



**INTERNATIONAL**

## INVITED SESSION SUMMARY

**Title of Session:**

Enhancements of traditional and sustainable thermal insulation materials for energy conservation in buildings

**Name, Title and Affiliation of Chair:**

Dr. Stefano Cascone, Department of Civil Engineering and Architecture, University of Catania  
Prof. Antonio Gagliano, Dep. of Electrical, Electronics and Computer Engineering, University of Catania  
Prof. Francesco Nocera, Department of Civil Engineering and Architecture, University of Catania  
Prof. Gaetano Antonio Sciuto, Department of Civil Engineering and Architecture, University of Catania

**Details of Session (including aim and scope):**

Energy saving has become a strategic goal in the whole world, that will lead to protect the environment and preserve natural resources. In residential sector, air conditioning system takes the biggest portion of overall energy consumption to fulfil the thermal comfort need. Therefore, there is an ongoing search for finding the proper alternatives to minimize energy losses and reduce energy requests. In addressing these issues, the proper use of thermal insulation is one efficient technology to utilize the energy in providing the desired thermal comfort.

Currently, insulation materials used in construction industry are generally polymer-based materials such as polystyrene and polyurethane foam. Although these materials have a high performance in thermal insulation, the environmental impacts in their production processes are significant. Consequently, the researchers find that there is a necessity to develop and come up with insulating materials that possess excellent properties and, at the same time, they have reduced environmental impacts and are relatively low-priced.

This session aims to address the researches on the formulation and development of different kinds of thermal insulation. Examples of these may be mineral wool, expanded polystyrene, extruded polystyrene, polyurethane, vacuum insulation panels, gas insulation panels, aerogels, and future possibilities like vacuum insulation materials, nano insulation materials, dynamic insulation materials and green systems.

In addition, papers studying and comparing various properties, requirements and possibilities are welcome. Among these, there are thermal conductivity, thermal inertia, perforation vulnerability, building site adaptability and cuttability, mechanical strength, fire protection, fume emission during fire, robustness, climate ageing durability, resistance towards freezing/thawing cycles, water resistance, costs and environmental impact and acoustic insulation.

**Main Contributing Researchers / Research Centres (tentative, if known at this stage):****Website URL of Call for Papers (if any):****Email & Contact Details:**

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