Bi-National Seminar on Bio-Aggregates and Natural Building Materials

One-day online seminar - June 8, 2022

Buildings account for nearly 50% of the overall energy used in OECD countries. 40% are Operational Energy (OE), the energy used to heat, cool and light buildings, and operate their mechanical, electrical and electronic systems. Another 10%, called Embodied Energy (EE), are invested in the materials, from extraction of raw materials and their processing into building materials, their transportation and the construction of the buildings.

Among other attempts to lower this vast amount of energy, efforts have been invested in the upgrade and use of natural low EE materials, some of them used in the past (e.g., clays, adobe, rammed earth, light straw-clay), others developed in recent years (e.g., hempcrete and mycelium). When appropriately used, such materials can also lower the OE of the buildings, by absorbing and releasing heat and humidity, thus creating a healthier indoor environment.

This seminar, jointly organized by the **Technical University of Crete (TUC), Greece**, and the **Ben-Gurion University of the Negev (BGU), Israel**, will present and review critically research and pilot projects, breakthroughs and the potential embedded in such materials, alongside their limitations and constraints, many of them shared by the two countries.

Participation is free and no registration is needed for this meeting:

When: June 8, 2022 09:30AM Athens Time

https://tuc-gr.zoom.us/j/91977343031?pwd=bVRHRkIyTDYrMVJJYVV0WFl5R01tQT09

We look forward to having you with us,

Prof. Denia Kolokotsa & Prof. Isaac A. Meir

Technical University of Crete
School of Chemical and Environmental Engineering

Energy Management in the Built Environment
EMBER research Lab

אוניברסיטת בן-גוריון בנגב
Ben-Gurion University of the Negev
جامعة بن-غوريون في النقب

Center for Energy & Sustainability
Ben-Gurion University of the Negev

REGION OF CRETE
ΠΕΡΙΦΕΡΕΙΑ ΚΡΗΤΗΣ

Schedule

09:30-09:40 **Opening remarks – Prof. Denia Kolokotsa (TUC), Prof. Isaac A. Meir (BGU)**

09:40-10:00 **Greetings:**

H.E. Mr. Yossi Amrani, Ambassador of Israel to the Hellenic Republic
Mr. Nikolaos Kalogeris, Regional Vice Governor of Regional Unit of Chania
Mr. Panagiotis Simandirakis, Mayor of Chania
Prof. Evan Diamadopoulos, Rector, Technical University of Crete

10:00-10:30 **Keynote: Prof. Dr. Ildiko Merta, Technical University of Vienna**- Potentials of natural fibre cementitious composites

10:30-12:00 **Session I – Chairs: Prof. Denia Kolokotsa (TUC) & Prof. David Pearlmutter (BGU)**

- **David Pearlmutter**, BGU – Envisioning a sustainable future with new biocomposite building materials.
- **Anna Daskalaki & Maria Mandalaki**, TUC – Building with earth. A normative review.
- **Rotem Haik**, BGU – From waste to resource. Hempcrete with alternative unfired binders as lime replacement.
- **Kostas Gobakis**, TUC – Development of smart cool materials for the built environment.
- **Yaakov Florentin**, BGU – Thermal performance and Life Cycle Energy and Carbon Analysis of a newly developed hemp-lime biocomposite building material.
- **Zeta Chrysafaki**, southernarchitect.gr – Problems and pathology in life cycle of buildings with natural materials – case studies.

12:00-12:15 **Discussion**

12:15-12:45 **Break**

12:45-14:15 **Session II – Chairs: Prof. Alva Peled (BGU) & Prof. Noni-Pagona Maravelaki (TUC)**

- **Noni-Pagona Maravelaki & Afroditi Fotiou**, TUC – Clay admixtures for ecological plasters and colours.
- **Manos Ximeris**, Minoeco.com – Construction site from a builder's point of view.
- **Shahar Ouannou**, BGU – Life cycle assessment of an innovative building material using biocomposite and rammed earth.
- **Alex Cicelsky**, BGU – Novel insulating construction blocks of agricultural waste (straw) and natural binders.
- **Achiya Livne**, BGU – Fungal mycelium biocomposites as a sustainable building material.
- **Isaac A. Meir**, BGU – Learning from the DAUP adobe experimental house. Is it the materials or the details that make the difference?

14:15-14:30 **Discussion**

14:30 **Closing remarks – Prof. Isaac A. Meir (BGU), Prof. Denia Kolokotsa (TUC)**