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Chairs' Welcome Message

The Ninth International Conference on Sustainability and Energy in Buildings 2017 (SEB17) is a major international conference organised by a partnership made up of KES International and the EBERE Research Group at the Cardiff School of Art and Design Cardiff Metropolitan University, supported by the Technical University of Crete Kounoupidiana, Greece.

SEB-17 invited contributions on a range of topics related to sustainable and smart buildings, renewable energy and smart technology, and explored innovative themes regarding intelligent buildings and smart cities.

The aim of the conference was to bring together researchers and government and industry professionals to discuss the future of energy and resource use in buildings, neighbourhoods and cities from a theoretical, practical, implementation and simulation perspective. The conference formed an exciting chance to present, interact, and learn about the latest innovation, research and practical developments on the subjects.

The conference featured three General Tracks chaired by experts in the field:-

- Sustainable Buildings for Smart Cities and Rural Conurbations
- Smart Cities and Smart Districts
- Renewable Energy Technologies

In addition there were 11 Invited Sessions proposed and organised by prominent researchers and practioners.

It is important that a conference provides high quality talks from leading-edge presenters. SEB-17 featured three keynote speakers: Prof Denia Kolokotsa, Technical University of Crete Kounoupidiana, Greece; Prof Chris Gorse, Leeds Beckett University, UK and Prof Paul Cooper, Sustainable Buildings Research Centre, University of Wollongong, Australia. In addition there were two invited speakers: Prof Theocharis Tsoutsos, Technical University of Crete Kounoupidiana, Greece and Prof Alfonso Capozzoli, TEBE Research Group, Department of Energy, Politecnico di Torino, Italy.

The conference attracted submissions from around the world. Submissions for the Full-Paper Track were subjected to a two-stage blind peer-review process. With the objective of producing a high-quality conference, only the best of these were selected for presentation at the conference and publication in the Elsevier Energy Procedia proceedings. Submissions for the Short Paper Track were subjected to a 'lighter-touch' review and published in an online medium but not the Procedia proceedings.

Thanks are due to the very many people who have given their time and goodwill freely to make SEB-17 a success. We would like to thank the members of the International Programme Committee who were essential in providing their reviews of the conference papers, ensuring appropriate quality. We thank the high-profile

keynote speakers for providing interesting talks to inform delegates and provoke discussion. Important contributors to the conference were made by the authors, presenters and delegates without whom the conference could not have taken place, so we offer them our thanks. Finally we would like to thanks Cardiff Metropolitan University and Technical University of Crete Kounoupidiana for their support and the administrative staff of KES International.

It is hoped that you find the conference an interesting, informative and useful experience.

SEB-17 Chairs and Organising Committee

Organisation

General Chairs:

Prof Robert J Howlett

Bournemouth University, UK & KES International

Dr John Littlewood

Cardiff Metropolitan University, Cardiff, Wales, UK

Programme Track Chairs:

John Littlewood, Cardiff Metropolitan University, Wales, UK Professor Yusuf Arayici, Hasan Kalyoncu University, Turkey Prasad Kaparaju, Griffiths University, Australia Chandima Ekanayake, Griffiths University, Australia

Administrative Support:

Melanie Powell, KES International Faye Alexander, KES International Peter Cushion, KES International Shaun Lee, KES International

International Programme Committee

Name	Affiliation
Dr. Cherifa Abdid	Aix-Marseille University, France
Dr Mahmood Alam	Cardiff Metropolitan University, UK
Dr. Nader Anani	Department of Engineering and Mathematics,
	Sheffield Hallam University, Sheffield, UK
Professor Yusuf Arayici	University of Hacan Kalyoncu, Turkey
Prof. Brahim Benhamou	Cadi Ayyad University Marrakech, Morocco
Associate Prof. Dr. Umberto	Faculty of Engineering and Architectural Science,
Berardi	Ryerson University, Toronto, Canada
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	Technology, Hong Kong
Dr. Fathia Chekired	UDES/CDER, Algeria
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Prof. Dulce Coelho	Polytechnic Institute of Coimbra, ISEC, Portugal
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Prof. Youssef Errami	Chouaïb Doukkali University, Morocco
Professor Hong Jin	Harbin Institute of Technology, China
Prof. George Karani	Cardiff Metropolitan University, UK
Associate Professor Denia Kolokotsa	Technical University of Crete, Greece
Dr. John Littlewood	Cardiff Metropolitan University, UK
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Dr Nachida Kasbadji Merzouk	Unité de Développement des Equipements solaires UDES/CDER, Algeria
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Dr. Benedetto Nastasi	TU Delft University of Technology, Netherlands
Professor Francesco Nocero	DIEEI – University of Catania, Italy
Mr. Emeka Efe Osaji	Fellow of Leeds Sustainability Institute, Leeds. UK
Assistant Professor Anna Laura Pisello	University of Perugia, Italy
Prof. João Ramos	Polytechnic Institute of Leiria, Portugal
Dr. Eric Roberts	AECOM, UK
Professor Fernanda Rodrigues	University of Aveiro, Portugal
Prof. Marco Rosa-Clot	University of Florence, Italy

Name	Affiliation
Dr Atul A Sagade	Renewable Energy Innovation and Research Foundation, Pandharpur, Maharashtra, India
Dr. Wilfried van Sark	Utrecht University, Netherlands
Dr. Marco Simonetti	Politecnico di Torino, Energy Department, Italy
Dr. Harjit Singh	Brunel University, UK
Prof. Fionn Stevenson	The University of Sheffield, School of Architecture, UK
Prof. Ahmed Tahour	University of Mascara, Algeria
Prof. Andrew Thomas	Cardiff Metropolitan University, UK
Prof. Giuseppe M. Tina	University of Catania, Italy
Mrs Linda Toledo	Institute of Energy and Sustainable Development (De Montfort University), UK
Dr. Simon Walters	University of Brighton, UK
Dr Ian Cooper	Eclipse research Consultants, UK
Professor Mike Hoxley	UK
Dr. Michele Morganti	Sapienza University of Rome, Italy
Mr Diego Moya	Área de Energía, FICM, Universidad Técnica de Ambato
Associate Valentina Serra	Politecnico di Torino, Italy
Mrs Geraldine Seguela	Cardiff Metropolitan University, UK
Dr Simon Tucker	Liverpool John Moores University, UK
Prof Andrew Geens	CIBSE, UK

Keynote Speakers

Prof Denia Kolokotsa

Technical University of Crete Kounoupidiana, Greece

How Smart Grids will affect the Built Environment

Abstract: Smart grids are electrical power grids that are more efficient and more resilient - therefore, "smarter" - than the existing conventional power grids. The smartness is focused not only on elimination of black-outs, but also on making the grid greener, more efficient, adaptable to customers' needs, and therefore less costly. Smart grids incorporate the innovative IT technology that allows for two-way communication between the utility and its customers/users. As a result the sensing along the transmission lines and the sensing from the customer's side is what makes the grid "smart". Like the Internet, the Smart Grid will consist of controls, computers, automation, new technologies, smart buildings and equipment working together, but in this case these technologies will work with the electrical grid to respond digitally to the users' quickly changing energy demands. The aim of the present paper is to present recent findings in smart buildings and technologies sector and identify the links between energy efficiency and Internet of Things through Smart Grids functionalities.



Biography: Prof. Kolokotsa is currently an Associate Professor at the School of Environmental Engineering of the Technical University of Crete, Greece. Her research interests include energy management and Information and Computer Technologies for the built environment, energy efficiency and renewables. She is the Editor-in-Chief of the journal Advances in Building Energy Research, as well as an Editorial Board Member for Renewable Energy and Energy and Buildings. She is presently leading a research group working

on a Horizon 2020 programme entitled SMART GEMS with more than 12 members participating from various research institutions in Europe. She has participated in more than 25 European and national projects, and coordinated 3 EU (FP7 and Horizon) projects and 3 national projects. Prof. Kolokotsa has developed expertise in the field of urban dynamics and environmental and ecological issues at the metropolitan and regional scale with emphasis on the urban heat island mitigation and adaptation strategies. She has authored more than 100 papers published in high impact scientific journals and conference proceedings. She is the current President of the European Cool Roofs Council.

Prof Chris Gorse

Leeds Beckett University, School of the Built Environment and Engineering, Leeds, UK

Thermal Performance and Comfort: Addressing the Need to Upgrade in the UK

Abstract: While the UK has taken a back step with its commitment to zero carbon building, the need to improve the quality of the internal environment of existing buildings remains. Of the 26 million properties in Britain, many are drafty, poorly insulated, with inefficient fabrics that make them difficult to control and condition, and amongst the most expensive to heat in Europe. A high occurrence of thermal bridges, cold surfaces and bypasses, in these properties, renders the fabric susceptible to condensation and mould. Unfortunately, for those that live in damp and cold buildings, there is an impact on their health and wellbeing. When considering the scale of the challenge, the research on thermal upgrades is some way off providing the comprehensive understanding required to identify the appropriate steps to take. However, this research provides an insight into a deep retrofit project, where retrofit measures were introduced in stages, on a difficult to treat property, using off the shelf products to explore the benefits. Considerable savings were made. and greater control and energy efficiency were achieved. While further work is necessary, this project provides step forward in exploring the benefits and a better understanding of the challenges.



Biography: Christopher Gorse is the Director of the Leeds Sustainability Institute and a Professor of Construction and Project Management at Leeds Beckett University. He is a Chartered Builder, Engineering Professors Council Member, with over 20 years industrial and academic experience in buildings, materials, management and construction law. He has written extensively on the construction of buildings, the processes required to deliver them successfully and measure their performance.

Chris is keen to push the boundaries of research, and as Vice Chair of the Association for Researchers in Construction Management and Sub Task Lead on three International Energy Agency projects he not only assembles expert research groups but is active in developing a better understanding of how buildings behave, can be made more efficient, controllable and play their role in the energy flexibility that is required to deliver a cleaner network of energy. The work involves undertaking laboratory tests and monitoring in the field, on whole buildings, individual elements and utilising building simulation and modelling software to characterise behaviour and develop methodologies to advance understanding.

Recently Chris has undertaken research and consultancy projects for the Building Research Establishment, Department of Energy and Climate Change, Department for Business Energy and Industrial Strategy, English Heritage and material suppliers. Projects range from simple monitoring and laboratory tests to multidisciplinary international projects that draw on the knowledge of behavioural scientists, statisticians, building physicists and modelling experts.

As Head of the Low Carbon Sustainability Research Group CeBE, Chris leads a research unit that has amassed one of the most comprehensive sets of actual building thermal performance data in the UK. The team has extensive knowledge and expertise in whole building performance, hygrorothermal properties of building elements (modelled and constructed) and in use building energy consumption.

Prof Paul Cooper

Sustainable Buildings Research Centre, University of Wollongong, Australia

Low Income Households: Improving Energy Efficiency for Improved Quality of Life

Abstract: Low income households in Australia, as in other parts of the developed world, typically live in relatively poor quality housing and have little discretionary resources to spend on energy, or on improvements to the fabric of their home and the performance of appliances. This situation leads to fuel stress and negative impacts on quality of life.

This presentation takes an in-depth look at the current challenges facing policy-makers, researchers and households themselves, when making efforts to improve energy efficiency and consequent wellbeing of low-income households. An overview of the current policy framework in Australia, and analysis of recent programs that have piloted new strategies to improve low income household energy efficiency and well-being will be present. One outcome that has been clearly demonstrated in such programs is that a 'one-size-fits-all approach' to upgrading people's homes and helping them save energy, is not effective. Australia is not only a multi-cultural society, but also has a wide range of housing and household types, and programs such as the recent Australian Government's AU\$55M Low Income Energy Efficiency Program (LIEEP), have shown that there we need tailored approaches to different demographics, cultures and climates.

Measuring the effectiveness of residential energy efficiency programs is anything but a trivial task, and recent research on the best approaches to program evaluation will be described.

Research results from projects undertaken by the multi-disciplinary teams at the University of Wollongong and elsewhere will be presented in relation to major energy efficiency retrofit and behaviour-change programs. This will include a case study of the \$2.3M 'Energy+Illawarra' program that engaged over 800 households and involved the retrofit of 185 homes. This project included the development of a new house-and-household characterisation methodology, and associated retrofit assessment, allocation and implementation process. The impact of retrofits on occupant well-being, through measured changes to indoor thermal conditions and results from detailed ethnographic studies, for example, will also be discussed.



Biography: Professor Paul Cooper is the founding Director of the University of Wollongong's Sustainable Buildings Research Centre (SBRC). The SBRC is a unique research centre with approximately 45 staff and students located in one of the most sustainable buildings in Australia. The SBRC Building itself is a net-zero energy living laboratory, which has won a 6 Star Green Star

sustainability rating (the highest available) and is on track to be the first building in Australia to win full Living Building Challenge accreditation.

Paul has been involved in a wide range of research on sustainable buildings, renewable energy systems, energy efficiency and fluid mechanics over the past 35 years. His current research interests include: net-zero energy buildings; retrofitting existing dwellings; IEQ in aged care facilities and apartments; automation of natural ventilation systems; innovation in building management systems (BMS); photovoltaic-thermal, cool roof and other innovative building envelope technologies; retrofitting for bushfire resilience; and modular construction methods.

Prior to his present appointment as the Director of the SBRC, Paul was the Head of the School of Mechanical, Materials and Mechatronic Engineering at the University of Wollongong. He was also the Faculty Advisor and the lead academic on the winning Team UOW Solar Decathlon China 2013 campaign. This project culminated in Team UOW winning this first competition in Asia with the highest number of points scored by any team in the history of all the Solar Decathlon competitions around the world.

Invited Speakers

Prof Theocharis Tsoutsos

Technical University of Crete Kounoupidiana, Greece

Prof Alfonso Capozzoli

TEBE Research Group, Department of Energy, Politecnico di Torino, Italy

Conference Timetable Wednesday 5 July

11.30-13.30		Registration		
13.00-15.00	Visit to Technical University of Crete			
15.00		Conference Opening Ceremony		
		Professor Robert Howlett		
		Executive Chair, KES International		
		Dr John Littlewood		
	S	EB-17 Chair, Cardiff Metropolitan Unive	rsity	
		Prof Denia Kolokotsa		
	Tech	nical University of Crete Kounoupidiana	, Greece	
15.30	Introductory Talk			
	Professor Theoharis Tsoutsos			
	Technical University of Crete Kounoupidiana, Greece			
	Main room Breakout Room 1 Breakout Room 2			
16.00-18.00	General Track 1: Sustainable	General Track 2: Smart Cities &	General Track 3: Renewable Energy	
	Buildings for Smart Buildings & Smart Districts Techn		Technologies	
	Cities Chair: Prof Yusuf Arayici Chair: Dr Prasad Kaparaju		Chair: Dr Prasad Kaparaju	
	Chair: Dr John Littlewood			
18.30-19.30		Pogistration and Drinks Passation		
10.30-19.30		Registration and Drinks Reception		

Thursday 6 July

8.00-09.30		Registration	
09.30-10.30	Keynote Talk Professor Denia Kolokotsa Technical University of Crete Kounoupidiana, Greece		
10.30-11.00		Coffee & Networking	
	Main room	Breakout Room 1	Breakout Room 2
11.00-13.00	General Track 1: Sustainable Buildings for Smart Buildings & Cities Chair: Dr John Littlewood	General Track 3: Renewable Energy Technologies Chair: Dr Prasad Kaparaju	Invited Track ISO3: Building and District Interaction for sustainable energy networks and effective urban climate control Chair: Dr Benedetto Nastasi
13.00-14.00		Lunch	
14.00-15.00	K eynote Talk Professor Chris Gorse Leeds Beckett University, Leeds, UK		
15.00-15.30		Coffee & Networking	

	Main room	Breakout Room 1	Breakout Room 2
15.30-17.30	General Track 1: Sustainable Buildings for Smart Buildings & Cities Chair: Assistant Professor Alfonso Capozzoli	General Track 2: Smart Cities & Smart Districts General Track 3: Renewable Energy Technologies Chairs: Dr Prasad Kaparaju & Professor Yusuf Arayici	Invited Track 6: Cool and green solutions for urban heat island mitigation and energy efficiency in buildings Chairs: Associate Professor Denia Kolokotsa & Assistant Professor Anna Laura Pisello
19.30		Conference Dinner Restaurant at the Venetian Harbour	

Friday 7 July

8.15-09.00	Registration		
	Main room	Breakout Room 1	Breakout Room 2
09.00-11.00 Invited Track 1: Design and Assessment of the Built & Natural Environment for Societal Health & Well-being, in Smart Cities and Smart Rural Conurbations Chair: Dr Boris Ceranic		Invited Track 7: Smart strategies for existing and historic building retrofitting Chair: Dr. Elisa Di Giuseppe	Invited Track 4: Zero Energy Buildings and Communities and the role of Smart Grids Chairs: Associate Professor Denia Kolokotsa & Associate Professor Valentina Serra
11.30-12.30	Keynote Talk Professor Paul Cooper Sustainable Buildings Research Centre, University of Wollongong, Australia		
12.30-13.30		Lunch	

	Main room	Breakout Room 1	Breakout Room 2
13.30-15.30	Invited Track 1: Design and Assessment of the Built & Natural Environment for Societal Health & Well-being, in Smart Cities and Smart Rural Conurbations Chair: Professor George Karani	Invited Track 8: Photovoltaic and water: design, construction and performance analysis Invited Track 9: Power Electronics Systems for Renewable Energy Systems Chairs Dr Nader Anani & Prof Guiseppe Tina	ISO5-Measuring and mitigating the Urban Heat Island Effect ISO8-Photovoltaic and water: design, construction and performance analysis IS11-Building integrated photovoltaic technology solutions for future zero energy buildings Chairs: Prof Antonio Gagliano & Dr Wilfried van Sark
15.30-16.00	Coffee & Networking		
	Main room	Breakout Room 1	Breakout Room 2
16.00-17.00	Short Papers Chair: Dr John Littlewood	Short Papers Chair: Dr Prasad Kaparaju	
17.00	Conference Close Presentation of Best Paper Awards & Invited Track Presentation on SEB18		

Paper Presentations

Wednesday 5 July 16.00-18.00, Main room

General Track 1: Sustainable Buildings for Smart Buildings & Cities

Chair: Dr John Littlewood

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-004	Preliminary study of the condition of social housing in the city of Durango, México / Dr. Norma Rodriguez-Muñoz Dr. Maria Alpuche-Cruz, Dr. Ignacio Martin-Dominguez, Claudia Romero-Perez
2	seb17f-012	The Implications of Demand Response Measures and Electrification of Transport on UK Household Energy Demand and Consumption / Dr Aikaterini Chatzivasileiadi Dr Eleni Ampatzi, Prof Ian Knight
3	seb17f-027	New homebuyers and the challenges of navigating sustainability and energy efficiency with Australian volume builders / Dr Georgia Warren-myers
4	seb17f-066	The effect of weather data sets on building energy simulations / Dr. Silvia Erba M. Sc. Roberto Armani, Prof. Francesco Causone
5	seb17f-078	Aerogel-based solutions for the retrofit of an educational building / Dr. Umberto Berardi
6	seb17f-094	An Optimization design Approach of Football Stadium Canopy Forms Based On Field Wind Environment Simulation / Asso. Prof. Ligang Shi Mrs. Rongrong An

Wednesday 5 July 16.00-18.00, Breakout Room 1

General Track 2: Smart Cities & Smart Districts

Chair: Professor Yusuf Arayici

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-115	Mining typical load profiles in buildings to support energy management in the smart city context / Assistant Professor Alfonso Capozzoli Marco Savino Piscitelli, Silvio Brandi
2	seb17f-052	A study on mitigation potential in service building sector: Efficient technology implications of China's Intended Nationally Determined Contribution / Dr. Rui Xing Dr. Tatsuya Hanaoka, Dr. Yuko Kanamori, Dr. Toshihiko Masui
3	seb17f-068	A Strategy to Reduce Grid Stress through Priority-based Inverter Charging / Dr. Naveed Arshad Mr. Ali Ahmad, Mr. Muhammad Subhani
4	seb17f-088	3D Printing of Buildings: Construction of the Sustainable Houses of the Future by BIM / Assistant Mehmet Sakin Yusuf Kiroglu
5	seb17f-120	An energy efficient Assessment of the thermal comfort in an office building / Dr. Monem Beitelmal Dr. Zhidan Zhaoa Mr. Mahdi Houchatia

Wednesday 5 July 16.00-18.00, Breakout Room 2

General Track 3: Renewable Energy Technologies

Chair: Dr Prasad Kaparaju

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-007	Data Analysis of the Energy Performance of Large Scale Solar Collectors for District Heating / Michel Noussan Luca Degiorgis, Dr Matteo Jarre, Alberto Poggio
2	seb17f-014	Developing a sensorless sun tracker for PV panels / Dr. Bechara Nehme Dr. Tilda Akiki, Anthony Fenianos
3	seb17f-016	Assessment of policy based residential solar PV potential using GIS based multicriteria decision analysis: A case study of Apeldoorn, The Netherlands / Mrs Bala Bhavya Kausika Ms Olympia Dolla, Dr. Wilfried Van Sark
4	seb17f-037	Proposed integration of photovoltaic solar energy and energy efficiency technologies in the energy consumption by lighting in UTA-Ecuador / Andrés Hidalgo Rodney Hechavarría, Meng Diego Moya, Yessenia Villacrés
5	seb17f-023	Smoothing of renewable energy generation using Gaussian-based method with power constraints / Dr Alemayehu Addisu Dr Pierre Courbin, Prof Laurent George, Dr Vincent Sciandra
6	seb17f-029	CAE methods for plate heat exchanger design / Assoc. Prof. Václav Dvořák Assoc. Prof. Tomá? Vít

Thursday 6 July 11.00-13.00, Main Room

General Track 1: Sustainable Buildings for Smart Buildings & Cities

Chair: Dr John Littlewood

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-019	Comparing real and predicted window use in offices. A POE-based assessment / Prof. Francesca Stazi Dr. Gabriele Bernardini, Prof. Marco D'orazio, Dr. Federica Naspi
2	seb17f-028	Embodied energy and operational energy evaluation in tall buildings according to different typologies of façade / Dr Carlo Micono Roberto Giordano, Matteo Giovanardi, Giulia Guglielmo
3	seb17f-043	Environmental Performances and Social Inclusion: a Project for the Rocinha Favela in Rio de Janeiro / Assist. Prof. Andrea Arcidiacono, Associate Prof. Francesco Causone, Associate Prof. Mario Grosso, M. Zadeh Hadi, Associate Prof. Gabriele Masera
4	seb17f-055	Inclusion of on-site renewables in design-stage building life cycle assessments / Mr Christopher Galpin Dr Alice Moncaster
5	seb17f-041	Ethical issues in monitoring sensor networks for energy efficiency in smart buildings: a case study / Ylenia Cascone Maria Ferrara, Luigi Giovannini, Gianluca Serale
6	seb17f-046	Operational performance of an Air Handling Unit: insights from a data analysis / Dr Michel Noussan Giovanni Carioni, Luca Degiorgis, Matteo Jarre, Paolo Tronville

Thursday 6 July 11.00-13.00, Breakout Room 1

General Track 3: Renewable Energy Technologies

Chair: Dr Prasad Kaparaju

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-024	Geothermal contribution on southern Europe climate for energy efficiency of university buildings / Armando Pinto André Mota, Prof. Fernanda Rodrigues
2	seb17f-025	Multi-step Ahead Wind Forecasting Using Nonlinear Autoregressive Neural Networks / Mr. Adil Ahmed Dr. Muhammad Khalid
3	seb17f-036	Municipal solid waste as a valuable renewable energy resource: a worldwide opportunity of energy recovery by using Waste-To-Energy Technologies / Diego Moya Clay Aldás, Dr Prasad Kaparaju, Germánico López
4	seb17f-040	Waste-To-Energy Technologies: an opportunity of energy recovery from Municipal Solid Waste, using Quito - Ecuador as case study / Diego Moya Clay Aldas, David Jaramillo, Esteban Játiva, Dr Prasad Kaparaju
5	seb17f-044	Performance of Detached Eddy Simulation applied to Analysis of a University Campus Wind Environment / Dr Rallou Dadioti Dr Simon Rees
6	seb17f-058	Reduction of Solar PV Payback Period Using Optimally Placed Reflectors / Mr Don Wijesuriya Prof Ranjit Perera, Mr Dehan Vithana, Mr Saman Wickramathilaka, Mr Lovindu Wijesinghe

Thursday 6 July 11.00-13.00, Breakout Room 2

Invited Track ISO3: Building and District Interaction for sustainable energy networks and effective urban climate control

Chair: Dr Benedetto Nastasi

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-017	Energy efficiency measures for buildings in Hebron city and their expected impacts in the distribution grid / Dr Paolo Lazzeroni Dr Carlo Micono, Dr Sergio Olivero, Prof. Maurizio Repetto, Dr Federico Stirano, Dr Guido Zanzottera
2	seb17f-051	Analysis of Thermal Environment of Open Community Streets in Winter in Northern China / Professor Hong Jin Yumeng Jin, Professor Jian Kang, Jing Zhao
3	seb17f-064	Microclimate perception features of commercial street in severe cold cities / Tuoyu Hou Jingwan Fu, Associate Professor Ming Lu
4	seb17f-076	Field Research and Study of Campus Thermal Environment in Winter in Severe Cold Areas / Mr Qiao Liang Mr Wang Bo, Professor Jin Hong
5	seb17f-085	The Adaptive Comfort Factor in Evaluating the Energy Performance of Office Buildings in the Mediterranean Coastal Cities / Professor Despina Serghides Ms Stella Dimitriou, Ms Ioanna Kyprianou, Professor Costas Papanicolas
6	seb17f-107	Urban morphology indicators for solar energy analysis / Dr. Michele Morganti Prof. Carlo Cecere, Prof. Helena Coch, Dr. Agnese Salvati

Thursday 6 July 15.30-17.30, Main Room

General Track 1: Sustainable Buildings for Smart Buildings & Cities

Chair: Assistant Professor Alfonso Capozzoli

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-049	Insulating coat to prevent mold growth in thermal bridges / Francesco Isaia Mr. Marco Dutto, Arch. Stefano Fantucci, Prof. Valentina Serra
2	seb17f-054	Addressing the challenges of social housing retrofits / Prof Francesco Causone Sónia Cunha, Dr. Silvia Erba, Dr. André Pina, Cláudia Sousa Monteiro
3	seb17f-111	Introduction to a Wales project for evaluating residential retrofit measures and impacts on energy performance, occupant fuel poverty, health and thermal comfort / Dr John Littlewood Professor George Karani Dr Jo Atkinson Mr David Bolton Professor Andrew Geens Mr Denis Jahic
4	seb17f-022	Identifying and weighting indicators of building energy efficiency assessment in Ghana / Dr Michael Addy Dr Emmanuel Adinyira, Prof. Joshua Ayarkwa
5	seb17f-059	Aerobrick An aerogel-filled insulating brick / Dr. Jannis Wernery Mr. Avner Ben-ishai, Mr. Bruno Binder, Dr. Samuel Brunner
6	seb17f-060	Opportunities for heat pumps adoption in existing buildings: real- data analysis and numerical simulation / Matteo Jarre Michel Noussan, Alberto Poggio, Marco Simonetti

Thursday 6 July 15.30-17.30, Breakout Room 1

General Track 2: Smart Cities & Smart Districts
General Track 3: Renewable Energy Technologies
Chairs: Dr Prasad Kaparaju & Professor Yusuf Arayici

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-113	Toward an Improvement of Gravity Energy Storage Using Compressed Air / Dr. Khalid Loudiyi Berrada Berrada, Dr. Izzedine Zorkani
2	seb17f-112	Experimental Validation of Gravity Energy Storage Hydraulic Modeling / Asmae Berrada Dr. Khalid Loudiyi
3	seb17f-095	Permanent magnet Fault current Limiter (PMFCL) for the Power Grid. / Mr Asmaiel Ramadan
4	seb17f-073	Shape Optimization of Low Speed Wind Turbine Blades using Flexible Multibody Approach / Dr. Ayman Nada Dr. Ali Al-shahrani
5	seb17f-003	Managing Smart Grids Using Price Responsive Smart Buildings / Dr. Joseph Carr Dr. Alex Brissette, Dr. Luca Omati, Dr. Enrico Ragaini
6	seb17f-120	An energy efficient Assessment of the thermal comfort in an office building

Thursday 6 July 15.30-17.30, Breakout Room 2

Invited Track 6: Cool and green solutions for urban heat island mitigation and energy efficiency in buildings

Chairs: Associate Professor Denia Kolokotsa & Assistant Professor Anna Laura Pisello

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-013	The Impact of Court parameters on its shading level : An experimental study in Baghdad, Iraq / Mr. Omar Al-hafith Mr. Simon Bradbury, Prof Pieter De Wilded, Dr. Satish K.
2	seb17f-021	Thermal comfort in the historical urban canyon: the effect of innovative materials / Eng Veronica Lucia Castaldo Eng Iacopo Golasi, Eng Cristina Piselli, Dr Anna Laura Pisello, Dr Federica Rosso, Dr Ferdinando Salata
3	seb17f-038	Quantifying the effects of interior surface reflectance on indoor lighting / Ph.D Student Nastaran Makaremi Professor Francesco Asdrubali, Professor Franco Cotana, Assistant Professor Anna Laura Pisello, Ph.D. Ing Samuele Schiavoni
4	seb17f-074	Integration of the hybrid solar DEC ?NAC wall? system in building façades in urban context / Dr. Marco Simonetti Dr. Giacomo Chiesa, Eng. Vincenzo Gentile, Dr. Marianna Nigra
5	seb17f-065	Smart cool mortar for passive cooling of historical and existing buildings: experimental analysis and dynamic simulation / Dr Federica Rosso Dr Veronica Lucia Castaldo, Dr Franco Cotana, Dr Marco Ferrero, Dr Anna Laura Pisello
6	seb17f-018	Flooding risk in existing urban environment: from human behavioral patterns to a microscopic simulation model / Gabriele Bernardini Dr. Selene Camilli, Prof. Marco D'orazio, Prof Enrico Quagliarini

Friday 7 July 09.00-11.00, Main Room

Invited Track 1: Design and Assessment of the Built & Natural Environment for Societal Health & Well-being, in Smart Cities and Smart Rural Conurbations

Chair: Dr Boris Ceranic

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-033	Effect of water body forms on microclimate of residential district / Teng Shao Professor Hong Jin, Renlong Zhang
2	seb17f-034	The Microclimate Effect of Urban Park Fitness Trail in Spring A Case Study of Harbin Zhao Lin Park / Professor Xiaolong Zhao Jiajun Lv, Candidate Dongqi Zhao, Ye Zhou
3	seb17f-056	Insights on pro-environmental behavior towards post-carbon society / Valentina Fabi Professor Stefano Paolo Corgnati, Ms Maria Valentina Di Nicoli, Spigliantini
4	seb17f-089	Study on the Influence of Piloti Ratio on Thermal Comfort of Residential Blocks by Local Thermal Comfort Adaptation Survey and CFD Simulations / Associate Professor Xi Tianyu Professor Mochida Akachi, Professor Jin Hong, Associate Professor Ding Jianhua
5	seb17f-101	The Safety Gap in buildings: Perceptions of Welsh Fire Safety Professionals / Dr John Littlewood Dr Mahmood Alam, Professor S Goodhew Mr Gareth Davies
6	seb17f-102	A study to assess alternative water sources for reducing energy consumption in a medical facility case study, Abu Dhabi / Mrs Geraldine Seguela Dr. John Littlewood Prof. George Karani,

Friday 7 July 09.00-11.00, Breakout Room 1

Invited Track 7: Smart strategies for existing and historic building retrofitting

Chair: Dr Elisa Di Giuseppe

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-031	Supplying historic buildings with energy, without impinging on their historic and cultural values / Prof Giorgio Garau Prof Marco Rosa-clot
2	seb17f-039	A state-of-art review of retrofit interventions in buildings towards nearly zero energy level / Mr. Mehrdad Rabani Professor Habtamu Bayera Madessa, Professor Natasa Nord
3	seb17f-042	The role of shading devices to improve thermal and visual comfort in existing glazed buildings / Dr Gianpiero Evola Miss Federica Gullo, Prof Luigi Marletta
4	seb17f-045	Towards high energy performing historical buildings. A methodology focused on operation and users' engagement strategies / Giorgia Spigliantini Prof. Stefano Corgnati, Valentina Fabi
5	seb17f-047	Towards a probabilistic approach in LCA of building retrofit measures / Dr Claudio Favi Professor Elisa Di Giuseppe, Professor Marco D'orazio, Professor Michele Germani, Doctor Monica Iannaccone, Doctor Ivan Meo
6	seb17f-063	Design of a smart system for indoor climate control in historic underground built environment / Prof. Enrico Quagliarini Dr. Gabriele Bernardini, Dr. Student Andrea Gianangeli, Student Benedetta Gregorini, Prof. Francesca Stazi

Friday 7 July 09.00-11.00, Breakout Room 2

Invited Track 4: Zero Energy Buildings and Communities and the role of Smart Grids Chairs: Associate Professor Denia Kolokotsa & Associate Professor Valentina Serra

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-117	On the comparison of different occupancy patterns in relation to energy consumption and indoor environmental quality: a case study / Ass.professor Margarita-niki Assimakopoulos Nikolaos Barmparesos Alexandros Pantazaras Theoni Karlessi Dr Siew Eang Lee Alexandros Pantazaras
2	seb17f-084	Thermal comfort evaluation in HVAC Demand Response control / Mr Nikos Kampelis Dr Cristina Cristalli, Mr Andrea Ferrante, Mr Kostas Gobakis, Associate Professor Denia Kolokotsa, Dr Laura Standardi
3	seb17f-082	Development and testing of a micro-grid excess power production forecasting algorithms / Mrs Angeliki Mavrigiannaki Dr Daniela Isidori, Mr Nikos Kampelis, Associate Professor Denia Kolokotsa, Mr Daniele Marchegiani, Dr Laura Standardi
4	seb17f-081	Objective and subjective evaluation of thermal comfort in the Loccioni Leaf Lab / Marina Laskari Francesco Carducci, Cristina Cristalli, Daniela Isidori, Martina Senzacqua, Laura Standardi
5	seb17f-079	Achieving nearly zero energy buildings in Cyprus, through building performance simulations, based on the use of innovative energy technologies / Marina Kyprianou Dracou Professor Costas Papanicolas, Professor Mat Santamouris
6	seb17f-006	Design and development of a Web based GIS platform for zero energy settlements monitoring / Prof Denia Kolokotsa Mr Kostas Gobakis, Prof Kostas Kalaitzakis, Ms Aggeliki Mavrigiannaki

Friday 7 July 13.30-15.30, Main Room

Invited Track 1: Design and Assessment of the Built & Natural Environment for Societal Health & Well-being, in Smart Cities and Smart Rural Conurbations

Chair: Professor George Karani

PR	OSE Paper No	Paper Title / Authors
1	seb17f-091	Urban sustainability mobility assessment: indicators proposal / Professor Joaquim Macedo Professor Fernanda Rodrigues, Fernando Tavares
2	seb17f-094	An Optimization design Approach of Football Stadium Canopy Forms Based On Field Wind Environment Simulation / Asso. Prof. Ligang Shi Mrs. Rongrong An
3	seb17f-099	A Novel Modular Design Approach to Thermal Capacity on Demand? in a Rapid Deployment Building Solutions: Case Study of Smart-POD / Dr Boris Ceranic Mr John Beardmore, Mr Adrian Cox
4	seb17f-093	Thermal comfort of railway station's waiting room in severe cold region of China / Vice Professor Meng Huang Yujie Lin
5	seb17f-092	The Thermal Comfort of Urban Pedestrian Street in the Severe Cold Area of Northeast China / Professor Jian Kang Professor Hong Jin, Siqi Liu
6	seb17f-010	Identification of the Efficient Manufacturing Characteristics / Ms. Olga Kolesnikova Dr. Lev Kazarinov, Ms. Anastasia Nelubina

Friday 7 July 13.30-15.30, Breakout Room 1

Invited Track 8: Photovoltaic and water: design, construction and performance analysis

Invited Track 9: Power Electronics Systems for Renewable Energy Systems

Chairs: Dr Nader Anani & Prof Guiseppe Tina

PRO	OSE Paper No	Paper Title / Authors
1	seb17f-002	Smooth Mode Transfer in AC Microgrids during Unintentional Islanding / Dr Walid Issa Dr Mohammad Abusara, Dr Nader Anani, Dr Ahmad El Khateb
2	seb17f-005	Fault Identification-based Voltage Sag State Estimation Using Artificial Neural Network / Dr. Huilian Liao Dr. Nader Anani
3	seb17f-008	Evaluation of Analytical Methods for Parameter Extraction of PV modules / Dr Nader Anani Mr Haider Ibrahim
4	seb17f-035	Variations of PV module parameters with irradiance and temperature / Dr Nader Anani Mr Haider Ibrahim
5	seb17f-077	Design and Modelling Techniques of Permanent Magnet Fault Current Limiter / Mr Asmaiel Ramadan Dr Faris Alnaemi
6	seb17f-083	Floating photovoltaic plants and waste water basins: an Australian project / Prof. Giuseppe Tina Prof. Sandro Nizetic, Prof. Marco Rosa-clot

Friday 7 July 13.30-15.30, Breakout Room 2

IS05-Measuring and mitigating the Urban Heat Island Effect ISO8-Photovoltaic and water: design, construction and performance analysis IS11-Building integrated photovoltaic technology solutions for future zero energy buildings

Chair: Prof Antonio Gagliano & Dr Wilfried van Sark

PR	OSE Paper No	Paper Title / Authors
1	seb17f-048	Numerical assessment of the impact of roof reflectivity and building envelope thermal transmittance on the UHI effect / Dr Elisa Di Giuseppe Dr. Marianna Pergolini, Prof. Francesca Stazi
2	seb17f-057	On Spatial Distribution and Determinants of Urban Photovoltaic Utilization in China / Lin Alin Li Can, Associate Professor Lu Ming
3	seb17f-062	Computational Fluid Dynamics Analysis for Evaluating the Urban Heat Island Effects / Prof Antonio Gagliano Stefano Aneli, Francesco Nocera
4	seb17f-075	RAST: RoundAbout Solar Tracking / Prof. Giuseppe Tina Prof. Marco Rosa-clot, Mr Paolo Rosa-clot, Dr Cristina Ventura
5	seb17f-072	Submerged PV Solar Panel for Swimming Pools SP3 / Prof. Marco Rosa-clot Dr. Paolo Rosa-clot
6	seb17f-090	Fuzzy logic energy management for a photovoltaic solar home / Prof Francesco Nocera PhD Gianpiero Evola, Prof. Alberto Fichera, PhD Antonio Gagliano, Prof. Luigi Marletta, Prof. Francesco Martinico

Friday 7 July 16.00-17.00, Main Room

Short Papers

Chair: Dr John Littlewood

PROSE Paper No		Paper Title / Authors
1	seb17s-008	Testing and validation of building as power station technologies? in practice, to maximise energy efficiency and user comfort and minimise carbon emissions / Miss Joanna Morgan Dr John Littlewood, Mr Paul Wilgeroth, Mr Paul Jones,
2	seb17s-009	Investigating the application of small scale transpired solar collectors as air preheaters for residential buildings / Mr Emmanouil Perisoglou Mr Huw Jenkins, Dr Joanne Patterson, Dr Vicki Stevenson
3	seb17f-087	UHI effects and strategies to improve outdoor thermal comfort in dense and old neighbourhoods / G. Evola, A. Gagliano, A. Fichera, L.Marletta, F. Martinico, F. Nocera, A. Pagano
4	seb17s-015	The Sustainable regeneration of the Swansea High Street - a cohesive community / Dr John Littlewood Mr Gareth Davies

Friday 7 July 16.00-17.00, Breakout Room 1

Short Papers

Chair: Dr Prasad Kaparaju

PROSE Paper No		Paper Title / Authors
1	seb17s-003	The Effect of Ambient Temperature on the Power Output of 5kW Photovoltaic Solar Power System / Mr Shehab Al-Sakkaf Dr Mahmoud Kassas, Dr Muhammad Khalid
2	seb17s-004	Application scenarios for a dual use of a portable micro-CHP unit in a BEV and building / Henrik Rüscher Dimitri Bitner, Prof. DrIng. Lars-O. Gusig, Prof. Alan Guwy, Prof. Giuliano Premier, Dennis Saul
3	seb17f-108	Effects of thermal insulation on thermal comfort in low-income tropical housing / Dr Arman Hashemi
4	seb17f-109	Thermal Comfort in Zero Energy Buildings / Dr Arman Hashemi Ms. Laura Pomfret



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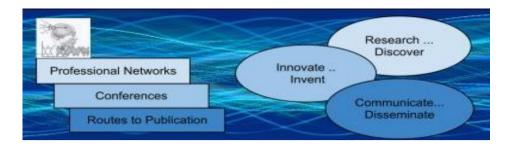
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Calendar of Events 2017 – KES International



SDF-17: 21-23 June 2017

Smart Digital Futures 2017 brings you five of our most popular conferences on various aspects of intelligent systems (Innovation in Medicine & Healthcare, Intelligent Decision Technologies, Intelligent Interactive Multimedia Systems & Services, Agent & Multi-agent

Systems and Smart Education & e-Learning) in one glorious location. Vilamoura is one of the main centres of attraction in the Algarve, Portugal. Boasting the Marina quay, three kilometres of golden sand, transparent waters, and a host of cafes, restaurants, waterside bars and a new deck zone, Vilamoura provides a perfect conference destination.



SEB-17: 5-7 July 2017

Sustainability in Energy & Buildings 2017, organised in conjunction with the Ecological Built Environment group from Cardiff School of Art & Design, will take place in beautiful Chania, Crete. Described as one of the most beautiful cities in Greece, Chania is a picturesque,

bustling city with both old and modern sections famed for the Venetian Harbour, the old port, the narrow shopping streets and waterfront restaurants.



KES2017: 6-8 September 2017

Join us for our 21st International Conference on Knowledge-Based & Intelligent Information & Engineering Systems in Marseille in the south of France. Boasting 1500 years of history, this vibrant city is packed with world-class museums, galleries and performing arts. At its

heart is the colourful Vieux-Port - a must-see!

Calendar of Events 2018 – KES International

We're heading to the Gold Coast, Australia! In 2008

We are delighted to announce that Smart Digital Futures (SDF-18) (incorporating: Innovation in Medicine & Healthcare; Intelligent Decision Technologies; Intelligent Interactive Multimedia Systems & Services; Agent & Multi-agent Systems; and Smart Education & E-Learning), Sustainability in Energy & Buildings (SEB-18) and Sustainable Design & Manufacturing (SDM-18) will be held on the Gold Coast in Australia in June 2018 – we'd love to see you there!

Save the date:

20-23 June 2018 Smart Digital Futures (SDF-18) (incorporating: Innovation in

Medicine & Healthcare; Intelligent Decision Technologies; Intelligent Interactive Multimedia Systems & Services; Agent & Multi-agent Systems; and Smart Education & e-Learning

24-26 June 2018 Sustainability in Energy & Buildings (SEB-18)

24-26 June 2018 Sustainable Design & Manufacturing (SDM-18)



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