

## 8<sup>th</sup> expert meeting

### IEA SHC Task 53

#### New Generation Solar Cooling & Heating Systems (PV or solar thermally driven systems)

Meeting room i-Innovation Center (see location in annex 2), Masdar Institute (Abu Dhabi)

PO Box 54224, Abu Dhabi, United Arab Emirates

<https://www.masdar.ac.ae/>, address : Airport Road Home WTC AUH - Masdar City, Khalifa City A, Opp



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### Meeting Agenda – final

UPDATED : 28/10/2017

Sunday October 29<sup>th</sup>, 2017, 9:00pm – 18:00 pm

Monday October 30<sup>th</sup>, 2017, 9:00am – 13:00 pm

Task 53 website : <http://task53.iea-shc.org/>

#### Participation fee:

Registration fee is determined based on different activities (including lunch, and Coffee break, et al) BUT excluding dinner cost. **The amount is 50€** and registration process is managed by Daniel Mugnier and Masdar Institute.

**This amount needs to be prepared in advance and paid cash to Daniel Mugnier during the meeting.** For the experts needing an invoice, they will have to pay the equivalent in cash to the catering company but in the local currency.

The dinner (see annex) will cost nearly 35€ and will have to be paid in cash in the local currency directly to the restaurant.

Local currency : AED (EAU Dihram) ≈ 4,34 EUR

## Day 1 - Agenda for Sunday October 29<sup>th</sup>, 2017 (9:00pm-18:00pm)

<b>1<sup>st</sup> block : Plenary</b>			
9.00 – 9.15	Welcome and Organisational issues	Daniel Mugnier Hosni Ghedira	TECSOL Masdar
9.15 - 9.30	Welcome, Introduction, Structure of the meeting Presentation of new participants/attendees	Daniel Mugnier	TECSOL
9.30 - 10:00	Subtask A : Goals, structures, deliverables Components, Systems & Quality	Tim Selke	AIT
10.00 - 10:30	Subtask B : Goals, structures, deliverables Control, Simulation & Design	Robert Fedrizzi	EURAC
10.30 - 10:45	Subtask C : Goals, structures, deliverables Testing and demonstration projects	Björn Karlsson	MDH Uni
10.45 - 11:00	Subtask D : Goals, structures, deliverables Dissemination & market deployment	Daniel Mugnier	TECSOL

**11.00 - 11:30 Coffee Break**

<b>2<sup>nd</sup> Block : Latest developments &amp; results session</b>			
11.30 - 11.40	Latest developments from SUNOYSTER	Johannes Kneer	SUNOYSTER
11.40 - 11.55	New concept for Solar Cooling	Thomas Noll	
11.55 - 12.05	Possibilities of ClimateBooster & SolabCool	Henk De Beijer	SOLABCOOL
12.05 - 12.20	The PUSCH project : outlook	Marc Sheldon	COOLGAIA
12.20 - 12.30	Sorption cold energy storage device for solar cooling applications	Salvatore Vasta	CNR-ITAE
12.30 - 12.40	Advancement of the activities on LCA, LCA tool and key performance indicators.	Marco Beccali	UNIPA
12.40 - 12.50	Latest developments of the FRESCO project	Marco Beccali	UNIPA
12.50 - 13.00	Latest developments of the PVCOOLING project	Philippe Esparcieux	ATISYS
13.00 - 13.15	SolarHybrid project	Daniel Neyer	Uni Innsbruck

**13.15 - 14:30 Lunch Break**

<b>3<sup>rd</sup> Block : Working group session 1 : Subtask C</b>			
14:30 -16:30	Progress, issues and todos	Björn Karlsson	MDH Uni

**16:30- 17:00 Coffee Break + Photo**

**17:00-19:00 Visit of the solar facilities at Masdar Institute  
& SHC / SWC 2017 Welcome Reception at Masdar Institute**

**End of the working Day 1**

**Dinner at Restaurant from 7pm–ANNEX 4**

**Day 2 - Agenda for Monday October 30<sup>th</sup>, 2017 (9:00pm-13:00pm)**

***4<sup>th</sup> Block : Working groups session 2 : Subtask B***

9:00 - 10:30	Progress, issues and todos	Roberto Fedrizzi	EURAC
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**10:30- 11:00                      Coffee Break**

***5<sup>th</sup> Block : Plenary & overall***

11.00 - 11.15	Subtask A : Report on working group items, planning of next steps; distribution of work.	Tim Selke	AIT
11.15 - 11.30	Subtask B : Report on working group items, planning of next steps; distribution of work.	Roberto Fedrizzi	EURAC
11.30 - 11.45	Subtask C : Report on working group items, planning of next steps; distribution of work.	Björn Karlsson	MDH Uni
11.45 - 12.00	Subtask D : Report on working group items, planning of next steps; distribution of work.	Daniel Mugnier	TECSOL
12.00 - 13.00	Any other business, next meeting planning of next steps; distribution of work.	Daniel Mugnier	TECSOL

**12.30 - 13:30                      Transfer to the SHC/SWC Conference (Abu Dhabi at the Jumeirah at Etihad Towers.Address: Jumeirah at Etihad Towers, Etihad Towers, West Corniche, Abu Dhabi, UAE)**

**END OF THE EXPERT MEETING**

**Day 3 - Agenda for Tuesday October 31<sup>st</sup>, 2017 (8:30pm-18:00pm)**

**7<sup>th</sup> International Solar Air Conditioning Workshop / SHC Conference**



**(see ANNEX 3)**

## Annex 1: Meeting Participant list

N.	Name	Institute	e-mail
1	Daniel Mugnier	TECSOL	<a href="mailto:daniel_mugnier@yahoo.com">daniel_mugnier@yahoo.com</a>
2	Tim Selke	AIT	<a href="mailto:Tim.Selke@ait.ac.at">Tim.Selke@ait.ac.at</a>
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29			
30			



## Annex 3: SHC SAC Workshop



### Program 7<sup>th</sup> International Workshop on Solar Air Conditioning

Tuesday, October 31, 2017

08:30 Keynote: Solar Cooling Potential in the MENA Region  
*Daniel Mugnier, TECSOL*

#### **SOLAR COOLING SYSTEM INTEGRATION**

*Chair: Stephen D. White (CSIRO)*

08:50 Welcome to the SolAirCon Workshop  
*Daniel Mugnier, TECSOL*

09:00 Energy Storage for PV-Driven Air-Conditioning for an Off-Grid Resort – A case study  
*Christoph Luerssen, Solar Energy Research Institute of Singapore (SERIS)*

09:20 Solar-Electric Driven Heating and Cooling System with PCM-Storage for Improved Grid Connection  
*Richard Schex, Bavarian Center for Applied Energy Research (ZAE Bayern)*

09:40 Multi-Functional Façade with PV for Solar Autonomous Cooling Applications  
*Tim Selke, AIT Austrian Institute of Technology GmbH*

10:00 First Steps in Design and Simulation of the Control Unit of a Continuous Cooling System Driven by Solar Thermal Energy and Using an Aquifer Thermal Storage  
*Maryam Al Lawati, GFZ German Research Center for Geosciences*

10:30 Coffee Break

#### **INNOVATIONS IN SOLAR COOLING TECHNOLOGY**

*Chair: Marco Beccali (UNIPA)*

11:00 Testing and Simulation of a Solar Diffusion-Absorption Refrigeration System for Low-Cost Solar Cooling in India  
*James Freeman, Imperial College London*

11:20 Efficient Solar Cooling by Using Variable Effect LiBr-H<sub>2</sub>O Absorption Chiller and Linear Fresnel Solar Collector with Cavity Receiver  
*YanJun Dai, Shanghai Jiao Tong University*

11:40 The "All in One" Smart Solar Cooling System  
*Esam Elsarrag, GORD*

12:00 Development of a Low Carbon Coupling Device for Solar Cooling (Photovoltaic + Heat Pump)  
*Daniel Mugnier, TECSOL*  
*presented by: Philippe Esparcieux, ATISYS CONCEPT*

12:20 Assessment of a Solar Powered Refrigerator Equipped with Thermal Storage for a Dairy Application  
*Adriana-Clemencia Coca Ortegón, Universitat Rovira i Virgili*

12:40 Sensitivity Analysis on the Technical and Economic Performance of Thermal and PV Driven Solar Heating and Cooling Systems  
*Daniel Neyer, University of Innsbruck*

## 7th International Workshop on Solar Air Conditioning

*in conjunction with SWC and SHC 2017  
31 Oct 2017, Abu Dhabi, UAE*

13:00 Lunch

14:00 POSTER SESSION

### *Solar Refrigeration and Solar Air Conditioning*

- TUE-13 Design Development and Performance Evaluation of Solar Energy Driven Micro-Cold Storage for Fruits and Vegetables Produce of Smallholder Farmers in Ethiopia  
*Biruk Abate, Bahir Dar University, Bahir Dar Institute of Technology*
- TUE-14 Solar Thermal Operated Life-Supporting Systems Based on Ejector Technologies  
*Olexiy Buyadgie, Wilson Engineering Technologies  
presented by: Oleksii Drakhnia, Kyushu University*
- TUE-15 Model-Based Simulation and Optimization of a Solar Assisted Absorption Air-Conditioning System with Dynamic Cooling Demand  
*Ghulam Qadar Chaudhary, University of Engineering and Technology Taxila Pakistan*
- TUE-16 Increasing the Efficiency of the Solar Thermal Assisted Refrigeration Technology  
*Olexiy Buyadgie, Wilson Engineering Technologies*
- TUE-17 Solar-Powered Air-Conditioning System Using Absorption Refrigeration Cycle and High Efficiency Cooling Technologies  
*Caterina Fella, Politecnico di Milano*
- TUE-18 Theoretical Analysis of Indirect and Direct Solar Regenerators for Liquid Desiccant Systems  
*Fernando Manuel Gomez Castro, University of Applied Sciences Stuttgart*
- TUE-19 Experimental Study of a Solar Collector/Regenerator for Liquid Desiccant Systems  
*Fernando Manuel Gomez Castro, University of Applied Sciences Stuttgart*
- TUE-20 Highest Efficiency Ice Storage for Solar Cooling Systems – Experiences with a Vacuum Ice Slurry Cold Thermal Energy Storage  
*Christoph Steffan, ILK Dresden  
presented by: Carsten Heinric, ILK Dresden*
- TUE-21 Establishment and Theoretical Analysis of a Solar Driven  $\text{NH}_3\text{-H}_2\text{O}$  Resorption Heat Pump Cycle  
*Teng Jia, Shanghai Jiao Tong University*
- TUE-22 Preliminary Assessment of a Solar Absorption System for Air Conditioning Applications  
*Jose Camilo Jimenez Garcia, Instituto de Energias Renovables, UNAM*
- TUE-23 Potential Application of Commercial Refrigerants as Adsorbate in Adsorption Refrigeration System  
*Michael John, University of Dar es Salaam*
- TUE-24 Modeling and Optimization for Contribution Rates of Solar Heating and Cooling Systems in Building Energy-Saving  
*Bojia Li, China Academy of Building Research*
- TUE-25 Optimum Design and Performance Prediction of an Solar Thermal Adsorption Heat Pump Applying Natural Mesoporous Materials Impregnated with Chloride by Developed 3-D Numerical Simulation  
*Katsunori Nagano, Hokkaido University*
- TUE-26 Control Strategy Approach Based on the Operational Results of a Small Capacity Direct Air-Cooled Libr-Water Absorption Chiller  
*Joan Farnós, Technical University of Catalonia-BarcelonaTech  
presented by: Joaquim Rigola, Universitat Politècnica de Catalunya*

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- TUE-27 A Simple Approach for the Simulation and Characterization of Solar Driven Absorption Cooling Systems Based on the Characteristic Equation Method  
*Martin Schröder, Technische Universität Berlin*
- TUE-28 Increase of the Ventilation Effectiveness of Solar Chimneys with Consideration of Wind-Effects Applying CFD Simulations and Measurements  
*Lukas Schwan, University of Applied Sciences Munich*
- TUE-29 Preliminary Assessment of a Solar Absorption Air Conditioning System Developed and Installed in a Coastal Zone of Mexico  
*Pedro Arturo Guillermo de Jesús Soto Parra, Instituto de Energías Renovables UNAM*
- TUE-30 Experimental Study on Solar Driven Dehumidification System with Silica Gel Coated Heat Exchanger  
*Zhao Yao, Shanghai Jiao Tong University*

15:30 Coffee Break

### **PRACTICAL EXPERIENCE WITH SOLAR COOLING**

*Chair: Christian Schweigler (Munich University of Applied Sciences)*

- 16:20 Practical Efforts on SHC System with Passive House in China  
*Wei Zheng, Yazaki Energy System Corporation Beijing*
- 16:40 Monitoring and Energy Performance Assessment of an Advanced Dec Hvac System in Morocco  
*Marco Beccali, Università di Palermo, Dept. DEIM*
- 17:00 Solar Cooling Around the World – Innovative Low Carbon Solutions for Nicaragua, Singapore and Austria  
*Nicole Olsacher, S.O.L.I.D. Gesellschaft für Solarinstallation und Design mbH  
presented by: Christian Holter S.O.L.I.D. Gesellschaft für Solarinstallation und Design mbH*
- 17:20 First Solar-Driven Air Conditioning System in Kuwait Using Double-Stage Absorption Chiller and High-Vacuum Solar Thermal Flat Plates  
*Jonathan Koifman, TVP Solar*
- 17:40 Performance Analysis of Solar Desiccant Cooling System Integrated with M-Cycle Evaporative Cooler  
*Ghulam Qadar Chaudhary, University of Engineering and Technology Taxila Pakistan*
- 18:00 Closing remarks  
*Daniel Mugnier, TECSOL*



## Annex 4 : Sunday 29/10 evening (7pm) - Restaurant location and Menu

### Pacifico Tiki Restaurant - Al Bandar, Al Raha Beach

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