As of 18 May, 2010

Programme

28 September - 1 October 2010
Sparkassenplatz 1
Graz, Austria

Tuesday, 28 September – Technical Tour 1
Meeting Point: Congress Graz

08:00 h Registration at Congress Graz

08:45 h Departure of the bus (Andreas Hofer Platz)

09:15 h - 09:45 h
Large-scale solar renovation Dieselweg, Graz
Retrofit of several multi-family houses to passive house level by using multifunctional prefabricated facade elements
Figure: AEE INTEC

10:30 h - 11:00 h
Solar assisted biomass district heating, Gleistättten
1300 m² collector area and wood chip boiler for the supply of the village Gleistättten
Figure: S.O.L.I.D.

12:00 h - 13:30 h
Lunch

13:45 h - 14:30 h
Solar air conditioning – office building Feistritzwerke Steweag, Gleisdorf
64 m² new developed high temperature flat plate collectors within integrated teflon foil, 19 kW ammonia-water chiller with a new wet cooling tower prototype
Figure: Feistritzwerke Steweag

14:45 h - 15:00 h
Micro solar and biomass district heating with decentralized feeding, Gleisdorf
Three decentralised solar thermal systems (265 m², 230 m² and 100 m² collector area) and three pellet boilers feed into a micro-district heating net in order to supply hot water and space heating for multi-family houses, offices as well as heat for a public swimming pool
Figure: AEE INTEC

16:00 h - 16:30 h
Large-scale solar heating system on retrofitted multi-family buildings – Boberingerring, Graz
2340 m² collector area in combination with a 60 m³ hot water store for the heat supply of 752 flats
Figure: S.O.L.I.D.

17:00 h Arrival in Graz (Andreas Hofer Platz)

18:30 h Welcome Reception
Venue: Old University Graz, Hofgasse 14

---

Technical Tour 2
Meeting Point: Congress Graz

08:00 h Registration at Congress Graz

08:45 h Departure of the bus (Andreas Hofer Platz)

09:15 h - 09:45 h
Large-scale solar system – high school "Augustinum" Graz
270 m² in roof solar collector generate thermal energy for heating and hot-water in school, sports hall, commercial kitchen and boarding house. The solar storage tank works as a hydraulic switch and reduces the district heating load in addition. The hot-water preparation is made with 3 fresh water modules including thermal disinfection
Figure: Sonnenkraft

10:30 h - 11:00 h
Large-scale solar district heating Wasserwerk, Graz
A ground mounted 3855 m² solar collector field feeds heat into the district heating network of the city of Graz. The system is also equipped with a heat pump in order to boost the solar thermal system during wintertime
Figure: S.O.L.I.D.

12:00 h - 13:30 h
Lunch

13:45 h - 14:30 h
Solar air conditioning – office building PAAR, Graz
350 m² solar collector field for heating and cooling (245 kWth)
Figure: Fa. Paar

14:45 h - 15:00 h
Solar air-conditioning Service Centre and Town hall, Gleisdorf
304 m² new developed high temperature collectors and 4600 Litre Heat store, the absorption chiller (35 kWth cooling power) and the DEC-Air flow rate is 6250 m³/h (about 35 kWth)
Figure: S.O.L.I.D.

16:00 h - 16:30 h
Large-scale facade integration of solar collectors – Students hostel Elisabethstrasse, Graz
187 m² front integrated collectors and 160 m² collector area on the roof (243 kWth) for hot water and space heating and also for district heating
Figure: AEE INTEC

17:00 h Arrival in Graz (Andreas Hofer Platz)

18:30 h Welcome Reception
Venue: Old University Graz, Hofgasse 14
Wednesday, 29 September  

**Congress Graz**

**OPENING SESSION**

Stefaniensaal

09:00 h  
Opening and Welcome  
Prof. Dorota Chwieduk, ISES Europe, Poland

**Parallel Sessions**

10:05 h  
Eliminate change and the rate of buildings and solar thermal use to minimize its impacts  
Prof. Diana Urge-Vorsatz, Intergovernmental Panel on Climate Change (IPCC), Hungary

11:20 h  
Numerical and experimental comparison of the performance of standard and PV-thermal systems
  
**SDHW System**
  
Michael Köhl, Fraunhofer ISE, Germany  
Cost effective domestic solar thermal energy systems for northern maritime climates

11:40 h  
Energetic interest of the use of phase change materials in a domestic hot water system
  
Dr. Mihai Radulescu, EDF R&B, Romania

12:00 h  
High new efficiency thermal-electrical solar still to produce distilled and hot water for rural hospitals in Botswana
  
Philip Monowe, University of Botswana, Botswana

12:20 h  
A study of the influence of housing unit form and density on solar potential
  
Caroline Hachem, Concordia University, Canada

12:40 h  
Rehabilitation of an office building of the 60ties with solar heating panels for solar cooling
  
Matthias Herzog, Kreuzzoer Metallbau GmbH, Austria

13:00 h  
Analysis of the energy performance of sunspaces: A new method
  
Dr. Alfonso Rossino, University of Trento, Italy

13:20 h  
Simulation results of high solar fraction combi-systems in different European locations using Transol 3
  
Dr. Aristotelis Aidonis, Politecnico di Milano, Italy

13:40 h  
Seasonal storage coupled to a solar combsystem: Dynamic simulations for process dimensioning
  
Gwennyn Tanguy, INES RDI, France

14:00 h  
In-situ investigation of a domestic solar/heat pump heating systems in a single-family house
  
Christoph Trinkl, Ingolstadt University, Germany

14:20 h  
Systematic classification of combined solar thermal and heat pump systems
  
Dr. Adlari, ACE Group ZT-GmbH, Austria

14:40 h  
Coffee Break

15:00 h  
Trends in global radiation between 1950 and 2100
  
Dr. Manajit Sengupta, National Renewable Energy Laboratory, United States

15:20 h  
Poster Session  
Saal Steiermark

16:00 h  
Chair: Dr. Alexander Thür, AEE – Institute for Sustainable Technologies, Austria

16:40 h  
City of Graz solar roof cadastre, GIS-based local analysis for solar power units – a planning tool
  
Wolfgang Traunmüller, BlueSky Wetteranalysen, Austria

17:00 h  
New high efficiency thermal-electrical solar still to produce distilled and hot water for rural hospitals in Botswana
  
Philip Monowe, University of Botswana, Botswana

17:20 h  
An advanced solar air-conditioning test facility
  
Mark Goldworth, CSIRO, Australia

17:40 h  
An advanced solar air-conditioning test facility

18:00 h  
Coffee Break
Thursday, 30 September
Congress Graz

09:00 h
Key-note - 100 % Renewables vision by 2050
Christine Lins, European Renewable Energy Council (EREC), Brussels, Belgium

09:25 h
Key-note - The challenge to exploit the solar thermal potential
Werner Weiss, AEE - Institute for Sustainable Technologies, Austria

10:40 h
The potential of medium scale solar thermal power and solar polygeneration
Dr Werner Platter, Fraunhofer ISE, Germany

11:00 h
Demonstration of direct steam generation in a Mirorex linear Fresnel collector
Michael Berger, PSE AG, Germany

11:40 h
Solar energy systems in Chile - application potential
Prof Roberto Ronan, University of Chile, Chile

11:50 h
Energy efficiency, high temperature heat pump and solar heat for industrial processes - Case study of an Austrian company
Franz Mauthner, AEE INTEC, Austria

12:10 h
Solar heat for industrial processes: Reflec-collector development and system design
Dr Hans Schweiger, Energexperiens, Germany

12:20 h
Methodological analysis of industrial processes regarding the implementation of a solar-thermal process heating system
Holger Müller, Ingolstadt University of Applied Sciences, Germany

12:30 h
Solar energy for Industrial and Commercial Applications
Dr Christian Holter, S.O.L.I.D., Austria

16:40 h
Sustainable beer production by combining solar process heat and energy efficiency – Holistic system concept and preliminary operational experiences
Bastian Schmitt, Kassel University, Germany

17:00 h
Monitoring and evaluation of renewable heating and cooling in a multi-purpose building
Michael Himpel, Bavarian Center for Applied Energy Research, Germany

17:20 h
Student center "Energy" in Bulgaria
Dr. Mitja Košir, University of Ljubljana, Slovenia

17:30 h
Cost effective energetic refurbishment of office buildings in Norway
Prof Klaus Vajen, Kassel University, Germany

17:40 h
Technical advances in the EU-Cool Roof project
Michele Zini, ENEA, Italy

18:00 h
Happy Hour

casino
14:00 h Solar Cooling and Air Conditioning I
Chair: Dr. Matthias Heinze, Fraunhofer ISE, Germany
14:00 h Performance and perspectives of solar cooling
Dr. Edy Resch, Fraunhofer ISE, Germany
14:20 h Monitoring programme of small-scale solar heating and cooling systems within IEA SHC TASK 3B – Procedure and first results
Dr. Alexander Thuer, AEE – Institute for Sustainable Technologies, Austria
14:40 h Field test of a solar-assisted cooling system Prof. H.B. Huang, National Taiwan University, Taiwan
15:00 h French high quality solar heating and cooling demo projects incentive scheme
Dr. Dr. Andreas Heinz, Graz University of Technology, Austria
15:10 h Tailoring and testing a new sorbent for adsorption chillers driven by a moderate solar insulation
Dr. Mikhail Tokarev, Boreskov Institute of Catalysis, Russian Federation
15:20 h In-situ analysis and operational optimisation of a solar-driven Dec-System Tobias Badger, Innsbruck University, Germany
15:30 h Experimental study on a cross flow plate-type dehumidifier for a liquid desiccant cooling system
Mustafa Jaradat, Kassel University, Germany
14:00 h Solar Collector Technology I
Chair: Prof. Paul Breuer, Czech Institute of Technology, Prague
14:00 h Qualification of new polymeric materials for solar thermal applications
Karl-Anders Well, Fraunhofer ISE, Germany
14:20 h Condensation and subsequent icing on structured plates in low speed flows – An experimental study
Dr. Christoph Reichl, ATÜ Austrian Institute of Technology, Austria
14:40 h An improved dynamic solar collector model including condensation and asymmetric incidence angle modifiers
Dr. Bengt Perers, DTU Byg, Denmark
15:00 h Polymeric thermotropic glazings for overheating protection of solar collectors
Dr. Katharina Reich, University of Leoben, Austria
15:10 h Solar collector absorbers in high-performance polymeric materials
Prof. John Rekstad, University of Oslo, Norway
15:20 h Three dimensional ray tracing and reliability analysis of a novel ICPC collector after twelve years of operation
Prof. William Duff, Colorado State University, United States
15:30 h Theoretical analysis of solar unglazed hybrid photovoltaic-thermal liquid collector
Dr. Tomas Matu ska, Czech Technical University in Prague, Czech Republic
14:00 h Thermal Energy Storage II
Chair: Prof. Paul Breuer, Czech Institute of Technology, Prague
14:00 h Thermochemical storage using composite materials: From the material to the system Stéphane Hongois, EDF R&D, France
14:20 h Thermal energy storage with phase change materials in solar combisystems – a promising solution?
Dr. Andreas Heinze, Graz University of Technology, Austria
14:40 h Towards seasonal heat storage based on stable super cooling of sodium acetate trihydrate
Prof. Simon Furbo, Technical University of Denmark, Denmark
15:00 h Energy efficient buildings: How to determine the most suitable PCM and environment to maximize energy saving
Prof. Mohammed Farid, University of Auckland, New Zealand
15:20 h Novel absorption material for thermal energy storage
Dr. Alenka Ristic, National Institute of Chemistry Slovenia, Slovenia
15:30 h Vapor chamber energy storage system with A1203 and water mixture as medium
Dr. Chung-Kwan Kung, National Taiwan University, Taiwan
14:00 h Poster Session
Topic 04 – Large-Scale Solar Thermal Applications
Topic 03 – Energy Efficiency in Buildings through Solar Application
Topic 14 – Other Solar Energy Related Topics
15:30 h Poster Session
Topic 01 – Solar Energy in Architecture
Topic 02 – Net Zero Energy Buildings
Topic 08 – Solar Cooling and Air Conditioning
15:40 h Coffee Break
### Friday, 1 October - Congress Graz

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 h</td>
<td><strong>Key-note – Solar buildings</strong>&lt;br&gt;Arch Karin Kappel, Solar City Copenhagen, Denmark</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>09:25 h</td>
<td><strong>Key-note – Polymeric materials for solar thermal applications</strong>&lt;br&gt;Prof Reinhold W. Lang, UniZurich, Austria</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>09:50 h</td>
<td><strong>Key-note – Compact thermal storages: Potential and limitations for different applications</strong>&lt;br&gt;Dr Astrid Wille, PTJ, Germany</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>10:00 h</td>
<td><strong>Coffee Break</strong></td>
<td>Kammernmusiksaal</td>
</tr>
<tr>
<td>10:40 h</td>
<td><strong>Solar Collector Technology II</strong>&lt;br&gt;Chair: Prof Gerhard Faninger, Klagenfurt University, Austria</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>10:40 h</td>
<td><strong>Building of Tomorrow</strong>&lt;br&gt;Chair: Theodor Zillner, Austrian Ministry for Transport, Innovation and Technology</td>
<td>Kammernmusiksaal</td>
</tr>
<tr>
<td>11:00 h</td>
<td><strong>Experimental evaluation of natural convective fluid flow phenomenon in compound parabolic concentrating (CPC) solar collector avalies</strong>&lt;br&gt;Dr Harjit Singh, Kingston University, United Kingdom</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>11:20 h</td>
<td><strong>Heat losses of highly efficient flat plate collectors with a selectively coated double glazing</strong>&lt;br&gt;Sebastian Flöte, Institut für Solarenergieforschung Hamelin, Germany</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>11:40 h</td>
<td><strong>Performance and applications of an evacuated flat plate solar thermal collector</strong>&lt;br&gt;Dr Cristoforo Benvenuti, SRB Energy Research – CERN, Switzerland</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>12:00 h</td>
<td><strong>Partial stagnation in direct-flow vacuum tube collectors: Conditions for occurrence, risks and consequences</strong>&lt;br&gt;Jens Glembin, Institut für Solarenergieforschung Hamelin, Germany</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>12:00 h</td>
<td><strong>ENERGYbase – Office building of the future</strong>&lt;br&gt;Arch Ursula Schneider, pos-architekten, Austria</td>
<td>Cadinnam</td>
</tr>
<tr>
<td>13:30 h</td>
<td><strong>Closing Session</strong></td>
<td>Stefaniensaal</td>
</tr>
</tbody>
</table>

### Thursday, 30th Sept 2010 - Congress Graz

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 h</td>
<td><strong>Key-note – 100 years solar thermal collectors: From the first hot water system to the multi megawatt system</strong>&lt;br&gt;Chair: Prof Gerhard Faninger, Klagenfurt University, Austria</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>09:25 h</td>
<td><strong>Key-note – 100th Anniversary of flat-plate collectors for solar water heating</strong>&lt;br&gt;John Perlin, Santa Barbara, California</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>10:40 h</td>
<td><strong>20 MWth - the biggest solar thermal system worldwide at the Princess Noura University in Riad, Saudi Arabia</strong>&lt;br&gt;Hisham Mkhk, Millennium Energy Industries, Jordan and Rudolf Moschik, AEE- Institute for Sustainable Technologies, Austria</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>11:40 h</td>
<td><strong>Key-note – 100th Anniversary of flat-plate collectors for solar water heating</strong>&lt;br&gt;John Perlin, Santa Barbara, California</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>11:20 h</td>
<td><strong>Key-note – 100 years solar thermal collectors: From the first hot water system to the multi megawatt system</strong>&lt;br&gt;Chair: Prof Gerhard Faninger, Klagenfurt University, Austria</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>12:00 h</td>
<td><strong>Key-note – Solar buildings</strong>&lt;br&gt;Arch Karin Kappel, Solar City Copenhagen, Denmark</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>09:00 h</td>
<td><strong>Key-note – Polymeric materials for solar thermal applications</strong>&lt;br&gt;Prof Reinhold W. Lang, UniZurich, Austria</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>09:50 h</td>
<td><strong>Key-note – Compact thermal storages: Potential and limitations for different applications</strong>&lt;br&gt;Dr Astrid Wille, PTJ, Germany</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>10:00 h</td>
<td><strong>Coffee Break</strong></td>
<td>Kammernmusiksaal</td>
</tr>
<tr>
<td>10:40 h</td>
<td><strong>Solar Collector Technology II</strong>&lt;br&gt;Chair: Prof Gerhard Faninger, Klagenfurt University, Austria</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>10:40 h</td>
<td><strong>Building of Tomorrow</strong>&lt;br&gt;Chair: Theodor Zillner, Austrian Ministry for Transport, Innovation and Technology</td>
<td>Kammernmusiksaal</td>
</tr>
<tr>
<td>11:00 h</td>
<td><strong>Experimental evaluation of natural convective fluid flow phenomenon in compound parabolic concentrating (CPC) solar collector avalies</strong>&lt;br&gt;Dr Harjit Singh, Kingston University, United Kingdom</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>11:20 h</td>
<td><strong>Heat losses of highly efficient flat plate collectors with a selectively coated double glazing</strong>&lt;br&gt;Sebastian Flöte, Institut für Solarenergieforschung Hamelin, Germany</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>11:40 h</td>
<td><strong>Performance and applications of an evacuated flat plate solar thermal collector</strong>&lt;br&gt;Dr Cristoforo Benvenuti, SRB Energy Research – CERN, Switzerland</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>12:00 h</td>
<td><strong>Partial stagnation in direct-flow vacuum tube collectors: Conditions for occurrence, risks and consequences</strong>&lt;br&gt;Jens Glembin, Institut für Solarenergieforschung Hamelin, Germany</td>
<td>Stefaniensaal</td>
</tr>
<tr>
<td>12:00 h</td>
<td><strong>ENERGYbase – Office building of the future</strong>&lt;br&gt;Arch Ursula Schneider, pos-architekten, Austria</td>
<td>Cadinnam</td>
</tr>
<tr>
<td>13:30 h</td>
<td><strong>Closing Session</strong></td>
<td>Stefaniensaal</td>
</tr>
</tbody>
</table>

### 1:30 p.m. - 3:00 p.m. - B2B matching event at the EuroSun2010 conference

**Sponsored by:**
- **Platinum Sponsor:**
  - [forever elever](http://www.foreverelever.com)
- **Gold Sponsor:**
  - [SOLONERG](http://www.solergerg.com)
- **Bronze Sponsor:**
  - [Danfoss](http://www.danfoss.com)
- **Social Event Sponsor:**
  - [GREENoneEC](http://www.greenoneec.com)

**Supported by:**
- [bmw](http://www.bmw.com)
- [Haus der Zukunft](http://www.hausderzukunft.com)
- [Das Land Steiermark](http://www.daslandsteiermark.at)

**Media Partner:**
- [eBusiness Magazine](http://www.ebusinessmagazine.com)