



*International Conference*  
**PASSIVE AND LOW ENERGY COOLING  
FOR THE BUILT ENVIRONMENT**

*19-21 May 2005, Santorini, Greece*

---

## **PROGRAMME**

First Day 19 May 2005
--------------------------

### **Opening Session 09.00-11.00**

Chair: **D. Asimakopoulos, M. Santamouris, N. Fintikakis** and **P. Wouters**

09.00-09.15: Welcome Addresses

Conference opening

**D. Asimakopoulos**, Vice – Rector of National and Kapodistrian University of Athens

Architecture and renewable energy sources

**N. Fintikakis**, Architect, Vice President of the Society for the promotion of studies on Prehistoric Thera, Director of UIA-ARES International work program

Welcome for AIVC – INIVE

**P. Wouters**, Belgian Building Research Institute

09.45-10.10: Energy performance regulations in the context of the EPBD: Keep it simple?

**P. Wouters, D. Van Orshoven, X. Loncour**, Belgian Building Research Institute

10.10-10.35: Potentials of urban heat island mitigation

**Hashem Akbari**, Heat Island Group, Lawrence Berkeley National Laboratory

10.35-11.00: Passive cooling in the works of A. N. Tombazis and Associates

**A. Tombazis**, Meletitiki – Alexandros N. Tombazis and Associates Architects Ltd

**11.00- 11.15: Coffee Break**

### **11.15 – 13.15: Parallel Session 1, Natural Ventilation for Cooling**

Chair: **E. Maldonado** and **G. Guarracino**

11.15-11.30: Keynote Speeches

Natural ventilation of urban buildings – Summary of urbvent project

**C. Ghiaus, F. Allard**, University of La Rochelle, **M. Santamouris, C. Georgakis**, University of Athens, **C.-A. Roulet, M. Germano**, Federal Polytechnic School of Lausanne, **F. Tillenkamp**, Axima Lab, **N. Heijmans**, Belgian Building Research Institute

**F. Nicol**, London Metropolitan University, **E. Maldonado**, Institute of Engineering Mechanic

**M. Almeida**, University of Minho, **G. Guarracino**, ENTPE/CNRS Vaulx-en-Velin,

**L. Roche**, Building Research Establishment

11.30-12.50: Oral Presentations

Human factor in thermal performance of natural ventilated buildings

**G. Gomez Azpeitia, A. Alcántara, P. Barragán**, University of Colima, **B. Givoni**, University of California

Sensitivity analysis of a maritime located night ventilated library building

**D. Connolly, D. Finn, P. Kenny**, University College Dublin

CFD reliability issues in analysis of naturally ventilated buildings

**J.M. Horan, D.P. Finn** University College Dublin

Effects of vents openings and insect screen on greenhouse ventilation

**T. Bartzanas, N. Katsoulas, C. Kittas**, University of Thessaly, **T. Boulard**, INRA-URIH 400, **M. Mermier**, INRA d'Avignon

Natural and mixed ventilation design via CFD and architectural modelling

**M. Todorovic, O. Ecim**, University of Belgrade, **A. Marjanovic**, VTI, **I. Randjelovic**, CIP

Wind tower a natural cooling system in Iranian traditional architecture

**P. S. Ghaemmaghami**, Iran University of Science and Technology, **M. Mahmoudi**, Qazwin Islamic Azad University

12.50-13.00: Short Oral Presentations

Study on the numerical predictive accuracy of wind pressure distributions and airflow characteristics. Part 1 Optimization of turbulence models for practical use

**T. Endo, T. Kurabuchi, M. Ishii, K. Komamura**, Tokyo University of Science, **E. Maruta**, Nihon University, **T. Sawachi**, National Institute of Land and Infrastructure Management

Study on the numerical predictive accuracy of wind pressure distributions and airflow characteristics. Part 2 Prediction accuracy of wind pressure distribution of various shaped buildings

**M. Ishii, T. Kurabuchi, T. Endo**, Tokyo University of Science, **E. Maruta**, Nihon University **T. Sawachi**, National Institute of Land and Infrastructure Management

### **11.15-13.15: Parallel Session 2, Fighting Heat Island – Canyon Effect**

Chair: **R. Lamberts** and **S. Burton**

11.15-11.30: Keynote Speech

Cool colored roofs to save energy and improve air quality

**H. Akbari, R. Levinson, W. Miller, P. Berdahl**, Lawrence Berkeley National Laboratory

11.30-12.50: Oral Presentations

A comparative study of the thermal performance of reflective coatings for the urban environment

**A. Synnefa, M. Santamouris, I. Livada**, University of Athens

Assessing the thermal environment of major cities in Greece

**M. Stathopoulou, C. Cartalis, A. Andritsos**, University of Athens

Estimating the ecological footprint of the heat island effect over Athens, Greece

**M. Santamouris, K. Paraponiaris**, University of Athens, **G. Mihalakakou**, University of Ioannina

Canyon effects calculation of wind speed in an urban street canyon with the aid of a semi-empirical model based on experimental data

**C. Georgakis, M. Santamouris**, University of Athens

A study of temperature and wind distribution inside two urban street canyons in Athens

**K. Niachou, I. Livada, M. Santamouris**, University of Athens

The impact of wind on air temperature distribution in Athens and in Santorini

**I. Livada, K. Niachou, M. Santamouris**, University of Athens

Heating demand differences between central and surrounding areas in the coastal town of Patras

**Y. Caouris, A. Giannopoulos**, University of Patras, **M. Santamouris**, University of Athens

12.50-13.00: Short Oral Presentations

Thermo Graphic analyses for monitoring urban areas in Rome to study heat island

**C. Atturo, L. Fiumi**, CNR-IIA-LARA

Guidelines for energy optimisation through landscape architecture in hot humid regions

**S. Arias**, University of Guadalajara

### **15.15-17.15: Parallel Session 3, Designing for Cooling**

Chair: **A. Tombazis** and **C. Kabele**

15.15-15.30: Keynote Speech

Glass Architecture : Is it sustainable?

**F. Butera**, Polytechnic School of Milan

15.30-17.05: Oral Presentations

Refurbishment of old buildings for sustainable Use

**S. Burton, S. Kesidou**, FaberMaunsell

Environmental sustainable iranian traditional architecture in hot humid regions

**M. Shohouhian, F. Soflaee**, ISLamshahr Azad University

The potential for zero emissions / energy development in China

**A. C. Pitts, B. Chen**, University of Sheffield

Energetic rehabilitation of an office building in Barcelona by use of passive ventilation strategy and active solar technologies as shading device and corporate identity element

**T. Masseck**, Universitat Politècnica de Catalunya (UPC)

An innovative passive system for preventing conservation of the ancient stained glass windows in the Assisi St Francis Basilica superior church

**A. Mingozi, S. Bottiglioni**, Mingozi and Associates

Passive and low energy cooling techniques for the Czech Republic

**M. Lain**, Technical University in Prague, **J. Hensen**, Technical University of Eindhoven

17.05-17.15: Short Oral Presentations

Thermal performance of an underground museum in Turkey

**M. Mas Gomez**, Architectural Association Graduate School

Passive cooling techniques as part of energy rehabilitation measures in office buildings in Greece.

**C. J. Koinakis**, Technological Educational Institute of Thessaloniki

#### **15.15-17.15: Parallel Session 4, Thermal Comfort**

Chair: **A. Papadopoulos** and **M. Wilson**

15.15-15.30: Keynote Speech

Maximum temperatures in buildings to avoid heat discomfort

**F. Nicol**, London Metropolitan University, **M. Humphreys**, Oxford Brookes University

15.30-17.05: Oral Presentations

Adaptive thermal comfort evaluation in a field study

**B. Moujalled**, **R. Cantin**, **G. Guarracino**, ENTPE-DGCB-LASH

Climate optimised building parameters for low energy summer comfort under a discomfort index

**L. Pagliano**, **P. Zangheri**, Politechnic of Milan

Summer thermal comfort in traditional Buildings of the 19<sup>th</sup> century in Florina north western Greece

**A. Oikonomou**, National Technical University of Athens

Optimisation of indoor thermal comfort outside the heating season

**S. Croce**, **L. P. Gattoni**, **R. Arlunno**, Polytechnic of Milan

Thermal comfort in Boats

**K. Kritsonis**, ECOCAT, **F. Nicol**, Low Energy Architecture Research Unit (LEARN)

Comparison of the HQE method and the Ev assessment

**P. Kosmopoulos**, **I. P. Fragidou**, Democritus University of Thrace

Thermal comfort study of occupants in university of Patras

**A. K. Aggelakoudis**, **M. G. Athanasiou**, University of Patras

17.05-17.15: Short Oral Presentations

Eliminating the need for mechanical cooling

**A. Rivera**, Architectural Association

Improvement of summer comfort in wood frame buildings

**G. Fraisse**, **V. Trillat-Berdal**, **B. Souyri**, University of Savoy

17.15- 17.30: Coffee Break

#### **17.30-19.00: Parallel Session 5, Education, Legislation and Socioeconomic**

Chair: **C. Axarli** and **A. Pitts**

17.30-17.45: Keynote Speech

On the Impact of energy pricing on low energy design of buildings

**A. M. Papadopoulos**, **A. Stylianou**, Aristotle University Thessaloniki, **S. Oxizidis**, TNO-MEP

#### 17.45-18.50: Oral Presentations

EULEB – European high quality low energy buildings

**J. Schlenger, H. F. O. Muller**, University of Dortmund

The contribution of contemporary technology to the environmental protection and sustainable development

**P. Patargias**, University of Peloponnese

Ecology in architecture design: Testing an advanced educational path

**P. Caputo, M. Molina, A. Roscetti, J. Vicari**, Accademy of Architecture of Mendrisio, **C.**

**Milani, I. Rega, P. Schettino**, Università della Svizzera Italiana

CLEAR A multimedia package for comfortable low energy architecture

**A. Jacobs, F. Nicol, M. Wilson, J. Solomon**, London Metropolitan University

Thermal comfort educational software for hot climates

**I. Marincic, J. M. Ochoa**, University of Sonora, **A. Isalgue**, Universitat Politecnica de Catalunya

Social attitudes about environmental design and RES – Field study in Cyprus

**P. Kosmopoulos, Th. Ioannou**, Democritus University of Thrace

#### 18.50-19.00: Short Oral Presentations

Discrepancies between indications deriving from energy and economic issues in the design of building thermal Insulation

**G. L. Brunetti**: Polytechnic of Milan

The challenges of teaching bioclimatic architectural design

**D. C. C. K. Kowaltowski, L. C. Labaki, S. M. G. Pina, G. C. R. Gutierrez, V. Gomes da Silva**, State University of Campinas

#### **17.30-19.00: Parallel Session 6, Design Tools**

Chair: **S. Meir** and **M. Almeida**

#### 17.30-17.45: Keynote Speech

A matrix for assessing the performance of intelligent buildings

**G. Sutherland, G. Stavrakakis**, Technical University of Crete, **D. Kolokotsa**, Technological Educational Institute of Crete, **S. Karatassou, M. Santamouris**, University of Athens

#### 17.45-18.55: Oral Presentations

A free user-friendly design tool that shows how to reduce cooling energy in buildings

**M. Milne, C. Gomez, D. Leeper, P. LaRoche, J. Morton**, UCLA

Energy buildings management methodology

**P. R. S. Jota, V. R. B. Silva**, CEFET-MG

Dormitory optimised energy performance using spatial archetypes

**E. Primikiri**, University of Patras, **M. Kokkolaras, P. Papalambros**, University of Michigan

Application of the Ev Matrix in Xanthi, Greece

**P. Kosmopoulos**, Democritus University of Thrace

Numerical analysis of the microclimate conditions around a new telescope in La Palma, Spain

**D. Pérez, J. Cipriano**, CIMNE, **G. Houzeaux**, Politechnic University of Catalunya and CIMNE  
Comparative analysis of thermal simulation models and their suitability to passive cooling techniques in hot arid climates

**A. Marsh**, Cardiff University

18.55-19.00: Short Oral Presentation

Solar irradiation graphs

**T. Stasinopoulos**, National Technical University of Athens

19.00- 20.30: Welcome Reception

### **09.00-11.00: Plenary Session, Ventilation for Cooling**

Chair: **M. Santamouris** and **H. Yoshino**

09.00-09.40: Keynote Speeches

The air infiltration and ventilation center: The history and technical program of IEA Annex V

**M. Sherman**, Lawrence Berkeley National Laboratory

The role and ambitions of AIVC as international meeting point for information on ventilation and energy

**P. Wouters, D. Van Orshoven, X. Loncour**, Belgian Building Research Institute

09.40 – 11.00: Oral Presentations

Hybrid ventilation performance assessment using fitness functions

**P. Michel, M. Elmankibi**, ENTPE DGCB LASH,

Local dynamic similarity concept as applied to evaluation of discharge coefficients of ventilated buildings. Part 1. Basic idea and underlying wind tunnels

**T. Kurabuchi, T. Endo**, Tokyo University of Science, **M. Ohba, T. Goto**, Tokyo Polytechnic University, **Y. Akamine**, University of Tokyo

Local dynamic similarity concept as applied to evaluation of discharge coefficients of ventilated buildings. Part 2. Applicability of local dynamic similarity concept

**T. Goto, M. Ohba**, Tokyo Polytechnic University, **T. Kurabuchi, T. Endo, T. Otsuki**, Tokyo University of Science **Y. Akamine**, The University of Tokyo

Local dynamic similarity concept as applied to evaluation of discharge coefficient of ventilated buildings. Part 3. Simplified method for estimating dynamic pressure tangential to openings of cross ventilated buildings

**Y. Akamine, M. Kamata**, The University of Tokyo, **T. Kurabuchi, T. Endo**, Tokyo University of Science, **M. Ohba, T. Goto**, Tokyo Polytechnic University

Wind driven flow through building openings

**P. Karava, T. Stathopoulos, A.K. Athienitis**, Concordia University

Performance of natural hybrid and mechanical ventilation systems in urban canyons

**K. Niachou, M. Santamouris**, University of Athens, **S. Hassid**, Technion-Israel Institute of Technology

Design of a hybrid ventilation system: The Cli'nat project

**P. Michel, M. Elmankibi**, ENTPE DGCB LASH, **S. Buseyne**, ALDES Aéraulique, **E. Chéron**, SOMFY International, **W. Jäger**, WICONA Bausysteme GMBH

11.00- 11.15: Coffee Break

### **11.15 – 13.15: Parallel Session 7, Advanced Envelope Technology**

Chair: **F. Nicol** and **Y. Caouris**

11.15-11.30: Keynote Speech

Building's imitation of a human body's thermal behaviour

**B. Todorovic**, University of Belgrade

11.30-13.00: Oral Presentations

Evaluation of the thermal performance of the envelope of an innovative construction system for low cost buildings **(will be presented by Dr. Baruch Givoni)**

**J. R. García Chávez**, Universidad Autónoma Metropolitana- Azcapotzalco

Building envelope design as a passive cooling technique

**E. Okba**, Cairo University

Monitoring for the evaluation of the energetic behaviour of PCM containing walls

**P. Principi, C. Di Perna, G. Borrelli, A. Carbonari**, Polytechnic University of Marche

Experimental energetic evaluation of changeable thermal inertia PCM containing walls

**P. Principi, C. Di Perna, G. Borrelli, A. Carbonari**, Polytechnic University of Marche

Efficient energy thermal insulation façade systems for optimal savings and flexibility in architectural design

**G.K Rouni**, Drapa chemie

A preliminary study of hygrothermal performance of autoclaved aerated concrete blocks under hot humid climate of Thailand

**Y. Ungkoon, J. Hirunlabh**, King Mongkut's University of Technology Thonburi, **J. Khedari**,

South-East Asia University, **U-C. Shin**, Daejeon University, **P. Yodovard**, SUPERBLOCK

PUBLIC CO

Innovative low energy renovation of a single family dwelling for summer comfort

**L. Vandaele, A. Deneyer, N. Heijmans, F. Dobbels**, Belgian Building Research Institute

Potential of innovative daylighting and passive cooling systems for achieving luminous and thermal comfort in commercial buildings. **(will be presented by Dr. Baruch Givoni)**

**J. R. García Chávez**, Universidad Autónoma Metropolitana- Azcapotzalco, **K. Tsikaloudakis**, Aristotle University of Thessaloniki

### **11.15 – 13.15: Parallel Session 8, Heat Dissipation Techniques**

Chair: **E. Primikiri** and **G. Stavrakakis**

11.15-11.30: Keynote Speech

Cooled soil as a cooling source for buildings

**B. Givoni**, UCLA

11.30-12.55: Oral Presentations

A novel multi stage down draft evaporative cool tower for space cooling. Part 1. Aerodynamic design

**E. Erell, Y. Etzion, D. Pearlmutter**, Ben-Gurion University of the Negev, **R. Guetta**, Israel

Institute of Technology, **D. Pecornik, H. Zimmerman, F. Krutzler**, University of Applied Sciences, Mannheim

A novel multi stage down draft evaporative cool tower for space cooling . Part 2. Preliminary experiments with a water spraying system

**E. Erell, Y. Etzion, D. Pearlmutter**, Ben-Gurion University of the Negev, **R. Guetta**, Israel

Institute of Technology, **D. Pecornik, H. Zimmerman, F. Krutzler**, University of Applied



Sciences, Mannheim

A Nonequilibrium Molecular Dynamics Simulation of Evaporation

**Z. J. Wang, M. Chen, Z. Y. Guo**, Tsinghua University

Thermal efficiency characteristics of an indirect evaporative cooling systems

**B. Costelloe**, Dublin Institute of Technology, **D. P. Finn**, University College Dublin

Passive downdraught evaporative cooling applied to an auditorium

**J. J. Correia da Silva**, Universidade de Évora

Limits and potentials of office building climatisation with ambient air

**U. Eicker, M. Huber, P. Seeberger, J. Schumacher, C. Vorschulze**, University of Applied Sciences Stuttgart

12.55-13.00: Short Oral Presentation

The potential for evaporative cooling in Turkey

**M. Ateş, D. Baker**, Middle East Technical University

### **15.15-17.15: Parallel Session 9, Sustainable Architecture**

Chair: **N. Fintikakis**, and **A. Mingozi**

15.15-15.30: Keynote Speech

Passive cooling effect of building features in traditional Japanese buildings

**H. Yoshino**, Tohoku University, **K. Hasegawa, S. Matsumoto**, Akita Prefectural University

15.30-17.05: Oral Presentations

Logical use of traditional technologies for housing passive cooling in hot humid Italian climatic areas

**A. Mingozi, S. Bottiglioni**, Mingozi and Associates

Environmental design studio design for Arriyadh, Saudi Arabia

**G. Loehlein**, American University of Sharjah

Low energy cooling in historical library office hall

**K. Kabele**, Department of Environmental and Building Services Engineering

Bioclimatic architecture concepts applied to CEFET's building

**M. S. S. Bracarense, R. P. Papa, P. R. S. Jota**, CEFET-MG, BH

Design and retrofitting of a hybrid building in Athens

**A. Gavalas**, Gavalas Architects

Energy rehabilitation of modern office building in the region of Xanthi

**P. Kosmopoulos, P. Kiriakidis**, Democritus University of Thrace

Efficient retrofit actions and advanced control strategies for a student hostel

**S. Ferrari**, Polytechnic of Milan

17.05-17.15: Short Oral Presentations

Climatic responsive architecture in hot and dry regions of Iran

**A. Azami, S.H. Yasrebi, A. Salehipoor**, Islamic Azad University of Tabriz

Passive cooling and energy conservation design strategies of school buildings in hot arid regions, Riyadh, Saudi Arabia

**W. Abanomi, Ph. Jones**, Cardiff University

Adaptive strategies for office spaces in the UK climate

**I. Gallou**, Environment & Energy Studies Programme, Architectural Association Graduate School

### **15.15-17.15: Parallel Session 10, Advanced Active Cooling Techniques**

Chair: **U. Eicker** and **E. Erell**

15.15-15.30: Keynote Speech

Cooling potential of heating – Cooling wall panels

**A. Krainer**, University of Ljubljana, **R. Perdan**, Biotech, **Gal Krainer**, TTGI d.o.o.

15.30-17.15: Oral Presentations

Hybrid photovoltaic – Thermal technology and solar cooling: The CRF solar façade case study

**F. Butera**, **R. S. Adhikari**, **N. Aste**, Polytechnic of Milan, **R. Bracco**, Research Center Fiat  
Feasibility study of the passive solar room dehumidifying system using the sorption property as a wooden attic space through field measurements

**N. Areemit**, **Y. Sakamoto**, The University of Tokyo

Evaluation of a solar driven thermal systems for urban buildings

**S. Oxizidis**, **A. Wemmers**, TNO-MEP, **A.M. Papadopoulos**, **A. Avgelis**, **A. Stylianou**, Aristotle University of Thessaloniki

Optimisation and study of an autonomous solar desiccant cooling system

**C. Maalouf**, **E. Wurtz**, **L. Mora**, **F. Allard**, LEPTAB, University of La Rochelle

Solar cooling potential in tourist complexes in the North Aegean

**N. Mamounis**, **A. Dimoudi**, Greek Open University

Evaluation of PV technology implementation in the building sector

**J.J. Bloem**, **A. Colli**, EC DG Joint Research Centre, **P. Strachan**, University of Strathclyde

Potential use of geothermal energy from mine water in Europe for cooling and heating

**E. Demollin-Schneiders**, Gemeente Heerlen, **Z. Malolepszy**, University of Silizie, **D. Bowers**, PB Bowers London

17.15- 17.30: Coffee Break

### **17.30-19.00: Parallel Session 11, Designing for Cooling**

Chair: **A. Wagner** and **G. Mihalakakou**

17.30-17.45: Keynote Speech

Energy efficient office buildings with passive cooling – Results and experiences from a research and demonstration programme in Germany

**K. Voss**, University Wuppertal, **S. Herkel**, **J. Pfafferott**, Fraunhofer ISE, **A. Wagner**, University Karlsruhe

17.45-18.50: Oral Presentations

Planning and design strategies for sustainable low energy development in Seoul, Korea

**A. C. Pitts, K. Kim**, University of Sheffield  
Traditional indian architecture – The future solar buildings  
**D. Vyas**, IPS Academy  
Passive solar design in Antonio Gaudi's domestic architecture  
**E. Usón Guardiola, E. Cunill de la Puente**, Escuela Técnica Superior de Arquitectura de Barcelona  
Environmental strategies in retrofitting of educational buildings – The integrated approach  
**E. Triantis**, University of Patras  
Natural cooling systems in sustainable traditional architecture of Iran  
**F. Soflaee, M. Shokouhian**, ISLamshahr Azad University  
Statistical simulation of user behaviour in low energy office buildings  
**J. Pfafferott, S. Herkel**, Fraunhofer Institute for Solar Energy System  
Exploitation of solar energy in buildings, particularly in the natural and low energy heating and cooling. The case study of an energy-efficient residence in Nikaia, Larissa  
**A. Dimou, C. Koroneos**, National Technical University of Athens

18.50-19.00: Short Oral Presentations

The passively cooled KfW building in Germany – Monitoring results  
**A. Wagner, M. Kleber**, University of Karlsruhe, **K. Rohlfs**, IP5  
Bioclimatic design of a residential complex for the elderly  
**V. Simantira, K. Stefopoulou, D. Triantafillidi, K. Xanthopoulos**, University of Patras

### **17.30-19.00: Parallel Session 12, Design and Comfort in Outdoor Spaces**

Chair: **E. Ng** and **A. Dimoudi**

17.30-17.45: Keynote Speech

The London heat island and building cooling design  
**M. Kolokotroni, Y. Zhang, Richard Watkins**, Brunel University

17.45-18.55: Oral Presentations

The effect of water sprinkling on the surface temperatures of the materials used on the skin of Greek cities

**F. Bougatioti**, National Technical University of Athens

Thermal comfort in open spaces: A study in the Nearheast of Brazil

**A. Dias, L. Chebel Labaki**, UNICAMP, **V. M. Dantas de Araújo**, UFRN

Thermal comfort conditions in outdoor spaces

**N. Gaitani, M. Santamouris**, University of Athens, **G. Mihalakakou**, University of Ioannina

The problems of a shade-shadow and light in a design of open air market stall

**R. Ernest**, UCLAS

The effect of shading on the surface temperatures of the materials used on the skin of Greek cities

**F. Bougatioti**, National Technical University of Athens

Green areas in open urban spaces

**G. Peretti, D. Marino, E. Montacchini**, Polytechnic University of Turin

Thermal comfort in urban spaces: the case of very warm and dry climate

**J. M. Ochoa I., I. Marincic**, University of Sonora

18.55-19.00: Short Oral Presentation

Schematic design proposals of the implementation of PDEC in the urban open spaces of Athens

**E. Evangelinos, F. Bougiatioti, A. Oikonomou**, National Technical University of Athens

**09.00-11.00: Parallel Session 13, Advanced Envelope Technology**

Chair: **M. Kolokotroni** and **S. Meir**

09.00-09.40: Keynote Speech

The Impacts of EPBD upon the summer performance of buildings

**E. Maldonado**, Institute of Engineering Mechanic

09.40 – 10.50: Oral Presentations

Composite insulating materials as a tool for the reduction of cooling loads

**A.M. Papadopoulos**, **A. Avgelis**, **A. Karamanos**, Aristotle University of Thessaloniki,  
**S. Hadiarakou**, FIBRAN S.A., **Ch. Nikolopoulos**, **H. Pesmatzoglou**, TETRAS O.E.

Potentialities of lightweight construction solutions for sustainability

**M. Almeida**, **L. Bragança**, **P. Mendonça**, University of Minho

The potentiality of reflected sunlight through Rawshan screens

**E. Aljofi**, King Faisal University

The impact of envelope insulation and ventilation on summer performance

**K. M. S. Chvatal**, **E. A. B. Maldonado**, **M. H. P. Corvacho**, University of Porto

Sustainability embodied in the regional context

**K. Iwamura**, Musashi Institute of Technology

10.50-11.00: Short Oral Presentations

Solar Contribution evaluation for building attached sunspace in the Mediterranean climate

**G. Oliveti**, **M. De Simone**, **S. Ruffolo**, University of Calabria

Studying natural lighting in a hot climate

**D. C. Avila**, University of Guadalajara

**09.00-11.00: Parallel Session 14, Use of PV's for Cooling and Advanced Glazing**

Chair: **C. Ghiaus** and **C. Cartalis**

09.00-09.40: Keynote Speech

A study of double facades with phase – Change storage and photovoltaics

**A. K. Athienitis**, **J. Zhang**, **D. Feldman**, Concordia University

09.40 – 10.45: Oral Presentations

Ventilation benefit accrued from PV module installed in Building

**J. K. Tonui**, **Y. Tripanagnostopoulos**, University of Patras

Study of a new concept of Photo voltaic – thermal hybrid collector

**Y. B. Assoa, C. Menezo, R. Yezou**, Thermal Center of Lyon (CETHIL), **G. Fraisse**, University of Savoy, **T. Lefebvre**, SUNLAND21 Company

Responsive glazing for solar control shading

**G. Savineau**, Technical Applications Manager

Thermal performance of different glazing surfaces in a hot climate

**A. P. A. S. Castro, L. C. Labaki, G. C. R. Gutierrez**, School of Civil Engineering, **R. M. Caram de Assis**, University of São Paulo USP

10.45-11.00: Short Oral Presentations

Optimum geometry and orientation of a building opening with an electro chromic glazing

**M. N. Assimakopoulos, A. Tsangrassoulis, M. Santamouris**, University of Athens

**G. Guarracino**, Laboratoire des Sciences de l'Habitat

Dynamic thermal simulation of a solar chimney with PV modules

**J. M. Herrero, M.R. Heras-Celemin**, CIEMAT

A solar multifunctional roof: Photovoltaic and thermal coupling

**L. Tagliabue, N. Aste, G. Chiesa**, Polytechnic of Milan

### **11.15-13.15: Parallel Session 15, Sustainable Architecture**

Chair: **S. Herkel** and **A. Krainer**

11.15-11.30: Keynote Speech

Aristotle's theory as a tool for inspiration in architecture. The shelter of the archaeological site at Akrotiri.

**N. Fintikakis**, Architect, Vice President of the Society for the promotion of studies on Prehistoric Thera, Director of UIA-ARES International work program

11.30-12.50: Oral Presentations

Study on the thermal and visual performance of eleven residential buildings

**K. Pavlou, A. Sfakianaki, M. Santamouris, E. Mouriki**, University of Athens, **M. Kechrinioti,**

**I. Stolidou, D. Psychogios**, L/BA Laboratory of Architecture

Design and commissioning of the low-energy office building in Prague.

**M. Lain, M. Bartak, F. Drkal**, Czech Technical University in Prague, **J. Hensen**, Technical University of Windhaven.

Passive and green building design: A residential complex for the elderly in Andria (Italy)

**G.R. Dell'Osso, F. Iannone**, Polytechnic of Bari

Towards better building and urban design in HK

**E. Ng**, Chinese University of Hong Kong

Day lighting analysis and energy saving measures in the Sino – Italy environment and energy building

**F. Butera, R. S. Adhikari, N. Aste**, Polytechnic of Milan

The Sino – Italy environment and energy building: A model for a new generation of sustainable building

**F. Butera, R. S. Adhikari, P. Caputo, S. Ferrari, P. Oliaro, N. Aste**, Polytechnic of Milan

10.50-11.00: Short Oral Presentations

Analysis of the typology and orientation of the 19<sup>th</sup> century traditional architecture in Florina, NW Greece

**A. Oikonomou**, University of Athens

Environmental Impacts and compatible Urban Design. (Case Study of Bam Citadel)

**N. Mohajeri**, Azad University

### **11.15-13.15: Parallel Session 16, Advanced Control Systems**

Chair: **S. Roaf** and **P. Karava**

11.15-11.30: Keynote Speech

The effect of shading design and control on building cooling demand

**A. Tzempelikos**, **A.K. Athienitis**, Concordia University

11.30-13:00 :Oral Presentations

On the potential of Internet based energy services in Greece during cooling season

**S.Karatasou**, **V. Geros**, **M. Santamouris**, University of Athens

Integrating the cellular method for shading design with a thermal simulation

**E. Kaftan**, Research & EcoDesign, **A. Marsh**, Cardiff University

Recent market assessment and legal framework for BEMS in Greece

**T. Nikolaou**, **E. Maria**, Technical University of Crete, **P. Zalimidis**, University of Aegean,

**D. Kolokotsa**, Technological Educational Institute of Crete

The fresnel lens concept for solar control of buildings

**Y. Tripanagnostopoulos**, **Ch. Siabekou**, **J.K. Tonui**, University of Patras

Generative Skins

**S. Yannas**, Architectural Association

Comparative analysis of control strategies for passive cooling

**P. Michel**, **M. Elmankibi**, ENTPE DGCB LASH

10.55-11.00: Short Oral Presentations

Solar control devices: Balance between thermal performance and daylight

**M. Mehrota**, Architectural Association

11.00- 11.15: Coffee Break

### **15.15-17.15: Parallel Session 17, Ventilation for Cooling**

Chair: **J. R. Millet** and **A. Tzempelikos**

15.15-15.30: Keynote Speech

Evaluation of hybrid ventilation control strategies in residential buildings

**D. Jreijiry, A. Husaunndee, J.G. Villenave, CSTB, C. Inard, LEPTAB**

15.30-17.15: Oral Presentations

Effect of vents configuration and insect screen on greenhouse microclimate

**T. Bartzanas, N. Katsoulas, C. Kittas**, University of Thessaly, **T. Boulard**, INRA-URIH, **M. Mermier**, INRA d'Avignon

Natural ventilation due to wind action: Practice knowledge against experimental airflow visualisation

**A. M. Toledo, F. O .R. Pereira**, Federal University of Santa Catarina

Potential of inertial ventilation for passive cooling in Brazilian climates

**P. Hollmuller**, University of Geneva, **R. Lamberts, F. Westphal, M. Ordenes, J. Carlo**, Federal University of Santa Catarina

Badgir in traditional Iranian architecture

**A. Azami**, Islamic Azad University of Tabriz

Comparison of computed and measured wind fields within street canyons

**V.D. Assimakopoulos**, National Observatory of Athens, **C. Georgakis, M. Santamouris**, University of Athens

Multicriteria assessment of natural ventilation potential of a site

**M. Germano, C. A. Roulet**, École polytechnique fédérale de Lausanne (EPFL)

Effect of air movement in building

**S. Heidari**, Ilam University

Air-conditioning avoidance: Lessons from the Windcatchers of Iran

**S. Roaf**, Oxford Brookes University, U.K.

### **15.15-17.15: Parallel Session 18, Designing for Cooling**

Chair: **S. Yannas** and **E. Evaggelinos**

15.15-15.30: Keynote Speech

Architects, clients and bioclimatic design: A solar neighbourhood POE

**S. Vainer**, Environmental Education College, **I. Meir**, Ben-Gurion University of the Negev

15.30-17.05: Oral Presentations

The influence of building design features on microclimate modification in the warm periods of the year. Discussion based on temperature measurements

**K. N. Axarli**, Aristotle University of Thessaloniki

The window in the building tradition of the sub humid tropic

**A. Gomez, A. Alcantara**, University of Colima, **E. Alvarado**

Evaluation of influences of the external temperature in the building energy consumption

**R. P. Papa, P.R.S. Jota**, CEFET-MG

Cooling season post occupancy evaluation of a low energy complex school in the UK

**I. Pegg**, Buro Happold and Brunel University, **A. Cripps**, Buro Happold, **M. Kolokotroni**, Brunel University

Responsive and sustainable architectural strategies for temperate regions

**S. M. Mofidi**, University of Science and Technology



17.05-17.15: Short Oral Presentations

Site layout as a function of shading in Karst region

**Z. Kristl, A. Krainer**, University of Ljubljana

Climatic architecture tradition of India

**P. Viswanathan**, Glasgow School of Art

17.15- 17.30: Coffee Break

### **Closing Session**

Indoor environment for energy performance of buildings – A new European draft standard

**O. Seppänen**, Helsinki University of Technology, **B Olesen**, Danish Technical University,

**A Boerstra**, BBA

Passive and low energy cooling – The state of the art and future priorities

**M. Santamouris**, University of Athens