

CESBP  2013

**2nd CENTRAL EUROPEAN SYMPOSIUM
ON BUILDING PHYSICS - programme**
VIENNA, AUSTRIA, SEPTEMBER 9-11, 2013



TABLE OF CONTENTS

Organisation	2
Your way to the congress venue	3
The congress venue	4
Congress information	4
Registration area	5
Social programme	6
Speakers & Chairperson Information	6
General information about Vienna.....	7
Programme at a glance	8
Scientific programme	
Monday, September 9, 2013	11
Tuesday, September 10, 2013	15
Wednesday, September 11, 2013.....	19

ORGANISATION

Local Organising Committee

Conference Chair

Ardeshir Mahdavi
Vienna University of Technology

Vice Conference Chair

Bob Martens
Vienna University of Technology

Kristina Kiesel
Ulrich Pont
Matthias Schuß
Robert Zach
Elisabeth Finz
Josef Lechleitner

International Scientific Committee

Chair

Ardeshir Mahdavi, Austria

Vice-chair

Dariusz Gawin, Poland,
Robert Černý, Czech Republic
John Grunewald, Germany
Peter Matiasovsky, Slovakia

Jesper Arfvidsson, Sweden
Mark Bomberg, USA
Vasco Peixoto de Freitas, Portugal
Stig Geving, Norway
Carl-Eric Hagentoft, Sweden
Peter Häupl, Germany
Shuichi Hokoi, Japan
Arnold Janssens, Belgium
Jan Kosny, USA
Elżbieta Kossecka, Poland
Jaroslav Kruis, Czech Republic
Hartwig Künzel, Germany
Bob Martens, Austria
Leo Pel, Netherlands
Carsten Rode, Danmark
Staf Roels, Belgium
Henk Schellen, Netherlands
Matthias Schuß, Austria
Libor Vozar, Slovakia

YOUR WAY TO THE CONGRESS VENUE

Vienna International Airport is situated about 20 km from the city centre of Vienna. You may travel either by taxi, by the Airport Bus Shuttle, by the train ("S-Bahn"), or by CAT (City Airport Train).

1. Taxi

The taxi stand at the airport is at the exit of the Arrival Hall. It takes about half an hour's ride to get to the centre (approximately EUR 30 - 35).

2. Airport Bus Shuttle

There are regular buses from the airport to:

- Wien Morzinplatz/Schwedenplatz (with connection to undergrounds U1 and U4)
- Wien Dörfelstraße/Meidling (with connection to underground U6)
- Wien Westbahnhof (with connection to undergrounds U3 and U6)

The bus station is directly in front of the airport arrival hall. Buses leave every 20 - 30 minutes. The ride takes around 30 minutes. Tickets (One way: EUR 8, Return: EUR 13) can be bought on the bus or from the ticket machine. Please note that the tickets are only valid for the shuttle bus and not for public transport in Vienna.

Bus schedule: http://www.postbus.at/en/Airportbus/Vienna_AirportLines/index.jsp

3. Train

To get to the Airport train, please follow the sign "S-Bahn" in the Airport Arrival Hall. Take the line S7, get off at Wien Mitte-Landstraße, change to the underground line U4, direction Hütteldorf. Get off at Karlsplatz and take the exit called "Resselpark". Alternatively take the U1 and get off at Taubstummengasse. The ticket (for two zones!) can be bought at the ticket machine in the train station (EUR 4).

4. City Airport Train (CAT)

Nonstop connection from the airport to the City Air Terminal (Wien-Mitte/Landstraße, underground stations U4 & U3). A transfer time of only 16 minutes makes the CAT the fastest possibility to get into the centre. The train leaves every half hour from 6:06 am to 11:36 pm from the airport, between 5:36 am and 11:06 pm from the City Air Terminal where passengers can also check in.

After arriving in Wien-Mitte, change to the underground line U4, direction Hütteldorf. Get off at Karlsplatz and take the exit called "Resselpark". Alternatively take the U1 and get off at Taubstummengasse. Single ticket EUR 11 / Return ticket EUR 17

www.cityairporttrain.com

Public Transport in Vienna

Vienna has a well-developed, safe and efficient public transportation network. Information about the connections and prices can be found here: <http://www.wienerlinien.at> - in the right-hand corner of this Website you will find a link to the English version.

The University of Vienna is located close to the underground stations of lines U1, U2 and U4. Furthermore, the tram stations of lines 1, 62 and Badner Bahn are also located there.

We also recommend you to use Google Maps to check the distance between your locations of interest: <http://maps.google.com/>

Parking

There are no car parks available at the Vienna University of Technology. In the city centre of Vienna, parking charges apply. If you arrive by car, you can use the car park next to the university building:

Wipark Garage "Technische Universität" (open 24/7): EUR 3,50 per hour, max. EUR 35/day.

Alternatively you can use the cheaper Karlsplatz Garage (Address: Mattiellstraße 2-4), 5 min. away from the venue. Maximum charge per day is EUR 7.

THE CONGRESS VENUE

Vienna University of Technology
Gusshausstraße 27-29
1040 Vienna, Austria

The congress will take place at the Vienna University of Technology, which is located in the centre of the city. It is a modern university building with a sufficient number of appropriate lecture halls.

The Registration Desk is located right next to the entrance.

CONGRESS INFORMATION

Certificate of Attendance

Your certificate of attendance will be included in your congress materials available at the registration desk.

Congress Language

The official language of the Congress is English. No simultaneous interpretation will be provided.

Congress Staff

The Mondial Congress & Events team members are present at the registration counter. Furthermore, congress hostesses are present in all lecture rooms and in the floors as badge monitors. Do not hesitate to approach them with queries – they will gladly assist you.

Coffee Breaks

Coffee and snacks is included in the registration fee and will be provided during the indicated coffee breaks.

Lunch

Lunch is included in the registration fee and will be provided during the indicated lunch breaks.

Internet Access

The university provides free wireless internet access for CESBP 2013 participants. You will receive your personal username and password together with your congress material at the registration counter.

Lost & Found

Participants can collect their lost items or leave found items at the registration counter.

Smoking

Thank you for not smoking inside the congress venue. Smoking outside of the building is allowed. Please use the ashtrays provided.

REGISTRATION AREA

The Registration Area is located in the conference area next to the entrance. The Mondial Congress & Events team will be pleased to help you with all inquiries regarding registration, congress materials, accommodation and the social programme. Please do not hesitate to approach the team members if there is anything they can do to make your stay more enjoyable.

Opening Hours Registration Area

Sunday, September 8, 2013	17:00 – 18:15
Monday, September 9, 2013	08:00 – 18:00
Tuesday, September 10, 2013	08:30 – 17:30
Wednesday, September 11, 2013	08:30 – 13:00

The registration counter can be reached onsite through the following telephone number (only during opening hours): +43 676 845 880 706.

Pre-Registration Counter

For participants who are already registered. Please have the confirmation letters sent by Mondial Congress & Events close at hand. If you still have an outstanding payment you may settle your account in cash or by credit card (Visa, Mastercard, American Express, and Diners Club will be accepted). EURO (€) only.

On-Site Registration Counter

For participants registering and paying their registration fees onsite. You will need to fill in an onsite registration form. Payments will be accepted in cash or by credit card (Visa, Mastercard, American Express and Diners Club will be accepted). EURO (€) only.

On-Site Registration Fees

Participants	€ 450
Accompanying Person	€ 75

The participants' registration fee includes:

- Admission to all scientific sessions
- Conference materials (programme, symposium proceedings, certificate of attendance)
- Refreshments during session breaks
- Lunch each day from Monday, September 9 to Wednesday, September 11
- Welcome Reception on September 8
- Conference Dinner on September 10

The accompanying persons' registration fee includes:

- Welcome Reception on September 8
- Conference Dinner on September 10

Vienna Sightseeing Tours

At the registration counter you are welcome to book your sightseeing tour. A variety of different tours in Vienna, the surrounding (Salzburg, Danube Valley, Vienna Woods) and to cities in neighbouring countries (Prague, Budapest, Bratislava) are available.

SOCIAL PROGRAMME

Pre-registration to all evening events is required! Unless you are registered, free seats cannot be guaranteed.

Bus transfers will not be provided. When collecting your congress material at the registration counter, you receive a voucher and information on how to get to the location.

If you need additional tickets or if you are not able to attend although you are registered, please let us know as early as possible.

WELCOME RECEPTION

Sunday, September 8, 2013, 18:30 – 20:00

Location: Nelson's

Address: Paniglgasse 14, 1040 Vienna

Delicious Austrian wines and a selection of cheese will be offered.

CONFERENCE DINNER

Tuesday, September 10, 2013, 19:00 – 22:00

Location: Melker Stiftskeller

Address: Schottengasse 3, 1010 Vienna

Don't miss the conference dinner at a typical Viennese subterranean tavern.

SPEAKER & CHAIRPERSON INFORMATION

If you are a Chairperson

1. Please locate your session room in due time. Please be at your session room **at least 15 minutes prior to the start of the session.**
2. We may remind you that speakers need to strictly observe the time schedule.

If you are a speaker in a session

1. Please locate your session room in due time. Please be at your Session room **at least 15 minutes prior to the start of the session.**
2. We expect you to submit your presentation in due time directly at the session room –latest during the break before the respective session starts.
3. Due to the tight schedules in the session it is not possible to connect your own presentation device. All necessary conference infrastructure is available in the lecture halls (video projection, WIFI internet connection, etc.).

GENERAL INFORMATION ABOUT VIENNA

Foreign Exchange, Banks & Credit Cards

Money can be changed at the airport, at banks, exchange bureaus and larger hotels.

You can find a bank close to the venue: Bank Austria, Wiedner Hauptstraße 11 (open: Mon-Wed 8.00 am - 3.00 pm, Thu 8.00 am - 5.30 pm, Fri 8.00 am - 3.00 pm).

For a cash advance, please use cash dispensers ("Bankomat") which are available all over the city.

Important Telephone numbers:

Emergency Number 112

Fire Brigade 122

Police 133

Ambulance 144

Medical Service 141

Prices and Tips

Menu prices usually include service and taxes. In restaurants, a tip of approximately 10 % is expected.

Shopping

Typical shopping hours are Monday to Friday 09:00 - 18:00 and Saturday 10:00 - 13:00 (17:00).

Luxury shops with an elegant clientele can be found in the pedestrian zone of the Graben and of Kärntnerstraße (underground U1, U3 / stop: Stephansplatz). Street entertainers and outdoor cafes contribute to the special atmosphere of this area.

Another well known shopping area is Mariahilferstraße (underground U3 / stop: Neubaugasse).

Taxi

The main taxi companies in Vienna can be reached on: +43/1/31300 or +43/1/40100 or +43/1/60160.

Tourist Info

The nearest Tourist Info Point is located in the city centre at Albertinaplatz (corner of Maysedergasse, next to Sacher Hotel), and is open daily from 9:00 - 19:00. You can also look up the Vienna Tourism Website: <http://www.wien.info/en>

Sightseeing tours can be booked at the registration counter.

Transportation

The best way to discover Vienna is by public transport. The transport system is based on a dense network of trams, buses, subways, and trains.

The following tickets are available:

Single-ride ticket: € 2.00 (at vending machines)

24-hour (multiple-ride) ticket: € 6.70

48-hour (multiple-ride) ticket: € 11.70

72-hour (multiple-ride) ticket: € 14.50

8-days (multiple-ride) ticket: € 33.80

Week card (multiple-ride ticket): € 15.00 (valid from Monday to Monday)

Tickets can be obtained from vending machines at the underground stations.

Voltage

Voltage: 220 Volts. Plugs are Continental-style two-pin. A plug adaptor should be taken along if incompatible electronic gadgets are used.

PROGRAMME AT A GLANCE – Monday, September 9, 2013

Time	Room EI-8	Room EI-9	Room EI-10
9:00 - 10:15		M-1.1 Opening Session Chairs: Ardeshir Mahdavi Bob Martens (p. 11)	
10:15 - 10:45	Coffee break		
10:45 - 12:30	M-2.1: Design Support + BIM Chair: Emre Ilal (p. 11)	M-2.2: Hygro-thermal 1 - Massive Components/Materials Chair: Renate Teppner (p. 12)	M-2.3: Indoor Environment 1 Chair: Bob Martens (p. 12)
12:30 - 14:00	Lunch		
14:00 - 15:30	M-3.1: Energy Performance 1 Chair: Jos van Schijndel (p. 12)	M-3.2: Hygro-thermal 2 - Massive Components/Material Chair: Henk Schellen (p. 13)	M-3.3: Indoor Environment 2 Chair: Ardeshir Mahdavi (p. 13)
15:30 - 16:00	Coffee break		
16:00 - 18:00	M-4.1: Energy Performance 2 Chair: Matthias Schuß (p. 13)	M-4.2: Hygro-thermal 3 - Massive Components/Materials Chair: Stig Geving (p. 14)	M-4.3: Indoor Environment 3 Chair: Vasco de Freitas (p. 14)
20:00 - 22:00	Meeting of the CESBP-2013 International Scientific Committee		

PROGRAMME AT A GLANCE – Tuesday, September 10, 2013

Time	Room EI-8	Room EI-9	Room EI-10
09:00 - 09:45		T-1.1: Keynote Chairs: Ardeshir Mahdavi Bob Martens (p. 15)	
09:45 - 11:00		T-2.2: Hygro-thermal 4 - Moisture Transport Chair: Carsten Rode (p. 15)	T-2.3: Urban Physics Chair: Kristina Kiesel (p. 15)
11:00 - 11:30	Coffee break		
11:30 - 13:00	T-3.1: CAMPUS21 & BaaS - Paper Session Chair: Karsten Menzel (p. 15)	T-3.2: Hygro-thermal 5 - Damage Prevention Chair: Dariusz Gawin (p. 16)	T-3.3: Daylight & Acoustics Chair: Sokol Dervishi (p. 16)
13:00 - 14:00	Lunch		
14:00 - 15:30	T-4.1: Energy Performance 3 - Simulation Chair: Stefan Glawischnig (p. 16)	T-4.2: Hygro-thermal 6 - Simulation Chair: Carl-Eric Hagentoft (p. 17)	T-4.3: Heat Transfer 1 - Calculation Methods Chair: Martin Teibinger (p. 17)
15:30 - 16:00	Coffee break		
16:00 - 17:30	T-5.1: Energy Performance 4 - User Chair: Robert Zach (p. 17)	T-5.2: Air Flow 1 Chair: Roland Göttig (p. 18)	T-5.3: Heat Transfer 2 - Empirical Methods Chair: Peter Matiasovsky (p. 18)
19:00 - 22:00	Conference Dinner		

PROGRAMME AT A GLANCE – Wednesday, September 11, 2013

Time	Room EI-8	Room EI-9	Room EI-10
09:00 - 10:30	W-1.1: Building Envelopes Chair: Ulrich Pont (p. 19)	W-1.2: Air Flow 2 Chair: Karsten Menzel (p. 19)	W-1.3: Air Flow 3 Chair: Robert Cerny (p. 20)
10:30 - 11:00	Coffee break		
11:00 - 12:30	W-2.1: Hygrothermal 7 - Clima & Components Chair: Staf Roels (p. 20)	W-2.2: Heat Transfer 3 - Materials Chair: Dominique Derome (p. 21)	W-2.3: Heat Transfer 4 - Retrofit & Preservation Chair: Kristina Orehounig (p. 21)
12:30 - 13:00		Closing Ceremony	
13:00 - 14:00	Lunch		

9:00 - 10:15

Room EI-9

M-1.1: Opening Session

Session Chair: Ardeshir Mahdavi, Bob Martens

- 1. Building science with a human face: Reflections on the Austrian School of Building Physics**
Ardeshir Mahdavi
Vienna University of Technology, Austria
- 2. Intelligent traffic systems: Why should building physicists, architects, and urban designers care?**
Hermann Knoflacher
Vienna University of Technology, Austria

10:45 - 12:30

Room EI-8

M-2.1: Design Support + BIM

Session Chair: Emre Ilal

- 1. Recent advances in SEMERGY: A semantically enriched optimization environment for performance-guided building design and refurbishment**
Ulrich Pont, Ferial Shayeganfar, Neda Ghiassi, Mahnameh Taheri, Christian Sustr, Ardeshir Mahdavi, Johannes Heurix, Stefan Fenz, Amin Anjomshoaa, Thomas Neubauer, A Min Tjoa
- 2. Multi-objective optimization in the SEMERGY environment for sustainable building design and retrofit**
Johannes Heurix, Mahnameh Taheri, Ferial Shayeganfar, Stefan Fenz, Ulrich Pont, Neda Ghiassi, Amin Anjomshoaa, Christian Sustr, Thomas Neubauer, Ardeshir Mahdavi, A Min Tjoa
- 3. A comprehensive building model for performance-guided decision support**
Neda Ghiassi, Ulrich Pont, Ferial Shayeganfar, Ardeshir Mahdavi, Stefan Fenz, Johannes Heurix, Amin Anjomshoaa, Thomas Neubauer, AMin Tjoa
- 4. Functional and technological definition of BIM-aware services to assess, predict and optimize energy performance of buildings**
Jiri Rojicek, Radek Fisera, Giorgos Kontes, Georgios Giannakis, Georgios Lilis, Dimitrios Rovas
- 5. Towards an ontology representing building physics parameters for increased energy efficiency in smart home operation**
Mario Jerome Kofler, Wolfgang Kastner
- 6. Recent advances in BIMSUSTAIN: The application of building information modeling in the context of building physics and building ecology**
Kristina Kiesel, Linda Skoruppa, Ardeshir Mahdavi

10:45 - 12:30

Room EI-9

M-2.2: Hygro-thermal 1 - Massive Components/Materials

Session Chair: Renate Teppner

1. **Effect of drying methods, sample sizes and RH paths on sorption isotherms**
Chi Feng, Hans Janssen, Ya Feng, Qinglin Meng
2. **Effect of temperature on the sorption isotherm and vapor permeability**
Chi Feng, Hans Janssen, Ya Feng, Qinglin Meng
3. **Simulation of hygric performance of hysteretic building material exposed to cyclic changes of relative humidity**
Olga Koronthalyova, Peter Mihalka
4. **Assessment of scale of the microstructure impact on capillary transport in cement-based composites with polypropylene fibers**
Agata Wygocka, Halina Garbalińska
5. **Concrete with pozzolanic admixtures: An environmental-friendly solution**
Tereza Kulovaná, Eva Vejmelková, Martin Keppert, Robert Černý

10:45 - 12:30

Room EI-10

M-2.3: Indoor Environment 1

Session Chair: Bob Martens

1. **Metamodelling in robust low-energy dwelling design**
Liesje Van Gelder, Hans Janssen, Staf Roels
2. **Inverse modelling to predict and characterize indoor climates**
Rick Kramer, Jos van Schijndel, Henk Schellen
3. **Individualised climate in future buildings. Fact or fiction?**
Mateja Dovjak, Masanori Shukuya, Aleš Krainer
4. **Evaluation of the applicability of the quasi-steady-state overheating indicator for wooden buildings**
Kim Goethals, Lieselot Smet, Arnold Janssens, Jelle Laverge
5. **Overheating - an unexpected side-effect of decreased heating demand**
Tomasz Kisilewicz
6. **Assessing thermal comfort conditions in transitional states**
Yu-Chi Wu, Kristina Orehounig, Ulrich Pont, Matthias Schuss, Ardeshir Mahdavi

14:00 – 15:30

Room EI-8

M-3.1: Energy Performance 1

Session Chair: Jos van Schijndel

1. **Review of methods for evaluation of building energy enhancements**
Reiner Braun, Florian Dubisch, Florian Judex, Blaise Kelly, Vladimir Vukovic
2. **The mapping of simulated climate-dependent building innovations**
Jos van Schijndel
3. **Thermal performance effect of hollow ceramic microspheres coating assessed by dynamic outdoor testing in the summer season**
Miroslav Čekon, Miloš Kalousek
4. **Optimization of window installations in deep energy retrofits using vacuum insulation panels**
Cezary Misiwopecki, Jan Kosny, Ali Fallahi, William DuPont
5. **Effect of various Nordic climates on attaining the Passive House standard**
Lars Gullbrekken, Espen Hobber Nilsen, Tore Kvande, Stig Geving

14:00 – 15:30

Room EI-9

M-3.2: Hygro-thermal 2 - Massive Components/Materials

Session Chair: Henk Schellen

1. **Study of hygrothermal behavior of advanced masonry components made with utilization of secondary raw materials**
Jiri Zach, Jitka Hroudova, Azra Korjenic
2. **Applicability of capillary condensation sorption hysteresis model for burnt clay bricks**
Peter Matiasovsky, Peter Mihalka
3. **Anti damp preservation of internally insulated brick walls**
Robert Wójcik
4. **Hygrothermal performance of internally insulated brick wall in a cold climate: field measurement and model calibration**
Paul Klöšeiko, Endrik Arumägi, Targo Kalamees

14:00 – 15:30

Room EI-10

M-3.3: Indoor Environment 2

Session Chair: Ardeshir Mahdavi

1. **Thermal performance of a test cell in a hot and humid climate: the impact of thermal insulation**
Pak Hooi Tan, Veronika Müller, Ulrich Pont, Ardeshir Mahdavi
2. **Thermal Implications of radiant roof barriers: A field study in a hot and humid climate**
Veronika Müller, Pak Hooi Tan, Ulrich Pont, Ardeshir Mahdavi
3. **An analysis of indoor environmental quality in an office: The case of a university campus in Istanbul**
Pinar Sunar, Sezin Tanriöver
4. **Thermal environment in detached houses with atrium: Towards proper utilization of atrium space in traditional dwellings “Kyo-machiya”**
Chiemi Iba, Shihono Ito, Shuichi Hokoi, Daisuke Ogura
5. **Thermal performance analysis of traditional housing in Kosovo**
Albana Deralla, Ardeshir Mahdavi

16:00 – 18:00

Room EI-8

M-4.1: Energy Performance 2

Session Chair: *Matthias Schuß*

1. **A comparison of projected and actual energy performance of buildings after thermal retrofit measures**
Pierre Pascal Housez Housez, Ulrich Pont, Ardeshir Mahdavi
2. **Design and construction of a plus energy house**
Torsten Schoch
3. **Simulation of thermal performance and retrofit of a historic greenhouse**
Rebecca Mary Ward, Ruchi Choudhary, Adnan Mortada
4. **The benefits of FEM-SS-BES (Finite Element Method, State-Space, Building Energy Simulation) modeling exchange for building physics**
Jos van Schijndel, Rick Kramer
5. **Experimental and numerical energy performance analysis of PCM-enhanced building envelope products and systems**
Jan Kosny, Ali Fallahi, Nitin Shukla
6. **Influence of selected calculation tool on a design process: A case study**
Marco Massetti, Naomi Morishita, Thomas Bednar
7. **Generalizing roof geometry from minimal user input for building performance simulation**
Kristopher Hammerberg, Neda Ghiassi, Ardeshir Mahdavi

16:00 – 18:00

Room EI-9

M-4.2: Hygro-thermal 3 - Massive Components/Materials

Session Chair: Stig Geving

1. **Experimental hygrothermal study in wood and wood-based materials**
Nitin Shukla, Diana Elliott, Devendra Kumar, Cezary Misiwopecki, Jan Kosny
2. **Laboratory investigation of drying of built-in moisture in wood frame walls at passive house level**
Arvid Dalehaug, Stig Geving, Maret Gaare, Kirsti Løtveit, Jonas Holme
3. **Wooden beam ends in masonry with interior insulation – A literature review and simulation on causes and assessment of decay**
Daniel Kehl, Ulrich Ruisinger, Rudolf Plagge, John Grunewald
4. **A hygrothermal analysis of international timber frame wall assemblies tested under temperate maritime climatic conditions**
Lee Christopher Corcoran, Aidan Duffy, Sima Rouholamin
5. **Long-term measurements and simulations of five internal insulation systems and their impact on wooden beam heads**
Uli Ruisinger
6. **Derivation of an evaluation method for the hygrothermal and biohygrothermal behaviour of straw as insulation**
Marc Klatecki, Anton Maas
7. **Smart vapour barriers in unventilated wooden roofs in a Nordic climate – laboratory study of drying effect under shaded conditions**
Stig Geving, Markus Stellander

16:00 – 18:00

Room EI-10

M-4.3: Indoor Environment 3

Session Chair: *Vasco de Freitas*

1. **Computer modelling to evaluate the risks of damage to objects exposed to varying indoor climate conditions in the past, present, and future**
Henk Schellen, Zara Huijbregts, Marco Martens, Jos van Schijndel
2. **Thermal comfort of individual rooms in the design of commercial buildings**
Katarzyna Justyna Nowak-Dzieszko, Katarzyna Nowak, Malgorzata Rojewska-Warchal
3. **The aid of TRNSYS simulation for the conservation of an artwork. A case study**
Lien De Backer, Arnold Janssens, Michel De Paepe, Marnix Van Belleghem
4. **Experimental measurements and analysis of the indoor conditions in Italian museum storerooms: A study case**
Francesca Cappelletti, Anna Birra, Piercarlo Romagnoni
5. **Variability assessment of summer comfort conditions in social housing using in situ measurements**
António José Candeias Curado, Vasco P. de Freitas, Nuno M. M. Ramos
6. **Thermal environment in a room with dynamic infrared fireplace heater**
Radoslav Ponechal
7. **Investigation of ceiling fans for improving summer thermal comfort**
Karsten Voss, Tjado Voss, Julius Otto, Marcel Schweiker, Edwin Rodriguez Ubina

9:00 - 9:45

Room EI-9

T-1.1: Keynote

Session Chair: Ardeshir Mahdavi, Session Chair: Bob Martens

1. **The energy turnaround in Europe and its consequences for renewable generation, energy infrastructure and end-use**
Günther Brauner

9:45 - 11:00

Room EI-9

T-2.2: Hygro-thermal 4 - Moisture Transport

Session Chair: Carsten Rode

1. **Effect of temperature on water vapour transport properties**
Jan Fořt, Zbyšek Pavlík, Jaromír Žumár, Robert Černý
2. **A new approach to measure liquid transport in capillary active interior insulation**
Andrea Birgit Binder, Daniel Maria Zirkelbach, Hartwig Künzel
3. **Detailed heat, air and moisture transport modelling in cavity walls**
Marnix Van Belleghem, Lien De Backer, Arnold Janssens, Michel De Paepe, Marijke Steeman
4. **On the use of the logarithmic of the capillary pressure for numerical simulation of moisture flow**
Carsten Rode, Juhl Lasse

9:45 - 11:00

Room EI-10

T-2.3: Urban Physics

Session Chair: Kristina Kiesel

1. **The extent and implications of the urban heat island phenomenon in Central European region**
Kristina Kiesel, Milena Vuckovic, Ardeshir Mahdavi
2. **Urban energy and microclimate: Wind tunnel experiments and multiscale modeling**
Jan Carmeliet, Jonas Allegrini, Peter Moonen, Saba Saneinejad, Viktor Dorer
3. **Spatial distribution of wind-driven rain in the urban environment**
Aytac Kubilay, Dominique Derome, Bert Blocken, Jan Carmeliet
4. **The use of vegetation for social housing renovations: A case study in the City of Palermo**
Luisa Pastore, Rossella Corrao, Per Heiselberg

11:30 - 13:00

Room EI-8

T-3.1: CAMPUS21 & BaaS - Paper Session

Session Chair: Karsten Menzel

1. **Impacts of building performance monitoring on integrated energy management**
Karsten Menzel, Frank Katzemich, Ardeshir Mahdavi
2. **Alternative ways for advanced energy management**
Donal Browne, Raimond Foley, Matthias Schuß, Helmut Simonis, Cristina de Torre, David Willis
3. **A middleware platform for integrated building performance management**
Anett Schülke, Martin Floeck, Mischa Schmidt
4. **Capabilities of IFC 4 for advanced building performance management**
Karsten Menzel, Matthias Weise, Thomas Liebich, Cesar Valmaseda
5. **Thermal energy flow balancing for optimizing energy performance in public swimming pools with solar thermal micro generation: A case study**
Cristina de Torre, Helmut Simonis, Andrés Macía, Miguel A. García, César Valmaseda

11:30 – 13:00

Room EI-9

T-3.2: Hygro-thermal 5 - Damage Prevention

Session Chair: Dariusz Gawin

1. **Degradation of the great buddha monument in the Sukhothai ruins**
Shuichi Hokoi, Yuri Yoshida, Daisuke Ogura
2. **Hygrothermal modelling of flooding events within historic buildings**
Zara Huijbregts, Jos van Schijndel, Henk Schellen
3. **Degradation of mural paintings of Mogao Cave 285 in Dunhuang**
Daisuke Ogura, Shuichi Hokoi, Tomoko Uno, Masaru Abuku, Ken Okada, Takahide Hase
4. **Optimization of a wall base ventilation system to control rising damp ventilation with outside or inside air?**
Ana Sofia Guimarães, Vasco P. de Freitas, João Delgado
5. **Prevention strategies for risk of moisture related damages due to renovation of historical buildings**
Michela Guizzardi, Dominique Derome, Roger Vonbank, Jan Carmeliet

11:30 – 13:00

Room EI-10

T-3.3: Daylight & Acoustics

Session Chair: Sokol Dervishi

1. **A study of visual and non-visual effects of daylighting in an office**
Mitja Košir, Aleš Krainer, Živa Kristl
2. **Healthy transparency: A novel aspect of daylighting design**
Jozef Hraska, Michal Zeman, Peter Hanuliak, Lucia Mankova, Katarina Stebelova
3. **Bio-inspired responsive façades**
Jong Jin Park, Bharat Dave
4. **A new tool for quick room acoustic assessment in architectural education**
Detlef Hennings, Karsten Voss
5. **Renovating a lecture hall with a glass roof: A case study of performance based design**
Emre Atça, Mustafa Emre İlal, Tahsin Başaran, Tuğçe Kazanasmaz, Zeynep Durmuş Arsan

14:00 – 15:30

Room EI-8

T-4.1: Energy Performance 3 - Simulation

Session Chair: Stefan Glawischnig

1. **Two case studies in optimization-based thermal building performance model calibration**
Mahnameh Taheri, Farhang Tahmasebi, Ardeshir Mahdavi
2. **Method to assess the load shifting potential by using buildings as a thermal storage**
Reiner Braun, Florian Judex, Markus Brychta, Mirza Popovac
3. **Model-assisted control through co-simulation for intelligent Building Energy Management Systems design**
Georgios Giannakis, Kyriakos Katsigarakis, Giorgos Kontes, Dimitrios Rovas
4. **Simulation of movable translucent aerogel shutters**
Ralph Evins, Mark Dowson
5. **Calculation models for the diffuse fraction of global solar radiation**
Ehsan Vazifeh, Sokol Dervishi, Ardeshir Mahdavi

14:00 – 15:30

Room EI-9

T-4.2: Hygro-thermal 6 - Simulation

Session Chair: Carl-Eric Hagentoft

1. **Numerical quality of a model for coupled heat and moisture transport in COMSOL multiphysics**
Michele Bianchi Janetti, Fabian Ochs, Wolfgang Feist
2. **Implementation of an efficient numerical solution method to simulate freezing processes in porous media**
Luisa Sontag, Andreas Nicolai
3. **Modelling salt effects on sorption isotherm of porous materials**
Masaru Abuku, Daisuke Ogura, Shuichi Hokoï
4. **Comparison of simplified moisture penetration profile models with experimental data**
Peter Matiasovsky, Matus Holubek
5. **Model and program for the prediction of the indoor air temperature and indoor air relative humidity**
Peter Häupl, Ayman Bishara, Frank Hansel

14:00 – 15:30

Room EI-10

T-4.3: Heat Transfer 1 - Calculation Methods

Session Chair: Martin Teibinger

1. **Thermal mass effect of solid block Aerated Autoclaved Concrete**
Bryan Urban, Diana Elliott, Nitin Shukla, Ali Fallahi, Jan Kosny
2. **Effect of cavity filler on the effective thermal conductivity of hollow bricks: A computational analysis based on accurate input data**
Robert Černý, Jan Kočí, Jiří Maděra, Miloš Jerman
3. **An experimental and numerical study on the efficiency of the polypropylene fibres admixture in reducing pore pressure in heated concrete**
Arkadiusz Witek, Dariusz Gawin
4. **Thermal calculations of the thermal performance of hollow ceramic blocks**
Ligia Mihaela Moga, Ioan Moga
5. **Influence of the moisture in the thermal conductivity of Expanded Polystyrene insulators**
Ákos Lakatos, Sándor Varga, Ferenc Kalmár

16:00 – 17:30

Room EI-8

T-5.1: Energy Performance 4 - User

Session Chair: Robert Zach

1. **Simulation-powered virtual sensors in building monitoring systems**
Robert Zach, Ardeshir Mahdavi
2. **Simulation studies method to identify occupancy schedules from indoor climate measurements**
Peggy Freudenberg
3. **Variability of energy and water consumption of school buildings**
Ricardo M.S.F. Almeida, Nuno M. M. Ramos, M. Lurdes Simões, Vasco P. de Freitas
4. **Influence of the user behavior in the total energy consumption of social housing in Chile**
Claudia Rojo, Adelqui Fissore
5. **Rebound effects in heating energy consumption after thermal refurbishment of apartment buildings**
Petra Johanna Sölkner, Ardeshir Mahdavi

16:00 – 17:30

Room EI-9

T-5.2: Air Flow 1

Session Chair: Roland Göttig

- 1. Evaluation of two-eddy viscosity turbulence models to predict temperature and velocity indoor environments as exercise for new CFD users**
Magdalena Cortés, Waldo Bustamante, Jiwu Rao, Paul Fazio, Sergio Vera
- 2. Numerical analysis of the indoor comfort and ventilation characteristics for an office room equipped with a façade-integrated ventilation system**
Mirza Popovac
- 3. Stochastic character of local wind speed in application to reliability model of ACH**
Krystyna Pietrzyk
- 4. Flow around and through a building storey with fully opened or tilted windows**
Renate Teppner, Bernd Langensteiner, Walter Meile, Günter Brenn, Sybill Kerschbaumer
- 5. Numerical experiment investigation on turbulent natural convection in an enclosed tall cavity: Boussinesq-Approximation effect**
changshan wang, John Grunewald

16:00 – 17:30

Room EI-10

T-5.3: Heat Transfer 2 - Empirical Methods

Session Chair: Peter Matiasovsky

- 1. Thermal properties of contemporary lightweight cavity bricks: A semi-scale experimental study**
Zbysek Pavlik, Lukas Fiala, Milos Jerman, Jan Fort, Robert Černý
- 2. Measurement of hydration power and heat of hydration of Portland cement with fine ceramic dust using isothermal calorimetry**
Jan Zákoutský, Vratislav Tydlitát, Robert Černý
- 3. Experimental evaluation of drying kinetics of building materials**
Eva Barreira, João M.P.Q. Delgado, Nuno M.M. Ramos, Vasco P. de Freitas
- 4. Experimental determination of the local interior heat transfer coefficient**
Evy Vereecken, Hans Janssen, Staf Roels

9:00 - 10:30

Room EI-8

W-1.1: Building Envelopes

Session Chair: Ulrich Pont

- 1. Addressing surface temperature build-up due to the concentration of solar radiation created by curved glass facades**
Matthew Shaxted, Ben Raines, Don Stark, Peter Weismantle, Craig Burton, Mostapha Roudsari, Alejandro Stochetti
- 2. Effect of horizontal overhangs and glazing with spectral radiative properties on annual thermal balance of the building and thermal comfort**
Henryk Nowak, Lukasz Nowak, Elzbieta Sliwinska, Maja Staniec
- 3. Quantification of wind-driven rain and evaluation of façade humidification**
Sara Stingl de Freitas, Eva Barreira, Vasco P. de Freitas
- 4. The impact of pressure equalization on watertightness of rainscreen systems**
Nathan Van Den Bossche, Michael Lacasse, Arnold Janssens
- 5. Interior insulation of masonry walls – Assessment and design**
Paul Steskens, Xavier Loncour, Staf Roels, Evy Vereecken

9:00 - 10:30

Room EI-9

W-1.2: Air Flow 2

Session Chair: Karsten Menzel

- 1. Determination of the natural ventilation by measuring the CO₂-content and estimating the number of occupants in a museum building**
Roland Göttig, Simon Schmidt, Mai-Khanh Nguyen
- 2. Enhanced U-value of a wall structure using interior sensor driven forced or natural convection**
Carl-Eric Hagentoft
- 3. Measuring air change rates in rooms using tracer gas and radon monitoring**
Rachel Becker, Gustavo Haquin, Konstantin Kovler
- 4. Effects of combined shading and air exfiltration on lightweight building elements with high outer diffusion resistance**
Bernd Nusser, Martin Teibinger
- 5. Experimental investigations about the air flow in the ventilation layer of low pitched roofs**
Bernd Nusser, Martin Teibinger

9:00 - 10:30

Room EI-10

W-1.3: Air Flow 3

Session Chair: Robert Černý

1. **A method for estimating amount of stored heat in PCM that exchange heat with flowing water**
Koji Fujita, Takayuki Matsushita
2. **Structural building components as energy storage systems – Experimental investigations**
Lars Cusnick, Kamyar Nasrollahi, Matthias Pahn
3. **Influence of using treated wood on thermal properties and heat losses in basements of wooden buildings**
Eva Vahalova, Ruut Peuhkuri, Karel Suhajda
4. **Environmental and energy performance evaluation of wooden buildings and their comparison with constructions from different materials**
Silvia Badurova, Pavol Ďurica, Peter Časnocha
5. **Development and optimization of advanced silicate plasters materials for building rehabilitation**
Azra Korjenic, Jiri Zach, Jitka Hroudova, Vit Petranek, Sinan Korjenic, Thomas Bednar

11:00 - 12:30

Room EI-8

W-2.1: Hygrothermal 7 - Clima & Components

Session Chair: Staf Roels

1. **Selection of critical weather year for hygrothermal analyses in the Czech Republic**
Jan Koci, Jiri Madera, Robert Černý
2. **Definition of generic materials by using a cluster analysis method**
Jianhua Zhao, John Grunewald, Rudolf Plagge
3. **Influence of materials' moisture absorption properties on prediction of indoor relative humidity level**
Anatolijs Borodinecs, Jurgis Zemitis
4. **Hygrothermal function of basement walls**
Peter Blom, Trond Bohlerengen
5. **Damage of cement mortar microstructure induced by salt crystallization**
Marcin Koniorczyk, Dariusz Gawin, Piotr Konca

11:00 - 12:30

Room EI-9

W-2.2: Heat Transfer 3 - Materials

Session Chair: Dominique Derome

1. **Application of modelling tools to the design and performance validation of a life safety system**
Laurence Wilson, Matthew Shaxted
2. **Performance of natural, exhaust, demand controlled exhaust and heat recovery residential ventilation systems as prescribed by the standards in 5 European countries.**
Jelle Laverge, Ivan Pollet, Arnold Janssens, Anneleen Vens
3. **Does a ventilation rate optimized for good health and low heat loss depend on built form?**
Payel Das, Clive Shrubsole, Michael Davies, Benjamin Jones, Ian Hamilton, Zaid Chalabi, James Milner, Paul Wilkinson, Ian Ridley
4. **Parametric study of the summer behavior in timber houses – air flow in detached houses considering the influence of insect screens**
Florian Ehrlich, Martin Teibinger, Thomas Bednar
5. **Numerical analysis of convective drying of gypsum boards**
Dominique Derome, Thijs Defraeye, Geert Houvenaghel, Jan Carmeliet

11:00 - 12:30

Room EI-10

W-2.3: Heat Transfer 4 - Retrofit & Preservation

Session Chair: Kristina Orehounig

1. **Methodology to integrate energy efficiency, safe moisture performance and indoor environment quality in building renovation projects**
Tuomo Ojanen, Riikka Holopainen, Hannu Viitanen, Jorma Lehtovaara, Juha Vinha, Paavo Kero
2. **Multi-objective optimization for school buildings retrofit combining artificial neural networks and life cycle cost**
Ricardo M.S.F. Almeida, Vasco P. de Freitas
3. **Energy efficiency and comfort improvement in historic buildings: A methodology for diagnosis and interventions evaluation**
Miguel Ángel García-Fuentes, José Luis Hernández-García, Alberto Meiss, Cristina de Torre, Daniel García-Gil
4. **Oekohaus: A case study of monitoring-based building performance assessment**
Linda Skoruppa, Matthias Schuss, Robert Zach, Ulrich Pont, Ardeshir Mahdavi
5. **Comparison of probabilistic approaches to the mould growth problem**
Zoltan Sadvosky, Olga Koronthalyova, Peter Matiasovsky

12:30 - 13:00

Room EI-9

Closing Ceremony