



Meeting of the Management Committee & Working Groups of COST Action TU1205
 "Building Integration of Solar Thermal Systems (BISTS)"

8-9 September 2016, Warsaw, Poland

Place:

Institute of Heat Engineering – Instytut Techniki Ciepłej
 Warsaw University of Technology – Politechnika Warszawska
 Faculty of Power and Aeronautical Engineering
 Nowowiejska 21/25, room 105
 00-665 Warsaw, Poland

Participants

Number	Name	Country	8-9-2016	9-9-2016	WG
1	Aelenei Laura	Portugal	√	√	WG1
2	Agathocleous Rafaella	Cyprus			WG3
3	Almeida Manuella	Portugal			WG1
4	Ayompe Lacour Mody	IE			
5	Belis Jan	BE			
6	Blagojevic Mirko	Serbia	√	√	
7	Bojic Milorad	Serbia			
8	Bonnet Jean	France			
9	Borg Simon Paul	Malta			WG3
10	Braganca Luis	Portugal			
11	Buhagarian Vincent	Malta			WG1
12	Buonomano Annamaria	Italy	√	√	WG2
13	Cabeza Luisa	Spain			WG3
14	Cappol Christoph	Germany			WG2
15	Chemisana Daniel	Spain	√	√	WG2
16	Christofi Constantinos	Cyprus	√	√	WG2
17	Chwieduk Dorota	Poland	√	√	WG1
18	Coronas Alberto	Spain			
20	Cristofari Christian	France	√	√	WG1
21	Deb Mondol Jayanta	UK	√	√	WG2
22	Farkas Istvan	Hungary	√	√	
23	Fedrizzi Roberto	Italy			WG2
24	Florides Georgios	Cyprus	√	√	WG1
25	Ford Andy	UK			WG1

26	Georgiev Aleksandar	Bulgaria			
27	Ghosh Aritra	Ireland			
28	Goger Thierry	Belgium			
29	Grobman Yasha Jacob	Israel			
30	Hyde Trevor	UK			
31	Kalogirou Soteris	Cyprus	√	√	
32	Kennedy David	Ireland	√	√	WG1
33	Keys Donal	Ireland			
34	Kilik Muhsin	Turkey			
35	Kosic Tatjana	Serbia			WG3
36	Kramer Korbinian	Germany			
37	Krstic Furundzic Aleksandra	Serbia	√	√	WG1
38	Lamnatou Chrysovalanto	Spain	√	√	WG1
39	Leindecker Gerald	Austria	√	√	WG3
40	Lollini Roberto	Itali			
41	Lopez Lorenzo Jose	Spain			
42	Mateus Ricardo	Portugal	√	√	WG2
43	Maurer Christoph	Germany	√	√	WG3
44	McCormack Sarah	Ireland			WG3
45	Miletic Ivan	Serbia	√	√	WG1
46	Monteiro Da Silva Sandra	Portugal	√	√	WG3
47	Nikolic Danijela	Serbia	√	√	WG2
48	Norton Brian	Ireland			WG4
49	Norvaisiene Rosita	Lithuania	√	√	WG1
50	Notton Gilles	France	√	√	WG1
51	O'Hegarty Richard	Ireland			
52	Ochoa Carlos	Israel			WG3
53	Oleary Tim	Ireland			
54	Palombo Adolfo	Italy	√	√	WG1
55	Platzer Werner	Germany			
56	Popov Rumen	Bulgaria			
57	Radulovic Jasna	Serbia	√	√	WG3
58	Ramke Stefan	Spain			WG3
59	Riverola Alberto	Spain			WG3
60	Rusowicz Artur	Poland			WG3
61	Savvides Andreas	Cyprus	√	√	WG1
62	Shiff Galit	Israel			WG1
63	Smyth Mervyn	UK	√	√	WG1
64	Tamasauskas Rokas	Lithuania			WG2
65	Tripanagnostopoulos Yiannis	Greece	√	√	WG1
66	Tsioutis Charalambos	Cyprus	√	√	WG3
67	Vassiliades Costantinos	Cyprus	√	√	WG1

68	Visa Ion	Romania	√	√	
69	Vittoriosi Alice	Italy			WG1
70	Wansdronk Rene	Netherland	√	√	WG3
71	Zacharopoulos Aggelos	UK	√	√	WG3

Day 1: 8th Sept. 2016

Introductory meeting (all participating) 9:00 to 11:00

1. Welcome to participants

Prof. Kalogirou welcomed the participants and thank Dorota Chwieduk for organising the meeting. Dorota also welcomed the participants and gave information concerning the program studies and activities of the Warsaw University of Technology and the Institute of Heat Engineering, stressing the high level of education and skills offered.

2. Adoption of agenda

The agenda of the meeting circulated by email to all members was adopted.

3. Minutes of seventh meeting (**April 2016, Barcelona, Spain**)

The minutes of the seventh meeting at Barcelona, Spain, were approved without any modification.

4. Report from the COST Office

a. The new version of e-COST system is now in operation and is fully electronic. The OTRR forms should be electronically handled, submitted and signed. All documents should be uploaded properly and there is no chance for the management to do any corrections.

b. 24 months report just received.

The report is generally with positive evaluation

5. Budget status, budget planning and allocation process

The New budget is 101,750 Eur and is reduced from previous years by a further 16.5% (last year it was 122k). The Main expenses are:

- Total for meetings 62,000 Eur.
- Training schools = 21, 940 Eur
- 4 STSM planned = 4,000 Eur. (1 carried out 1300 Eur)
- Dissemination 1,500 Eur. (webpage)
- Other = 2000 Eur. (Bank charges)

6. Progress report of working groups (in red is work to be done).

The following revision of the work of each group was presented:

WG1: Development and characterisation of new BISTS

- Task 1.1 Review of the state of the art √ **DONE**
- Task 1.2 Development of new BISTS solutions (Year 3 & 4)

- **Task 1.3 Characterisation of BISTS developed in Task 1.2 (Y 3 & 4)**
- D.1.1. Review of current STS and identification of problems associate with their building integration. This review will also be submitted as a joint partner publication in a peer reviewed journal (Month 12) ✓ **DONE**
- D.1.2. Annual STSM on BISTS development and characterisation for PhD students and Early Stage Researchers (Month 6, 18, 30, 42) **ON-GOING**
- D.1.3. Annual Training School for dissemination of expertise on BISTS development and characterisation techniques and new architectural solutions to PhD students and Early stage researchers (Month 18, 30, 42) ✓ **JUST FINISHED**
- D 1.4. Report on the evaluation technologies available for BISTS characterisation (Month 24) ✓ **DONE.**

WG2: Modelling and Simulation

- Task 2.1 Development of new mathematical and numerical models for BISTS (Years 3 & 4)
- Task 2.2 Validation and implementation of codes developed in 2.1
- D 2.1. Review of current STS modelling techniques. This review will also be submitted as a joint partner publication in a peer reviewed journal (Month 12) ✓ **DONE**
- D.2.2. Annual STSM for PhD students and Early Stage Researchers on theoretical modelling and numerical simulation of thermal behaviour of BISTS (Month 6, 18, 30, 42) **ON-GOING**
- D.2.3. Annual Training School for dissemination of expertise to PhD students and Early Stage Researchers (Month 18, 30, 42) ✓ **JUST FINISHED**
- D 2.4. Report on the validation of developed codes, both thermal and optical ✓ **DONE**
- **D 2.5. Report on the new models developed during the project and potential for adaptation for RES (Month 42).**
- **D.2.6. Report on the development of new models for innovative integrated STS applications (Month 46)**

WG3: Investigation of new applications for innovative BISTS

- Task 3.1 Design of innovative BISTS designs
- **Task 3.2 Fabrication of BISTS prototypes**
- **Task 3.3 Characterisation of novel BISTS indoors and outdoors to assess the actual performance in real conditions**
- D.3.1. Review of current STS and the suitability of integration onto building structures for domestic, commercial and industrial buildings (Month 12). ✓ **DONE**

- D.3.2. Annual STSM for PhD students and Early-stage researchers on design, fabrication and characterisation of innovative integrated STS/ RES (Month 6, 18, 30, 42) **ON-GOING**
- D.3.3. Annual Training School to disseminate expertise to PhD students and Early Stage Researchers (Month 18, 30, 42). ✓ **JUST FINISHED**
- D.3.4. Report on fabricated integrated STS prototypes optimised for increased efficiency and low cost. Full building services integration (e.g. into existing heating, cooling, hot water) or stand-alone operation but integral to the structure. This will depend on the extent of own research funding allows (**Month 36**). **A report is needed ASAP (collaboration between WG1 and WG3)**
- D.3.5. Report on the performance of new integrated STS/RES prototypes: A country performance comparison with geographic diversity (South, Central and North Europe), (**Month 42**).
- D.3.6. Handbook for architects and building services engineers on the developed BISTS solutions for the design market ready products. (**Month 46**).

Handbook

Status of handbook chapters discussed. A separate session is dedicated to the discussion of the various chapters and submission dates agreed. See below.

7. Short Term Scientific Missions (STSM)

4 STSM are planned for the fourth year. ONE of them has already be carried out. There is now one application received for 2500 Eur which is too much for the available budget. The Total Budget is 4,000 EUR (1000/stsm) and already 1300 Eur. were spent. The STSM will be used almost exclusively to prepare the Action deliverables. Applications need to be approved by the STSM manager first. Then the application should proceed through the e-cost system. Every mission must be completed by March next year.

8. Status report of the Training School (5-7/9/2016)

The training school was successful. 41 students participated and evaluated the lectures given. The students were very satisfied. All lectures were made available in the internet site of the action for easy reference.

Status of deliverables discussion (all participating)

11.30-12.30

The working group leaders reported on the status of the pending deliverables and target dates for completion.

WG1 will prepare a report (part of D3.4) based on the various projects which will be included also as chapters of the handbook.

Deliverables –WG2

Required:

- D 2.5. Report on the new models developed during the project and potential for adaptation for RES (**Month 42**), (September)
- D.2.6. Report on the development of new models for innovative integrated STS applications (**Month 46**), (November)

Daniel asked for the experimental results of the 5 projects to check the mathematical and numerical models.

Sandra will ensure that the Israeli project results may be used and will send the results to Daniel for use.

Visa Ion has simulation results ready for their project and will forward them to Daniel in 1-2 months' time.

Adolfo and Annamaria will send their results in about one month.

Mervin will send a report on his project

Angelos will send a report on the optical analysis.

Daniel will then prepare the reports for Actions 2.5 and 2.6

Deliverables –WG3

Required:

- D.3.4. Report on fabricated integrated STS prototypes optimised for increased efficiency and low cost. Full building services integration (e.g. into existing heating, cooling, hot water) or stand-alone operation but integral to the structure. This will depend on the extent of own research funding allows (Month 36). Need a report ASAP, Together with WG1. Angelos will handle this the soonest.
- D.3.5. Report on the performance of new integrated STS/RES prototypes: A country performance comparison with geographic diversity (South, Central and North Europe), (Month 42), (September). Together with WG2 (D2.5)
- D.3.6. Handbook for architects and building services engineers on the developed BISTS solutions for the design market ready products. (Month 46), (date?)

Aggelos presented the work done so far for deliverable 3.4.

Project leaders should send the names of the participating person to Angelos for inclusion in the report.

Annamaria will present the results for 6 different places for the Cyprus project #1. The same, if possible, will be done for the other projects.

Savvides presented his team work concerning the architectural aspect of integration of STS in the buildings with specific reference to the four projects.

Ion presented the integration for their idea of trapezoidal flat plate collectors that utilizes various sizes and colours of collectors.

Also David Kennedy reported on the status of the preparations for the action conference, the First International Conference on Building Integrated Renewable Energy Systems,

to be held at the Dublin Institute of Technology (DIT) Ireland, from 6th - 9th March 2017.

The conference will cover the following areas:

- Building integrated solar thermal systems (BISTS)
- Building integrated PV/T (BIPV/T)
- Building integrated Thermal Storage (BITS)
- Building integrated hybrid systems (BIHS)

It was decided that the Key Dates for the conference will be:

October 15, 2016: Abstract submission deadline
October 31, 2016: Abstract acceptance notification
December 19, 2016: Full paper submission deadline
January 13, 2017: Paper acceptance deadline
February 10, 2017: Final paper submission deadline
March 6th-9th, 2017: Conference

The conference logo was prepared with tanks from Yiannis. For the Action Conference all need to contribute with a paper and all need to participate. They also should publicize the event in their countries. This is an Action event and will be reimbursed for Action members and it will be open to other persons (major event).

The full paper will be 5-8 pages long and will go through a review process. Action members will be selected for reviewing the submitted papers. A special issue of the journal '*Renewable Energy*' will be published for the conference and the authors of the selected papers will be given the chance to specifically write their paper which will be submitted one month after the conference.

Status of Handbook (all participating) **14.30-17.30**

Project leaders presented the status of their reports to be included in Handbook. Taken decisions are presented in a separate document.

Day 2: 9th September 2016

Handbook Planning (all participating) **9:00 – 10:30**

1. Project leaders continued with their presentations and the status of their reports to be included in Handbook. Taken decisions are presented in a separate document.

2. Scientific Session

The scientific session included the following presentations:

A. Tripanagnostopoulos Yiannis: "Building Integration of coloured and concentrating collectors"

B. Tripanagnostopoulos Yiannis: "Aspects and observations of Environmental Art"

Future Planning meeting (all participating)

11:00 to 12:30

1. Budget status, budget planning and allocation process for final year:
 - a. Four STSM in total 4,000 EUR (up to 31/3/2017). One already carried out (better if new people participate).
 - b. 2700 Eur available for 3 STSM
 - c. Need to show more interest to send and accept students for STSM.
2. New budget is 101,750 Eur - Reduced from previous years by further 16.5% (last year 122k, previous 134k).
3. Action Planning (including meetings)

The Ninth meeting will be in spring of 2017, in Dublin, Ireland.
Location and date of next meeting: Dublin Institute of Technology (DIT), Dates: 9-10/3/2017 (Thursday Noon-Friday afternoon). It will be combined with the Final Action Conference (6-9/3/2017), Monday morning -Thursday noon.
4. AOB

The action members asked for a new Cost action proposal to be submitted. All present members expressed their interest to participate and some preliminary ideas were exchanged. It was decided that all suggestions and ideas be sent to G. Florides (email: georgios.florides@cut.ac.cy) for coordination.
5. Closing

Visit to Institute of Heat Engineering Labs

12:30 to 13:30