



Sustainable Built Environment Malta

Sustainability & Resilience

SBE 19 Malta International Conference

21st & 22nd November 2019

www.sbe19malta.org

Sustainability & Resilience

SBE 19 Malta International Conference

Organised by

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International Promoters of SBE 19

International Initiative for a Sustainable Built Environment (iiSBE)
United National Environment Programme (UN Environment)
International Council for Research and Innovation in Building and Construction (CIB)
International Federation of Consulting Engineers (FIDIC)



in collaboration with the

Ministry for Sustainable Development, the Environment and Climate Change, Malta
and the
University of Malta



SBE19 Malta International Conference | Sustainability and Resilience

21th – 22nd November 2019

PROGRAMME (20th November 2019)

TIME		SESSION	TITLE	ROOM
18:00	19:00	Registration	Green Building Exhibition	Athena
19:00	22:00	Welcome Reception		Amazonia

PROGRAMME DAY 1 (21st November 2019)

TIME		SESSION	TITLE	ROOM
08:00	08:30	Registration & Welcome Coffee	Green Building Exhibition	Athena
08:30	09:00	Opening Ceremony	Prof. Ruben Paul Borg, President SBE Malta. Perit Charles Buhagiar, Chairman Building Industry Consultative Council. Perit David Xuereb, President of the Malta Chamber of Commerce. Mr. Ivor Robinich, Chairman, Malta Building and Construction Agency. Mr. Nils Larsson, Exec. Chairman iiSBE. Prof. Alfred Vella, Rector, University of Malta. Hon Dr. Jose Herrera, Minister for the Environment.	Olympia
09:00	09:30	Keynote 1	Reinforced concrete structures exposed to extremely aggressive environments: current state of practice, research needs and the vision of H2020 project ReSHEALience.	Olympia
09:30	11:00	Session 1A	Materials in Civil Engineering 1	Olympia
		Session 1C	Environmental Behaviour, Economics and Policy 1	Sybille
11:00	11:15	Coffee Break	Green Building Exhibition	Athena
11:15	11:45	Keynote 2	Creating Resilient and Regenerative Cities - A Framework for engaging with urban Change.	Olympia
11:45	13:15	Session 2A	Restoration of Reinforced Concrete Structures	Olympia
		Session 2B	Energy and Distributed Generation 1	Zeus
		Session 2C	Environmental Behaviour, Economics and Policy 2	Sybille
13:15	14:15	Lunch		
14:15	14:45	Keynote 3	Strategies for the Built Environment under Climate Change	Olympia
14:45	16:15	Session 3A	Materials in Civil Engineering 2	Olympia
		Session 3B	Energy and Distributed Generation 2	Zeus
		Round Table 1	Climate Change (Part 1)	Sybille
16:15	16:30	Coffee Break		
16:30	18:00	Session 4A	Energy Efficiency and Renewable Energy	Olympia
		Session 4B	Workshop: Circular Economy	Zeus
		Round Table 1	Climate Change (Part 2)	Sybille
18:00	18:15	Plenary: Closing Ceremony		Olympia
19:30	22:30	Conference Dinner		

PROGRAMME DAY 2 (22nd November 2019)

TIME		SESSION	TITLE	ROOM
08:00	08:30	Registration & Welcome Coffee	Green Building Exhibition	Athena
08:30	09:00	Opening Ceremony	Prof. Cyril Spiteri Staines, Vice Chair SBE Malta Prof. Luis Braganca, President iiSBE Dr. Ing. Daniel Micallef, President CoE Perit Amber Wismayer, Honorary Secretary, KTP Perit Vincent Cassar, Chairman PA Hon. Dr. Miriam Dalli, MEP	Olympia
09:00	09:30	Keynote 4	Rethinking construction knowledge and skills to build disaster resilience.	Olympia
09:30	11:00	Session 5A	Disaster Resilience	Olympia
		Session 5B	Sustainable Regeneration of Cultural Heritage	Zeus
		Session 5C	Transport and Urban Space 1	Sybille
11:00	11:15	Coffee Break	Green Building Exhibition	Athena
11:15	11:45	Keynote 5	BIM applications on building sustainability.	Olympia
11:45	13:15	Session 6A	Sustainable Buildings 1	Olympia
		Session 6B	Education for Sustainable Development	Zeus
		Session 6C	Transport and Urban Space 2	Sybille
13:15	14:15	Lunch		
14:15	14:45	Keynote 6	Repair or Replace Structures?	Olympia
14:45	16:15	Session 7A	Sustainability Assessment Tools	Olympia
		Session 7B	Structural Systems	Zeus
		Round Table 2	Renewables (1)	Sybille
16:15	16:30	Coffee Break		
16:30	18:00	Session 8A	Sustainable Buildings 2	Olympia
		Session 8B	Sustainable Built Environment	Zeus
		Round Table 2	Renewables (2)	Sybille
18:00	18:15	Plenary: Closing Ceremony		Olympia

Keynote Lectures

Day	Keynote	Title of Keynote Lecture	Speaker
DAY 1 21st November	9:00 – 9:30	Reinforced concrete structures exposed to extremely aggressive environments: current state of practice, research needs and the vision of H2020 project ReSHEALience.	Liberato Ferrara (Politecnico di Milano, Italy)
	11:15 -11:45	Creating Resilient and Regenerative Cities: A framework for Engaging with Urban Change	Chrisna du Plessis (University of Pretoria, South Africa)
	14:15 – 14:45	Strategies for the Built Environment under Climate Change	Nils Larsson (iiSBE, Canada)
DAY 2 22nd November	9:00 – 9:30	Rethinking construction knowledge and skills to build disaster resilience	Richard Haigh & Dilanthi Amarathunga (University of Huddersfield, UK)
	11:15 – 11:45	BIM applications on building sustainability	Luis Braganca (University of Minho, Portugal)
	14:15 – 14:45	Repair or Replace Structures?	Ranjith Dissanayake (University of Peradeniya, Sri Lanka)

Sessions DAY 1
(21st November)

Session 1A : Materials in Civil Engineering

Time: 9:30 to 11:00

Room : Olympia

Chair: Prof. Ruben Paul Borg, Prof. Liborio Cavaleri

	Paper title	Author
1A.1	Survey of recycled aggregate concrete requirements in standards and guidelines of selected countries	Václav Venkrbec (Brno University of Technology)*; Iveta Nováková (UiT The Arctic University of Norway); Boy-Arne Buyle (UiT The Arctic University of Norway)
1A.2	The Use of Landfilled Fly Ash in Polymer Cement Repair Mortar	Jakub Hodul (Brno University of Technology, Faculty of Civil Engineering)*; Rostislav Drochytka (Brno University of Technology, faculty of Civil engineering); Ruben Paul Borg (University of Malta)
1A.3	Influence of fly ash and prefabricated plastic bubbles on the properties of sustainable flowable lightweight concrete with expanded glass aggregates	Suman Kumar Adhikary (Kaunas University of Technology)*; Rudžionis Žymantas (Kaunas University of Technology)
1A.4	Investigation of Alkali Activated Slag Reinforced with Wood Fibers	Ruben Paul Borg (University of Malta)*; Danute Vaičiukynienė (Kaunas University of Technology)
1A.5	Minimization of carbon dioxide footprint of the next generation of infrastructure through optimized concrete mixture designs	Tuan D Le (Oklahoma State University)*; Paul Tikalsky (Oklahoma State University); Konečný Petr (Technical University of Ostrava, Czech Republic)
1A.6	Effect of high frequency activation on ultra high performance concrete properties	Evaldas Šerelis (Kaunas University of Technology)*; Ahmad Al Dahabi (Kaunas University of Technology); Vitoldas Vaitkevicius (Kaunas University of Technology)

Sessions DAY 1
(21st November)

Session 1C : Environmental Behaviour, Economics and Policy

Time: 9:30 to 11:00

Room : Sybille

Chair: Dr. Marie Briguglio

	Paper title	Author
1C.1	Taxing waste to stimulate home composting behavioral consequences	Marie Briguglio (University of Malta)*
1C.2	Socio-Economic Insights for Environmental Policy in Malta: Evidence from a Nationally Representative Survey	Marie Briguglio (University of Malta)*; Jonathan Spiteri (University of Malta)
1C.3	Domain & Context Heterogeneity in Pro-environmental Behavior	Marie Briguglio (University of Malta)*; Jonathan Spiteri (University of Malta) ;Joseph Caruana (University of Malta)
1C.4	Engaging in sharing economy: a case study in the transportation sector	Marie Briguglio (University of Malta)*; Glenn Formosa (University of Malta)
1C.5	An economic analysis of the determinants of greening business	Marie Briguglio (University of Malta)*; Kristina Xuereb (University of Malta)

Sessions DAY 1
(21st November)

Session 2A : Restoration of Reinforced Concrete Structures

Time: 11:45 - 13:15

Room : Olympia

Chair: Prof. Liberato Ferrara, Prof. Ruben Paul Borg

	Paper title	Author
2A.1	The Appraisal of Reinforced Concrete Heritage Structures	Ruben Paul Borg (University of Malta)
2A.2	Strategy for the restoration of the Reinforced Concrete Water Tower	Ruben Paul Borg (University of Malta)
2A.3	Structural Assessment of a Reinforced Concrete Water Tower.	Ruben Paul Borg (University of Malta), Liborio Cavaleri (University of Palermo)
2A.4	The Mechanical and Durability Performance of Ultra High Durability Concrete	Ruben Paul Borg (University of Malta)
2A.5	Thermal Imaging Measurements for Assessing the Structural Integrity of a Reinforced Concrete Water Tower	Carl J Debono (University of Malta); Ruben Paul Borg (University of Malta); Edward Gatt (University of Malta)
2A.6	The Structural Health Monitoring Strategy of a Reinforced Concrete Water Tower	Ruben Paul Borg (University of Malta)*; Luis Santos (LNEC); Edward Gatt (University of Malta); Elsa Pereira (LNEC)
2A.7	Biological Diversity on an Industrial Heritage Structure: The Case Study of a 20th Century Water Tower	Stephanie Sammut (Heritage Malta); Ruben Paul Borg (University of Malta)

Sessions DAY 1
(21st November)

Session 2B : Energy and distributed generation

Time: 11:45 - 13:15

Room : Zeus

Chair: Prof. Cyril Spiteri Staines, Dr. Alexander Micallef

	Paper title	Author
2B.1	Real Time Compensation of Voltage Fluctuations in Electrical Networks	John Licari (University of Malta)*; Cyril Spiteri Staines (University of Malta)
2B.2	Energy Efficiency Through Energy Auditing	John Licari (University of Malta); Cyril Spiteri Staines (University of Malta)
2B.3	DC Microgrids: Concept, Structure, and Control - An Overview	Daniel Zammit (University of Malta)*; Cyril Spiteri Staines (University of Malta); Maurice Apap (University of Malta); Alexander Micallef (University of Malta)
2B.4	Droop Control of Electric Springs for Voltage Stabilization	Racquel Ellul (University of Malta)*; John Licari (University of Malta); Alexander Micallef (University of Malta)
2B.5	Optimal sizing of a grid-connected hybrid power system dedicated to the building	Hatem Oueslati (Research and Technology Center of Energy (CRTEN))*; Salah Ben Mabrouk (CRTEN)

Sessions DAY 1 (21st November)

Session 2C : Environmental Behaviour, Economics & Policy

Time: 11:15 - 13:15

Room : Sybille

Chair: Dr. Marie Briguglio

	Paper title	Author
2C.1	Decoupling Carbon Dioxide Emissions and Economic Development In Small States: The Role Of Governance	Marie Briguglio (University of Malta); Jessica Camilleri (UM)*; Jonathan Spiteri (University of Malta)
2C.2	Trust and Willingness to pay to conserve land. A case study at Zonqor Point	Marie Briguglio (University of Malta); Kurt Davison (University of Malta)*
2C.3	Environmental Engagement and Spirituality in the context of secularization	Marie Briguglio (University of Malta)*; Tereza Garcia Munoz (University of Malta); Shoshana Neumann (University of Malta)
2C.4	Biodiversity conservation: what people know and what they do	Jonathan Spiteri (University of Malta)*; Marie Briguglio (University of Malta)
2C.5	Political preferences and Voluntary Pro Environmental Behavior	Marie Briguglio (University of Malta)* ; Jonathan Spiteri (University of Malta)
2C.6	Children's public open spaces: An analysis for a densely populated Island State, Malta.	Bernadine Satariano (The Malta Foundation for the Wellbeing of Society)* ; Marie Briguglio (University of Malta); Maureen Cole (University of Malta)

Sessions DAY 1
(21st November)

Session 3A : Materials in Civil Engineering

Time: 14:45 - 16:15

Room : Olympia

Chair: Prof. Ruben Paul Borg, Prof. Liborio Cavaleri

	Paper title	Author
3A.1	Behavior of FRP reinforced concrete beams made with recycled concrete aggregates	Wael Alnahhal (Qatar University)*
3A.2	Improving aggregates' quality: A sustainable resource management practice.	Solomon Adomako (University of Agder)*
3A.3	High performance cement composite matrix: selection of raw materials and design of mixture composition	Bajare, Diana (Riga Technical University)*
3A.4	The influence of used additive ingredients on improving durability in aggressive environments	Iveta Hajkova (Brno University of Technology, Faculty of Civil Engineering)*
3A.5	Controls of limestone aggregate texture on concrete performance	Peter Gatt (Geomaterials Research Centre, MCAST)*
3A.6	Estimating Concrete Strength by Maturity Method	Mindaugas Dauksys (Kaunas University of Technology)*; Svajūnas Juočiūnas (Kaunas University of Technology); Dalius Kriptavičius (JSC PERI, Formwork Scaffolding Engineering); Ramūnas Gečys (Kaunas University of Technology)

Sessions DAY 1
(21st November)

Session 3B : Energy and distributed generation

Time: 14:45 - 16:15

Room : Zeus

Chair: Prof. Cyril Spiteri Staines, Dr. Alexander Micallef

	Paper title	Author
3B.1	High PV Penetration Mitigation using Reactive Power Control. Case Study: Malta	Brian Bartolo (Malta College of Arts, Science and Technology (MCAST)); Brian Azzopardi (Malta College of Arts, Science and Technology (MCAST))*
3B.2	Energy and Water Nexus within an Urban Scenario: A Maltese household	Adil Kerimbekov (Malta College of Arts, Science and Technology (MCAST)); Brian Azzopardi (Malta College of Arts, Science and Technology (MCAST))*; Renata Mikalauskiene (Malta College of Arts, Science and Technology)
3B.3	Design and Performance Evaluation of an Efficient Boost Converter for Renewable Energy Applications	Vibhu Jatily (G. B. Pant University of Agriculture and Technology); Sudha Arora (G. B. Pant University); Brian Azzopardi (Malta College of Arts, Science and Technology (MCAST))*
3B.4	Enhancement of Frequency Response Capability of Grid Connected Photovoltaics	Somesh Bhattacharya (Malta College of Arts, Science and Technology (MCAST))*; Brian Azzopardi (Malta College of Arts, Science and Technology (MCAST))

Climate Change Round Table DAY 1 (21st November)

Round Table: CLIMATE CHANGE (Part 1)

Time: 14:45 - 16:15

Room : Sybille

Chair: Prof. Simone Borg

Expert Participants:

Perit David Xuereb (President of the Malta Chamber of Commerce, Malta)

Perit Charles Buhagiar (Executive Chairman, Building Industry Consultative Council, Malta)

Mr. Ivor Robinich, (Chairman, Malta Building and Construction Agency)

Mr. Sandro Chetcuti (President, Malta Developers Association, Malta)

Perit Martin Debono (Building Industry Consultative Council)

Mr. Nils Larsson (Executive Chairman, iiSBE International Initiative for a Sustainable Built Environment, Canada)

Prof. Luis Braganca (President, iiSBE International Initiative for a Sustainable Built Environment, Portugal)

Arch. Andrea Moro (iiSBE Italia, Torino)

Mr. Vincent Attard, (President Nature Trust Malta)

Prof. Ruben Paul Borg (President, SBE Sustainable Built Environment, Malta)

Sessions DAY 1 (21st November)

Session 4A : Energy Efficiency and Renewable Energy

Time: 16:30 - 18:00

Room : Olympia

Chair: Prof. Francesco Romagnoli, Prof. Cyril Spiteri Staines

	Paper title	Author
4A.1	Household Energy Consumption and Solar PV Energy Generation: A case study in Malta	Jessica Settimo (University of Malta)*; Cyril Spiteri Staines (University of Malta); John Licari (University of Malta); Alexander Micallef (University of Malta); Christopher Micallef (University of Malta); Mario Farrugia (University of Malta); Tonio Sant (University of Malta)
4A.2	Urban Wind Turbines for Smart Cities: capturing the perceptions of EU experts	Neveen Hamza (Newcastle University)*; Ruben Paul Borg (University of Malta); Charalimpos Baniotopoulos (Birmingham University)
4A.3	Influence of temperature on the growth of microalgae <i>Chlorella vulgaris</i> in laboratory batch cultures	Francesco Romagnoli (Institute of Energy Systems, Riga Technical University)*
4A.4	Territorial sustainability assessment for biogas production: an integrated GIS and Multi Criteria Analysis for the Latvian context	Francesco Romagnoli (Institute of Energy Systems, Riga Technical University)*; Serena Pauri (Università 'La Sapienza', Ing. Chimica dei processi); Mara Lombradi (Università 'La Sapienza', Ing. Chimica dei processi); Andrea Cappelli (Università 'La Sapienza', Ing. Chimica dei processi)
4A.5	Environmental evaluation of heating system based on life cycle assessment - comparison of classic and energy independent system	Marie Nehasilova (CTU in Prague)*; Ondřej Nehasil (CTU in Prague); Antonín Lupíšek (Czech Technical University in Prague)
4A.6	Supporting Consumer Co-Ownership in Renewable Energies: SCORE H2020 project	Sara Torabi Moghadam (Politecnico di Torino)*; Maria Valentina Di Nicoli (Politecnico di Torino); Santiago Manzo (Politecnico di Torino); Lombardi Patrizia (Politecnico di Torino)

**Workshop Circular Economy DAY 1
(21st November)**

Round Table: Workshop: Circular Economy in the Construction Industry

Time: 16:30 - 18:00

Room : Zeus

Chair: Dr. Nadia Theuma

With the Collaboration of *Climate KIC Project: Circular Economy in the Construction Industry*.

Climate Change Round Table DAY 1 (21st November)

Round Table: CLIMATE CHANGE (Part 2)

Time: 16:30 - 18:00

Room : Sybille

Chair: Prof. Simone Borg

Expert Participants:

Perit David Xuereb (President of the Malta Chamber of Commerce, Malta)

Perit Charles Buhagiar (Executive Chairman, Building Industry Consultative Council, Malta)

Mr. Ivor Robinich, (Chairman, Malta Building and Construction Agency)

Mr. Sandro Chetcuti (President, Malta Developers Association, Malta)

Perit Martin Debono (Building Industry Consultative Council)

Mr. Nils Larsson (Executive Chairman, iiSBE International Initiative for a Sustainable Built Environment, Canada)

Prof. Luis Braganca (President, iiSBE International Initiative for a Sustainable Built Environment, Portugal)

Arch. Andrea Moro (iiSBE Italia, Torino)

Mr. Vincent Attard, (President Nature Trust Malta)

Prof. Ruben Paul Borg (President, SBE Sustainable Built Environment, Malta)

Sessions DAY 2 (22nd November)

Session 5A: Disaster Resilience

Time: 9:30 – 11:00

Room: Olympia

Chair: Dr. Glorianne Borg Axisa, Prof. Ranjith Dissanayake

	Paper title	Author
5A.1	Evaluation of Multi-Hazard Early Warning Systems (MHEWS): Case studies in Myanmar, and Sri Lanka	Kusal Rathnayake (University of Moratuwa); Sonali E Abeysinghe (University of Peradeniya, Sri Lanka); Chandarana Siriwardane (University of Moratuwa); Ranjith Dissanayake (University of Peradeniya)*
5A.2	Island Vulnerabilities: A research strategy for the Assessment of Perception of Island Communities in the Maldives.	Glorianne - Borg Axisa (University of Malta)*; Ruben Paul Borg (University of Malta); Mohamed Haikal Ibrahim (Maldives National University); Fathimath Nistharan (Maldives National University)
5A.3	An Overview of Existing Digital Platforms in Disaster Emergency Response Stage	Ishani Shehara (University of Moratuwa)*; Chandana Siriwardana (University of Moratuwa); Dilanthi Amaratunga (University of Huddersfield); Richard Haigh (University of Huddersfield); Chaminda S Bandara (University of Peradeniya); Ranjith Dissanayake (University of Peradeniya)
5A.4	The upstream-downstream interface of an end-to-end tsunami early warning and mitigation system; the cases of Indonesia and Sri Lanka	Maheshika M Sakalasuriya (University of Huddersfield)*; Dilanthi Amaratunga (University of Huddersfield); Richard Haigh (University of Huddersfield)
5A.5	The impact of centralised approach to road reconstruction in post conflict Sri Lanka	Maheshika M Sakalasuriya (University of Huddersfield)*; Richard Haigh (University of Huddersfield); Dilanthi Amaratunga (University of Huddersfield)
5A.6	Updated digital methodology for Vs ₃₀ estimation – a practical approach	Boyko Rangelov (Mining and Geology University)*; Dimo Solakov (National Institute of Geophysics, Geodesy and Geography, Bulgarian Academy of Sciences,); Stefan Dimovski (Mining and Geology University); Atanas Kisyov (Mining and Geology University)
5A.7	Identification of Capacity Gaps among Higher Education Institutions in Asia when Developing Multi-Hazard Early Warnings for Resilience	Kinkini Hemachandra (University of Huddersfield)*; Richard Haigh (University of Huddersfield); Dilanthi Amaratunga (University of Huddersfield)

5A.8	Investigation of the Systematic Behaviour of Critical Infrastructures over Floods on Economic Loss Determination	Ishani Shehara (University of Moratuwa)*; Chandana Siriwardana (University of Moratuwa); Dilanthi Amaratunga (University of Huddersfield); Richard Haigh (University of Huddersfield); Nimal Wijayaratna
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Sessions DAY 2 (22nd November)

Session 5B : Sustainable Regeneration of Cultural Heritage

Time: 9:30 – 11:00

Room : Zeus

Chair: Dr. Lino Bianco

	Paper title	Author
5B.1	New Sustainable Acupunctural Strategies to Preserve, Refurbish and Promote the Cultural Heritage: Challenges and Solutions. The Case Study of Bisotun site in Kermanshah (Iran).	Theo Zaffagnini (, Department of Architecture, University of Ferrara)*; Sara Pouryousefzadeh (Candidate of the International Doctorate in Architecture and Urban planning (IDAUP), XXXII cycle, University of Ferrara)
5B.2	Field Assessment of Heritage Buildings: A study of the Presidential Palace of San Anton, Malta	Amber Wismayer (University of Bath)*; Carolyn Hayles (Cardiff School of Art and Design, Cardiff Metropolitan University, UK); Nick McCullen (Department of Architecture and Civil Engineering, University of Bath, UK)
5B.3	Smart Home as the Platform for the Behavioural Training leading to Sustainability in Historical Home	Katerina Horak (Faculty of Architecture, Czech Technical University in Prague)*
5B.4	Socio-economic and environmental sustainability of traditional residential units	Lino Bianco (University of Malta)*
5B.5	Influencing Behavioural Change: An integral measure in the sustainable regeneration of heritage buildings	Amber Wismayer (University of Bath)*; Carolyn Hayles (Cardiff School of Art and Design, Cardiff Metropolitan University, UK); Nick McCullen (Department of Architecture and Civil Engineering, University of Bath, UK)

5B.6	The Miracle of Concrete has Befallen; reconciling historic concrete technical repairs with the philosophical conservation principles.	Fabio Scicluna (University of Bath)*
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Sessions DAY 2 (22nd November)

Session 5C : Transport & Urban Space

Time: 9:30 – 11:00

Room : Sybille

Chair: Prof. Maria Attard

	Paper title	Author
5C.1	Understanding shared bicycle use in Southern European island cities: insights from Limassol, Cyprus	Suzanne Maas (Institute for Climate Change and Sustainable Development)*; Maria Attard (University of Malta); Paraskevas Nikolauo (University of Cyprus); Loukas Dimitriou (University of Cyprus)
5C.2	Social inequalities in a car dominated built environment – the case study of Malta’s transport system	Maria Attard (University of Malta)
5C.3	Utilizing OpenStreetMap data to measure and compare pedestrian streets length in 992 cities around the world	Alexandros Bartzokas-Tsiompras (National Technical University of Athens)*; Yorgos Photis (National Technical University of Athens)
5C.4	Sustainable mobility and climate change mitigation - a framework for developing low-carbon land transport policies	Rosalie Camilleri (University of Malta Institute for Climate Change and Sustainable Development)

5C.5	Green Travel Plans for Workplaces - Incentives for Modal Shift in the Maltese Public Sector	Odette Lewis (University of Malta)*; Vincent Marmara (University of Malta); Sharon Mallia (University of Malta)
5C.6	Vehicle to Everything Communications in Support of Bicycle Commuting	Adrian Muscat (University of Malta)*

Sessions DAY 2 (22nd November)

Session 6A : Sustainable Buildings

Time: 11:45 – 13:15

Room : Olympia

Chair: Dr. Daniel Micallef, Dr. Simon Paul Borg

	Paper title	Author
6A.1	Sustainable refurbishment for large panels prefabricated collective houses - architectural and structural solutions	Alexandru A. Botici (Politehnica University of Timisoara); Viorel Ungureanu (Politehnica University of Timisoara)*; Adrian Ciutina (Politehnica University of Timisoara); Daniel Grecea (Politehnica University of Timisoara)
6A.2	SU.PR.I.M.: a new building element for prefabricated sustainable constructions	Katerina Tsikaloudaki (Aristotle University of Thessaloniki, Department of Civil Engineering)*
6A.3	Alternative façade systems for adaptable buildings towards climate change	Daniel M Muntean (Politehnica University Timisoara)*; Viorel Ungureanu (Politehnica University of Timisoara)

6A.4	Humidity Distribution in the Internal Environment: An Experimental Approach	Matthew Bonello (University of Malta)*; Daniel Micallef (University of Malta); Simon Paul Borg (University of Malta)
6A.5	Designing new residential building in line with the Paris Agreement: a case study from Czechia	Antonín Lupíšek (Czech Technical University in Prague)*
6A.6	Eco-friendly wall blocks using mineral foam and bio-composite insulation	Genadijs Sahmenko (Riga Technical University)*; Maris Sinka (Riga Technical University); Aleksandrs Korjakins (Riga Technical University); Ainars Jocis (Riga Technical University)

Sessions DAY 2 (22nd November)

Session 6B : Education for Sustainable Development

Time: 11:45 – 13:15

Room : Zeus

Chairs: Prof. Paul Pace, Dr. Glorianne Borg Axisa

	Paper title	Author
6B.1	The Effectiveness of the EduChange Project in increasing Knowledge, Values and Attitudes towards Climate Change	Mark Mifsud (University of Malta CEER)*; Paul Pace (University of Malta CEER)
6B.2	From words to action: Empowering young people for sustainability	Paul Pace (University of Malta CEER)*
6B.3	Global Education – An Introductory Course to Educators in Malta	Glorianne Borg Axisa (University of Malta)*
6B.4	Early stage retrofit stakeholder engagement: Enhancing higher education project success.	Luke M Gooding (Heriot Watt University)*
6B.5	Education for Sustainable Development; Architecture discipline , Bahrain	May Khalfan (University of Bahrain)*

Sessions DAY 2
(22nd November)

Session 6C : Transport and Urban Space

Time: 11:45 – 13:15

Room : Sybille

Chairs: Prof. Maria Attard, Dr. Odette Lewis

	Paper title	Author
6C.1	Streets, stress and society: the impacts of the urban environment and transport on the Maltese population's mental wellbeing	Karyn Scerri (University of Malta)*
6C.2	Understanding the role of information and its influence on decision-making for sustainable mobility - a preliminary study.	Therese Bajada (University of Malta)*
6C.3	Climate Change Vulnerability Ranking of Coastal Roads in Malta using Multi-Criteria Methods	Anthony Rizzo (University of Malta)*; Maria Attard (University of Malta)
6C.4	The Relationship between The Constructivist Density Of The Urban fabric and The Solar Radiation within The Urban canyon.	Rami Qaoud (University of Biskra, Department of Architecture)*; Djamal Alkama (University of Biskra, Department of Architecture)
6C.5	Investigating the Contribution to Sustainable Development of Public Open Spaces in the Maltese Urban Conurbation	Sarah Scheiber (University of Malta)*

Sessions DAY 2
(22nd November)

Session 7A : Sustainability Assesment Tools

Time: 14:45 – 16:15

Room : Olympia

Chairs: Arch. Andrea Moro, Prof. Ruben Paul Borg

	Paper title	Author
7A.1	EPBD cost-optimal analysis for non-residential buildings in Malta	Damien Gatt (University of Malta); Charles Yousif (University of Malta); Carmelo Barbara (University of Malta); Trevor-Francis Caruana (Building Regulation Office)*; Matthew Degiorgio (Building Regulation Office)
7A.2	Towards improved building inspection and diagnosis in Spain	Cristina Jiménez-Pulido (Universidad Politécnica de Madrid)*; Ana Jlménez-Rivero (Universidad Politécnica de Madrid); Justo García-Navarro (Universidad Politécnica de Madrid)
7A.3	Assessing the load shifting potential in buildings – Application of a methodology for the Smart Readiness Indicator on a theoretical use case in the city of Vienna	Doris Österreicher (University of Natural Resources and Life Sciences, Vienna)*; Thomas Märzinger (University of Natural Resources and Life Sciences, Vienna)
7A.4	Sustainability Assessment Framework for the Urban Environment: Application of CESBA Tool at the University of Malta Campus	Ruben Paul Borg (University of Malta)*, Edward Gatt (University of Malta), Joseph Micallef (University of Malta), Owen Casha (University of Malta), Ivan Grech (University of Malta), Jordan Gauci (University of Malta)
7A.5	Prioritizing Energy Efficiency Measures in Maltese Restaurants	Felix N Barbara (University of Malta); Damien Gatt (University of Malta); Charles Yousif (University of Malta)

Renewables Round Table DAY 2 (22nd November)

Round Table: The Future of Photovoltaics in the Mediterranean (Part 1)

Time: 14:45 - 16:15

Room: Sybille

Chair: Dr. Brain Azzopardi

Expert Participants:

Prof. Laurent Olivier Bellemare (Director of Development, Syndicat Mixte d'Electricité de la Martinique, Martinique)

Prof. Georgios Mousdis, (Research Director, National Hellenic Research Foundation, Greece)

Mr. Nils Larsson (Executive Chairman, iiSBE International Initiative for a Sustainable Built Environment, Canada)

Prof. Luis Braganca (President, iiSBE International Initiative for a Sustainable Built Environment, Portugal)

Prof. Chrisna du Plessis (University of Pretoria, South Africa)

Sessions DAY 2
(22nd November)

Session 7B : Structural Systems

Time: 14:45 – 16:15

Room : Seuz

Chairs: Prof. Ranjith Dissanayake

	Paper title	Author
7B.1	VR-SHM A structural health monitoring tool to assist crack detection using deep learning and virtual reality	Carl J Debono (University of Malta)*; Leanne Attard (University of Malta); Gianluca Valentino (University of Malta); Mario Di Castro (CERN); Alessandro Masi (CERN)
7B.2	Current density and oxygen depletion in a galvanic pair embedded in concrete.	Stephen Sammut (University of Malta)*; Edward Gatt (University of Malta); Ruben Paul Borg (University of Malta)
7B.3	Historic Reinforced Concrete Structures and Infrastructures: diagnosis, repair and monitoring	Michelangelo Micheloni (Studio Micheloni Srl)
7B.4	Near-field earthquakes on seismic vulnerability assessment of historical masonry buildings: the case study of the Banloc Castle in Romania	Nicola Chieffo (Politehnica University of Timisoara)*; Antonio Formisano (University of Naples Federico II); Marius Moșoarcă (Politehnica University of Timisoara)
7B.5	A novel green reinforcement system for retrofitting existing historical masonry buildings	Antonio Formisano (University of Naples Federico II)*; Generoso Vaiano (University of Naples Federico II); Francesco Fabbrocino (Pegaso Telematics University)
7B.6	Easy safety check criteria for beam members of RC frames equipped with full and perforated Steel Plate Shear Walls	Formisano, Antonio, (University of Naples Federico II)*
7B.7	Malta's Heritage in Stone: from Temple Builders to Eurocodes 6/8.	Denis H Camilleri (dhi periti)*

Sessions DAY 2
(22nd November)

Session 8A: Sustainable Buildings

Time: 16:30 – 18:00

Room : Olympia

Chairs: Dr. Charles Yousif, Perit Carmelo Barbara

	Paper title	Author
8A.1	On localization and reasons of insufficient air-tightness of used building envelope structures and their junctions	Valdas Paukštys (Kaunas University of Technology); Jūratė Mockienė (Kaunas University of Technology)*; Gintaris Cinelis (Kaunas University of Technology)
8A.2	Added values in building renovation: An interdisciplinary research agenda	Steffen Petersen (Aarhus Universitet)*; Søren Wandahl (Aarhus Universitet); Poul Henning Kirkegaard (Aarhus Universitet); Charlotte Gabel Hansen (Aarhus Universitet); Stina Rask Jensen (Aarhus Universitet); Grethe Elholm (Aarhus Universitet); Mia Kruse Rasmussen (Alexandra Institute); Aliakbar Kamari (Aarhus Universitet); Torben Sigsgaard (Inst of Environmental and Occupational Medicine); Hasse Neve (Aarhus University)
8A.3	Feasibility study of sensible and latent heat recovery for medium-sized offices in a typical Mediterranean climate	Aaron Cutajar (niversity of Malta)*; Damien Gatt (University of Malta); Charles Yousif (University of Malta); Liberato Camilleri (University of Malta)
8A.4	Integrated design approach studies towards Nearly Zero Energy Buildings in Malta.	Luca Caruso*
8A.5	Technique for Optimising Natural Daylight Using Double Curvature Deep Grid Shell and Upcycled Materials	Ivan Coleiro(Steelshape Ltd)*; John Valentino(University of Malta)
8A.6	Sustainable Daylighting Technologies	Liliana Beltran (Texas A&M University)

Renewables Round Table DAY 2 (22nd November)

Round Table: The Future of Photovoltaics in the Mediterranean (Part 2)

Time: 16:30 - 18:00

Room: Sybille

Chair: Dr. Brain Azzopardi

Expert Participants:

Prof. Laurent Olivier Bellemare (Director of Development, Syndicat Mixte d'Electricité de la Martinique, Martinique)

Prof. Georgios Mousdis, (Research Director, National Hellenic Research Foundation, Greece)

Mr. Nils Larsson (Executive Chairman, iiSBE International Initiative for a Sustainable Built Environment, Canada)

Prof. Luis Braganca (President, iiSBE International Initiative for a Sustainable Built Environment, Portugal)

Prof. Chrisna du Plessis (University of Pretoria, South Africa)

**Sessions DAY 2
(22nd November)**

Session 8B: Sustainable Buildings

Time: 16:30 – 18:00

Room : Zeus

Chairs: MSc. Albany Milena Lozano Násner, Ing. Damian Gatt

	Paper title	Author
8B.1	A Case-study on Leachate Treatment in Dompe Sanitary Landfill, Sri Lanka	Sonali E Abeysinghe (University of Peradeniya, Sri Lanka)*
8B.2	Evaluation of Climate Change Related CSR Activities in the Hungarian Agribusiness	Kinga Biró (Budapest University of Technology and Economics)*; Mária Szalmáné Csete (Budapest University of Technology and Economics)
8B.3	A Framework for the assessment of Sustainability in the Built Environment: The Case of Malta as an Island State	Ruben Paul Borg (University of Malta)*
8B.4	Circular Economy: A Solution for Construction Waste in Malta	Nadia Theuma (Paragon)*; Ruben Paul Borg (University of Malta)
8B.6	Navigating resilient nodes of negotiation and emerging knowledge strands over project life-cycles	George Dimech (University of Malta)*