wind velocity and direction, module orientation and inclination</i> ” Solar Energy 107, 443-460 (2014)
8. E Kaplani, S Kaplanis “ <i>A stochastic simulation model for reliable PV system sizing providing for solar radiation fluctuations</i> ” Applied Energy 97, 970-981 (2012) citations 72
7. S Kaplanis, E Kaplani “ <i>Stochastic prediction of hourly global solar radiation for Patra, Greece</i> ” Applied Energy 87 (12), 3748-3758 (2010)
8. S Kaplanis, N Papanastasiou “ <i>The study and performance of a modified conventional refrigerator to serve as a PV powered one</i> ” Renewable Energy 31 (6), 771-780 (2006)
9. DT Cotfas, PA Cotfas, S Kaplanis “ <i>Methods and techniques to determine the dynamic parameters of solar cells</i> ” Renewable and Sustainable Energy Reviews 61, 213-221 (2016)
10. M Petrakis, G Barakos, S Kaplanis “ <i>Roof integrated mini-parabolic solar collectors. Comparison between simulation and experimental results</i> ” The Open Fuels & Energy Science Journal 2 (1) (2009)
11. S Kaplanis, J Kumar, E Kaplani “ <i>On a universal model for the prediction of the daily</i>

<i>global solar radiation</i> ”Renewable Energy 91, 178-188 (2016) citations 19
12. S Kaplanis, E Kaplani“ <i>Renewable energy systems: Theory, innovations and intelligent applications</i> ”Nova Science Publishers, Inc (2013)
13. SN Kaplanis “ <i>Efficiency variations of cylindrical detectors for non-axial point-sources</i> ’ The Int. J. of Applied Radiation and Isotopes 29 (9-10), 543-544 (1978)
14. D Panagiotaras, D Nikolopoulos, E Petraki, S Kottou, D Koulougliotis, S. Kaplanis “ <i>Comprehensive experience for indoor air quality assessment: a review on the determination of volatile organic compounds (VOCs)</i> Journal of Physical Chemistry & Biophysics 4 (5), 1 (2014)
15. SN Kaplanis “ <i>On the photofraction correction for voluminous sources and the mean photon path</i> ”The Int. J. of Applied Radiation and Isotopes 33 (8), 605-611 (1982)
18. SN Kaplanis “ <i>Geometric, effective solid angles and intrinsic efficiencies of a 3 × 3 in. NaI (Tl) for isotropic and non-isotropic photon emission</i> ”The Int. J. of Applied Radiation and Isotopes 33 (2), 127-135 (1982)
19. E Kaplani, S Kaplanis, S Mondal “ <i>A spatiotemporal universal model for the prediction of the global solar radiation based on Fourier series and the site altitude</i> ”Renewable Energy 126, 933-942 (2018)
20. I Tserruya, A Breskin, R Chechik, E Duering, S Kaplanis, N Trautner, S.N.kaplanis “ <i>The weizmann institute heavy-ion identification system</i> ”Nuclear Instruments and Methods in Physics Research 196 (1), 225-229 (1982)
21.SN Kaplanis “ <i>Monte Carlo calculations of the efficiencies and the parasitic pulses for a system of spherical sources and a 3 " × 3 "NaI (Tl) detector</i> ”Nuclear Instruments and Methods in Physics Research 188 (2), 353-359 (1981)
22..MA Petrakis, GT Karahalios, S Kaplanis “ <i>Steady flow in a curved pipe with circular cross-section comparison of numerical and experimental results</i> ” The open fuels & energy science journal 2 (1) (2009)
23. S Kaplanis “ <i>The design and integration of possible PV Configurations to determine the most cos effective system for a household</i> ” Invited paper in ADEPT FP6 project meeting proceedings, Springer Verlag (2004)
24.SN Kaplanis, R Rigopoulos “ <i>Analytical and Monte-Carlo results of the absorption probability functions for irradiated spherical probes</i> ” The Int. J. of Applied Radiation and Isotopes 31 (9), 569-573 (1980)
25..BT Stavroulaki, SN Kaplanis “ <i>Monte-Carlo solutions of the solid angle integrals for</i>

<i>radiation detectors</i> ” Computer Physics Communications 18 (1), 7-12 (1979)
26.S Kaplanis “ <i>Determination of the electrical characteristics and thermal behaviour of a c-Si cell under transient conditions for various concentration ratios</i> ”International Journal of Sustainable Energy 35 (9), 887-902 (2016)
27.E Kaplani, S Kaplanis “ <i>PV module temperature prediction at any environmental conditions and mounting configurations</i> ”Renewable Energy and Sustainable Buildings, Springer Verlag 921-933(2020)
28.S Kaplanis, E Kaplani“ <i>A New Dynamic Model to Predict Transient and Steady State PV Temperatures Taking into Account the Environmental Conditions</i> ”Energies 12 (1), 2 (2019)
29.S Kaplanis, E Kaplani “ <i>An effective simulation model to predict and optimize the performance of single and double glaze flat-plate solar collector designs</i> ”Journal of Engineering Science and Technology Review 5 (4), 56-65
30.E Kaplani, P Papadouris, S Kaplanis“ <i>pc-Si and c-Si Cell Studies at Transient and Steady in Various Illumination Levels</i> ”, Journal of Energy and Power Engineering 5 (1) 2011
31. SN Kaplanis “ <i>On the Introduction and Implementation of a Health&amp; Safety Policyin Educational Establishments Baesdon EC Directives</i> ” Environmental Engineering & Management Journal (EEMJ) 4 (2)), 183-188, 2005
32.BT Stavroulakis, SN Kaplanis “ <i>Program description of detector efficiency calculations for flat-extended sources</i> ” Int J of Applied Radiation and Isotopes 30 (6), 380-381
33. .P.Vizureanu, C. Samoila, D. Cotfas, S.Kaplanis “ <i>The achievement of an algorithm for the design of a solar furnace</i> ” Metalurgia International;Feb2010, Vol. 15 Issue 2, p5, 2010
34. SN Kaplanis“ <i>Electron transport through foils</i> ” Nuclear Instruments and Methods in Physics Research 203 (1-3), 359-365, 1982
35. SN Kaplanis “ <i>Monte Carlo calculations of the efficiencies and the parasitic pulses for a system of spherical sources and a 3 "x 3 "Nal (Tl) detector, , Nuclear Instruments and Methods in Physics Research 188 (2), 353-359, 1981</i>

### Conference Papers presented by Prof. S. Kaplanis

1.SN. Kaplanis, Ach. Kostoulas, K. Kottas “Hourly and daily clearness index for Achaia region, W.Greece generated by various techniques”, Proceedings of the LASTED International Conference; Power and Energy Systems, July 3-6 2001, Rhodes, Greece,

2.SN.Kaplanis, Ach.Kostoulas,C.Kitsonas,V.Konstantinopoulos,D.Spyrakis“A friendly software package to estimate indoors day- lighting and internal gain” IASTED International Conference on Power and Energy Systems (EuroPES), June 2002, Crete, Greece

- 3.S.Kaplanis, Z.Kapoti, N.Theodoropoulos, “A review of simulation models developed for solar air heaters” JASTED International Conference on Power and Energy Systems (EuroPES 2002), June 2002, Crete, Greece
4. S.Kaplanis, G. Barakos “Flat plate and concentrating collectors: A comparison of their performances. First results” PRASIC '02, Transilvania University in Brasov, Romania
- 5.S.Kaplanis, A.Kostoulas, K.Kottas “An investigation of the degreedays concept and subsequent evaluation for the region of Achaia, W. Greece” WREN Congress-VII Colone, Germany 29 June-5July 2002
- 6.S.Kaplanis, A.Kostoulas, O. Katsigianni, “A comparative study of the clearness index for the region of Achaia using various techniques” WREN Congress-VII Colone, Germany 29 June-5 July 2002
7. S.Kaplanis et al, A European M.Sc course on Solar Energy: Technology and Management, WREN Congress-VII, Colone, Germany 29 June-5 July 2002
- 8.S.Kaplanis, ND.Papanastasiou “The uncertainty in the sizing of PV-generators due to, Fluctuations in solar radiation and ambient temperature: the case of W. Greece” OPTIM Congress 2002, Brasov, Romania and Journal of Electrical Engineering 2003; 3: 71–74. ISSN 1582-4594
9. SN Kaplanis “Design and Determination of the Most Cost Effective PV Configuration Systems to Meet the Loads of a Household” Invited talk to FP6 ADEPT project,Product Engineering,Springer Verlag 473-508 (2004)
- 10.S.Kaplanis, N.Papanastasiou, “The determination of the most cost effective PV-configuration using detailed simulation of PV cell I-V and LCC analysis” IWTPV'04, Prague, 22-23 April 2004
- 11.SN.Kaplanis, E.Kaplani “PV-sizing Methodology with Reference to Solar Radiation Statistical Fluctuations” Int. Conference, TEI of Patra, 7-10 July 2005
- 12.S.Kaplanis, E,Kaplani “Description of a Reliable Model for Hourly Mean Global Solar Radiation and its Stochastic Values. A Comparison of Predicted Values” Int. Conference, TEI of Patra, 7-10 July 2005
13. S.Kaplanis “Long Term Performance of Flat Plate Solar Collectors Integrated into South Wall, Powering Space Heating Elements” Int. Conference, TEI of Patra, 7-10 July 2005
- 14.G. Barakos, SN Kaplanis, MA Petrakis “*Optical and Thermal Performance Simulation of Mini Parabolic Collectors with Several Geometries for Roof Integration*”Proceeding of the Int. Conference on the Integration of the Renewable Energy Systems into the Buildings Structure, Patra, (2005)
- 15.S Kaplanis “*Learning from the Performance Experience of the European PV systems; towards a Greek perspective scenario*” Proc. Int. Conf. on the Integration of Renewable Energy Systems into the Buildings structure” (2005)
- 16.S Kaplanis, E Kaplani“*Incorporation of statistical analysis of solar radiation in PV-sizing*”Proceedings of the World Renewable Energy Congress (WREC IX) (2006)
- 17..G Barakos, SN Kaplanis, MA Petrakis “*Performance simulation of mini-parabolic reflecting collectors and experimental data*”WREC IX, Florence, Italy (2006)

- 18.S Kaplanis, E Kaplani, “*A Comparison of a new PV sizing approach for Stand Alone systems with Conventional methodologies*” IASTED Conference, Series on Energy and Power Systems 2006, 332-337 (2006)
- 19.S.Kaplanis, E.Kaplani “A Comparison of a New PV-Sizing Approach for Stand Alone Systems with Conventional Methodologies” Proceedings of the European Power and Energy Systems, IASTED Conference, Rhodes, 2006
- 20.G.Barakos, S.Kaplanis, M.Petrakis “Performance simulation of mini-Parabolic reflecting Collectors and Experimental Data” 19 -25 August 2006, WREC IX, Florence, Italy
- 21.DT Cotfas, P Cotfas, D Ursuiu, S Kaplanis, C Samoila “*Virtual Instrumentation in the solar cell characterization*” Int. Symposium on Remote Engineering and Virtual instrumentation (2007)
- 22.S.Kaplanis, E. Kaplani “An Effective Set of I.C.T. Tools for Teaching and Learning on Renewable Energi Systems (RES)” Int. Conference DEMSEE 2007, 19-20 September, Dogus University, Turkey
- 23.S.Kaplanis, E.Kaplani “On the Maximization of the Cost Effectiveness of a PV Plant”, DEMSEE 2007, 19-20 September, Dogus University, Turkey
- 24.G.Barakos S.Kaplanis, A.Spyrogiannoulas “Experimental Performance Analysis for mini Parabolic Solar Reflecting collectors” EuroPes 2007, Mallorca, Spain.
- 25.S.Kaplanis, G.Barakos, M.Petrakis, A.Spyrogiannoulas”Roof Integrated Solar Parabolic Collectors Simulation Analysis” DEMSEE 2007, 19-20 September, Dogus University, Turkey
26. S. Kaplanis, E.Kaplani “On the effect of PV inclination to its performance and efficiency” WREC X, 19-25 July 2008, Glasgow
- 27.S.Kaplanis, E. Kaplani”On three methodological approaches for a cost-effective PV sizing, towards an intelligent building” WREC X, 19-25 July 2008, Glasgow
- 28.DT Cotfas, S Kaplanis, PA Cotfas, D Ursutiu, C Samoila “*A new method for solar cells calibration*” 2nd Conference on Sustainable Energy”, Brasov (2008)
- 29.D Cotfas, P Cotfas, S Kaplanis, D Ursutiu, C Samoila “*Sun tracker system vs fixed system*” Bulletin of the Transilvania University of Brasov. Mathematics, Informatics, 2008
30. S Kaplanis, E Kaplani, EA Daviskas “*On the maximization of a cost-effective PV sizing; towards an intelligent building*” 11th Int. Conference on Optimization of Electrical and Electronic Equipment, OPTIM, 2008, Brasov, Romania
- 31.S Kaplanis, E Kaplani, E Eumorphopoulos-Daviskas, D Marinescu “*From a manually driven stand alone PV plant to a remotely monitored and intelligently managed one*”, 2008 11th Int. Conference on Optimization of Electrical and Electronic Equipment, OPTIM, Brasov
- 32.S Kaplanis, E Kaplani “*The effect of statistical fluctuations of solar radiation on PV-system sizing*” Acta Press studies 2 (4), 5-9 (2008)
- 33.S Kaplanis, E Kaplani, P Wolf “*On the effect of the PV array inclination to its performance and efficiency*” Proc. of the World Renewable Energy Congress (WREC X). (2008)

- 34.DT Cotfas, S Kaplanis, PA Cotfas, D Ursutiu, C Samoila “*A new albedometer based on solar cells*”*Proc. of the World Renewable Energy Congress X* (2008)
- 35.DM Vălcan, C Marinescu, S Kaplanis “*Connecting a PV supplied micro-grid to the public grid*”2008 11th International Conference on Optimization of Electrical and Electronic Equipment, OPTIM IEEE sponsored, (2008), Brasov, Romania
- 36.S Kaplanis, E Kaplani “*Transient and steady state simulation studies and experiments for the performance of c-Si and pc-Si PV cells in high illumination levels*”2010, *Proc. of 5th Int. Workshop on Teaching in Photovoltaics (IWTPV'10)*. Czech Republic, 6 p. citations 3
- 37.E Kaplani, S Kaplanis“*Temperature distribution effects in PV modules operating in field conditions*”*Proc.of the 5th Int. Conference on Sustainable Energy & Environmental Protection - Part I*. Olabi, A. G. & Benyounis, K. Y. (eds.). 2012 ,Dublin City University, pp256-261
- 38.S Kaplanis, E Kaplani “*On the relationship factor between the PV module temperature and the solar radiation on it for various BIPV configurations*”*AIP Conference Proceedings* 1618 (1), 341-347 (2014)
- 38.E Kaplani, S Kaplanis, D Panagiotaras, E Stathatos “*Optical properties of ITO nanocoatings for photovoltaic and energy building applications*”*AIP Conference Proceedings* 1618 (1), 348-353 (2014)
- 39.S Kaplanis, E Kaplani “*An intelligent energy building with integration of RES, ICT tools and nano-coatings in its shell*” *Proc. of SEEP 2014 : 7th Int. Conference on Sustainable Energy and Environmental Protection*. 6 p. ISBN 978-1-903978-49-8
40. S Kaplanis, E Kaplani “*Intelligent energy buildings based on RES and nanotechnology*” 2015, *AIP Conference Proceedings*. AIP Publishing, Vol. 1702. p. 150005-1-7 7 p.
- 41.S.Kaplanis, E. Kaplani “A PV temperature prediction model for BIPV configurations, comparison with other models and experimental results” 15 Mar 2018, *Proceedings of the 9th International Workshop on Teaching in Photovoltaics (IWTPV'18): 15-16 March 2018, Czech Technical University in Prague, Czech Republic*. Benda, V. (ed.). Ceske centrum IET, p. 20-26
42. E.Kaplani, S. Kaplanis “PV module temperature prediction at any environmental conditions and mounting configurations”. In Book: *Renewable Energy and Sustainable Buildings: Selected Topics from the World Renewable Energy Congress WREC 2018*, A. Sayigh (Ed.) (2020), Cham, Switzerland: Springer pp.921-933
- 43.Honorary Speaker “On the PV cell diagnostics and Degradation factors: Identification and Quantification of their effect” Also, Committee member in the Int. Conference "Economics, Energy and Environment" Cappadocia, Turkey, 25-27 June,2020 : [www.iceee2020.com](http://www.iceee2020.com)
- 44..International Conference on Credit Transfer in Europe, Organised by National Council for Educational Awards Ireland, Dublin, May 1990, Edited by E. BhreathnaCh & G. McDonnell, Noel Lindsay, John Hayden, Donal A. Dineen, Derek Pollard, Giuseppe Vino, DW Lindsay, Norman Evans, John Mcaleer, Klaus Heidensohn, Rory More O'ferrall, John O'Brien, Gerard L. Van Rienen, Socrates Kaplanis, Marianne Fiedler, Jeffrey Hopes, Helen Oconnell, Renate Hijazi, Angela Cooper, Eamon Cashell, JK Dubowski, Norbert Fristacky, Padraig Macdiarmada, Cambridge University Press, 1991