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Presentation of the Action

Cyprus University of Technology **Action Chair**



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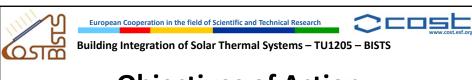


Introduction

- First Training School of Action TU1205
- Warm welcome to all students and lecturers
- Many thanks to Dr. Werner Platzer and ISE for hosting this Training School.
- I hope the school will be beneficial to all....
- Start with the introduction of the Action.



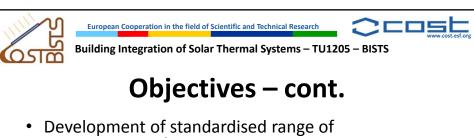




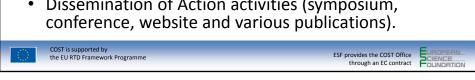
Objectives of Action

- **Main objective**: The creation of a platform from which a working environment is developed that generates methods to study the integration of STS in buildings.
- Development of new novel STS solutions suitable for building integration across three generic European regions.
- Definition of a set of key parameters for the BISTS characterization, taking into consideration the thermal performance, building functionality and aesthetic aspects.





- methodologies for evaluating BISTS.
- Modelling and simulation of STS (optical and thermal) for different building integration scenarios and for the developed solutions.
- Application of developed STS solutions for building integration including fabrication, characterisation and demonstration of prototypes to the extent that own research funding allows.
- Dissemination of Action activities (symposium,

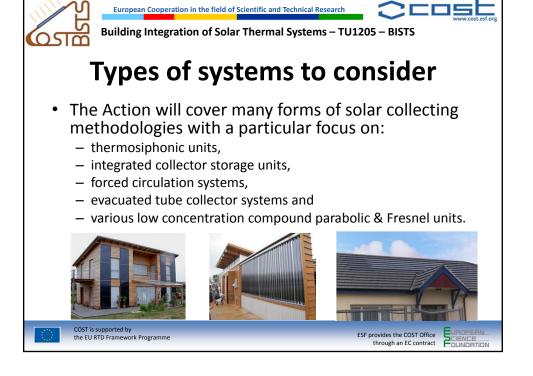


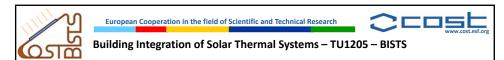


Motivation

- Main Motivation: The collective concentration of resources and the targeted focusing of scientists who are involved in the design, development and evaluation of solar thermal systems.
- The Action will foster and accelerate long-term (technological) advancement in STS mainly through critical review, experimentation, simulation and demonstration of viable systems for full incorporation and integration into the traditional building envelope.
- →The most important benefit of this Action is the increased adoption of RES/STS in buildings.



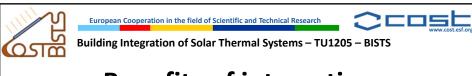




What we mean by Building Integration

- A solar thermal system is considered to be building integrated, if for a building component this is a prerequisite for the integrity of the building's functionality.
- If the building integrated STS is dismounted, dismounting includes or affects the adjacent building component which will have to be replaced partly or totally by a conventional/appropriate building component.
- This applies mostly to the case of structurally bonded modules but applies as well to other cases, like in the case of replacing with BISTS one of the walls in a double wall façade.





Benefits of integration

- Building envelope metal, glass or ceramic used in current BISTS roofing designs can last for more than 50 years.
- Thermal and optical performances different systems can deliver different levels of thermal energy to match the varying needs of building occupants.
- Costs Significant savings occur by replacing two separate systems (e.g. wall and collector) with one system that performs both functions.
- Aesthetics mimic the existing appearance of traditional roofing systems and apply colour collectors on façades.





- Therefore BISTS must provide a combination of the following:
- 1. Mechanical rigidity and structural integrity.
- 2. Weather impact protection from rain, snow, wind and hail.
- 3. Energy economy, such as useful thermal energy, but also shading and thermal insulation.
- 4. Life expectancy from the various materials involved (at least equal to the life of the building)
- 5. Fire protection, Noise protection.
- 6. Environmental benefit/influence (LCA, embodied energy, emissions).
- → Generally a multidisciplinary area involving engineers (mechanical, materials), physicists, architects, etc.





Scientific Program

- This COST Action focuses on the coordination of current research undertaken through national programmes in three scientific areas:
- (1) Development of new innovative methods for building integration of STS;
- (2) Modelling and simulation of new BISTS and their behaviour as a renewable energy system (RES);
- (3) Investigation of new applications for innovative integration of STS in various application areas like domestic, commercial and industrial buildings.
- Three Working Groups (WG) is set up to co-ordinate the research within each theme and a fourth one is dedicated to dissemination activities.





Working Groups

- Working Group 1: Development and characterisation of new BISTS
 - WG1 leader: Werner Platzer/Aleksandra Krstic
- Working Group 2: Modelling and Simulation of BISTS
 - WG2 leader: Daniel Chemisana/Alberto Coronas
- Working Group 3: Investigation of new applications for innovative BISTS
 - WG3 leader: Aggelos Zacharopoulos/Manolis Souliotis
- Working Group 4: Dissemination
 - WG4 leader: Brian Norton/David Kennedy





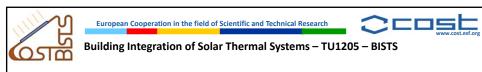
Status of the Action

- Status of Action, including participating countries:
 - 20 COST countries participating (next slide)
 - 28 MC members
- Non-COST countries:
 - Two non-COST countries participating
 - USA (James Russell-Appalachian State University) and
 - Canada (Andreas Athienites-Concordia University) presentation.

COST is supported by the EU RTD Framework Programme

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EUROPEAN



What is next....

- Introduction to ISE-Dr. Werner Platzer
- Follow various subjects starting from the basics and extending into BISTS
 - Systems (case studies)
 - Models
 - Applications
- Wednesday afternoon visit ISE labs.

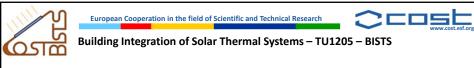




Practical issues

- Please sign the attendance list (proof of presence)
- Reimbursement once we return back
- COST profile add account details (otherwise we cannot pay you).





Introductions

- COST is about Networking, so we will start by introducing the students.
- Say:
 - Name

