

## Wednesday February 8th

### 1st Students School on Building Performance Simulation Applications

10.00-11.00	Introduction and case study presentation - Room D.102
11.00-13.30	Practice - Parallel sessions in Rooms F.003 and E.422
13.30-14.30	<b>lunch break (not provided)</b>
14.30-17.00	Practice - Parallel sessions in Rooms F.003 and E.422
16.00-18.00	<b>City Tour (meeting point: main entrance of the Free University of Bozen-Bolzano)</b>
18.30-20.00	<b>Welcome aperitif</b>

## Thursday February 9th

8.30-9.00	<b>Participant registration</b>
9.00-9.15	<b>Welcome speeches - Room D.102</b>
9.15-9.45	<b>Morning Keynote Speech - Room D.102</b> <i>Exploration of Building Model Complexity for Residential and Commercial Model Predictive Control</i> Prof. Gregor Henze, University of Colorado Boulder, USA
10.00-10.15	<b>Coffee Break</b>
10.15-12.45	<b>Technical Sessions (in parallel)</b>
	<b>A - Special call (chairman: prof. Ardeshir Mahdavi) - Room D.101</b>
16	<i>Pitfalls in weather data management strategies of Building Performance Simulation tools</i> Livio Mazzarella, Martina Pasini
21	<i>Weather Scenario Generation for Stochastic Model Predictive Control using Vector Autoregressive Prediction</i> Samuel R Currie, Gregor P. Henze
55	<i>Measurement of the impact of buildings on meteorological variables</i> Dasaraden Mauree, Laurent Deschamps, Paul Bequelin, Pierre Loesch, Jean-Louis Scartezzini
57	<i>Improving the local wind estimation for the automated control of blinds</i> Dasaraden Mauree, Ali Motamed, Laurent Deschamps, Jean-Louis Scartezzini
83	<i>Investigating the suitability of the WRF model for improving prediction of urban climate boundary conditions</i> Kristopher Hammerberg, Ardeshir Mahdavi, Oscar Brousse
85	<i>Sensitivity of WRF/urban simulations to urban morphology parameters: a case study in the city of bolzano</i> Gianluca Pappaccogli, Lorenzo Giovannini, Francesca Cappelletti, Dino Zardi
44	<i>Comparison of direct radiation split algorithms for energy simulation of buildings</i> Giorgio Lupato, Marco Manzan, Stefano Cirilli
	<b>B - HVAC (chairman: prof. Adolfo Palombo) - Room D.102</b>
32	<i>Analysis of the influence of thermal losses of the recirculation loop in a residential hot water solar svstem</i> Paolo Valdiserri
48	<i>On the influence of Storage Size and Management on the Seasonal Performance of Air Source Heat Pumps in High Performance Buildings</i> Elena Bee, Alessandro Prada, Paolo Baggio
63	<i>Steady state and transient simulation of a radiant heating system</i> Fabian Ochs, Mara Magni, Michele Bianchi Janetti

- 73 *A comparison between numerical methods for evaluating ground coupled heat pump systems performance*  
 Angelo Zarrella, Giuseppe Emmi, Roberto Zecchin, Michele De Carli, Diego Guzzon, Michele Ouaggia
- 107 *Development of a design numerical model of a hybrid cooler*  
Matteo D'Antoni, Roberto Fedrizzi
- 110 *A New Control Strategy for Variable Refrigerant Flow Systems*  
 Xiaojie Lin, Yunho Hwang, Reinhard Radermacher, Byungsoon Kim

12.45-13.45

**Buffet lunch**

13.45-14.15

**Afternoon Keynote Speech - Room D.102**

*Cyber-Physical-Human Systems for High Performance Buildings*  
 Prof. Panagiota Karava, Purdue University, USA

14.30-16.30

**Technical Sessions (in parallel)**

**A - Student Competition finalists session (chairmen: Dr. Matthias Schuss, Dr. Francesca Cappelletti) - Room D.101**

- 9 *A new methodological approach for estimating energy savings due to air movement in mixed mode buildings*  
Francesco Babich, Malcolm Cook, Dennis Loveday, Rajan Rawal, Yash Shukla
- 40 *A Comparative Study of Computational Algorithms used in the Automatic Generation of Reduced-Order Models from CFD Simulations*  
Thibault Marzullo, Sajjad Yousefian, Marcus M. Keane, Marco Geron, Rory F.D. Monaghan
- 74 *Data transfer from BIM to building performance simulation tools: A case study*  
Mirjana Bucevac, Ulrich J. Pont, Sigrun Swoboda, Ardeshir Mahdavi
- 82 *Case study for energy efficiency measures of buildings on an urban scale*  
Domenico Dirutigliano, Mark-Alexander Brüntjen, Christian Fliegner, Jérôme Frisch, Vincenzo Corrado, Christoph van Treeck
- 86 *Numerical analysis of thermal bridges in dynamic conditions*  
Alessandra Romagnoli, Costanzo Di Perna, Davide Barbaresi, Elisa Di Giuseppe
- 49 *Energy refurbishment of social housing stock in Italy: analysis of some scenarios from the impact of climate change to occupant behaviour*  
Leone Pierangioli, Cristina Carletti, Gianfranco Cellai, Fabio Sciorpi
- B - Efficient control (chairman: prof. Paolo Baggio) - Room D.102**
- 6 *The dynamic simulation as a tool for the analysis of the interactions among the controllers of HVAC systems*  
Mara Magni, Jean Pierre Campana, Gian Luca Morini
- 68 *Integrated Energy Modelling to support District Cooling Optimisation: Methodological Approach*  
 Francesco Passerini, Andrea Bassani, Pietro De Cinque, Raymond Sterling, Jesus Febres, Anna Magrini, Andrea Costa, Marcus M. Keane
- 98 *Mapping savings in energy demand by heat recovery for European countries under consideration of humidity control*  
Stefanie Tafelmeier, Giovanni Pernigotto, Andrea Gasparella
- 102 *Stochastic Multi-Criteria Decision Making of Energy Recovery Ventilator using Cumulative Prospect Theory*  
Young Jin Kim
- 5 *Improving Energy Efficiency through Holistic Modeling: a case-study*  
Guido Zanzottera, Carlo Micono, Giulia Guglielmo, Federico Angeli Felicioni
- 11 *Optimization of Exhaust Air Energy Recovery System through Dynamic Energy Modeling: methodology and a case-study*  
Guido Zanzottera, Giulia Guglielmo, Carlo Micono, Michele Vio

16.30-16.45

**Coffee Break**

16.45-18.30

**Technical Sessions (in parallel)**

**A - Lighting (chairman: prof. Athanasios Tzempelikos) - Room D.101**

- 27 *Static and dynamic strategies for improving daylight use in side-lit classrooms: a case study*  
 Vincenzo Costanzo, Gianpiero Evola, Luigi Marletta, Dario Panarelli
- 1 *The viability of using different types of recycled plastic as glazing in windows*  
 Islam Mashaly, Yusra Rashed, Salah El-Haggar, Khaled Nassar

- 3 *Implications of increasing daylighting in deep energy retrofitting in Norwegian shopping centres*  
Matthias Haase, Andreas Ampenberger
- 84 *On the global performance of offices with different glazing systems and roller shades*  
Anna Maria Atzeri, Francesca Cappelletti, Athanasios Tzempelikos, Andrea Gasparella
- 108 *Selecting roller shades properties based on glare mitigation, energy performance and connection to the outdoors*  
Iason Konstantzos, Athanasios Tzempelikos
- 109 *Dynamic Simulation of the Influence of Fenestration on Buildings Energy Consumption. Comparison Between Northern and Southern Europe*  
Angelo Spena, Viola Iaria

**B - Simulation driven design and diagnosis (chairman: prof. Vincenzo Corrado) - Room D.102**

- 18 *Comparison among different green buildings assessment tools: application to a case study*  
Francesco Asdrubali, Giorgio Baldinelli, Francesco Bianchi, Fabio Bisegna, Luca Evangelisti, Paola Gori, Ginaluca Grazieschi, Claudia Guattari, Benedetta Mattoni
- 25 *On the cost-optimal design: comparison of quasi steady-state and dynamic simplified*  
Ilaria Ballarini, Andrea Costantino, Domenico Dirutigliano, Enrico Fabrizio, Simona Paduos, Vincenzo Corrado
- 35 *Comparison between simplified and detailed methods for the calculation of heating and cooling energy needs of livestock housing: a case study*  
Andrea Costantino, Enrico Fabrizio, Ilaria Ballarini
- 46 *Introduction of a new Dynamic simulation screening tool to support early stage building design*  
Marco Picco, Giorgio Ghisalberti, Gaetano Fabio Graziano, Marco Marengo
- 64 *Comparison between energy optimized and cost optimized design of new high performing multi-family buildings through automated optimization*  
Maria Ferrara, Elisa Sirombo, Enrico Fabrizio
- 112 *Development of an energy performance benchmark using quantitative analysis of energy consumption of office buildings*  
Hye Gi Kim, SunSook Kim

**C - Components of the building envelope (chairman: prof. Maurizio Cellura) - Room D.103**

- 4 *PV-PCM integration in glazed buildings. Numerical study through MATLAB/TRNSYS link model*  
Hagar Elarga, Francesco Goia, Ernesto Benini
- 12 *On the indoor thermal behavior of a building with cool envelope components*  
Anna Laura Pisello, Veronica Lucia Castaldo, Claudia Fabiani, Franco Cotana
- 59 *Modelling of Complex Fenestration Systems - Validation Results by long-term measured data*  
Martin Hauer, Michael Grobbauer, Stefan Holper, Daniel Plörer
- 90 *Buildings integrated phase change materials: modeling and validation of a novel tool for the energy performance analysis*  
Giovanni Avagliano, Annamaria Buonomano, Maurizio Cellura, Vasken Dermardiros, Francesco Guarino, Adolfo Palombo
- 106 *Proposing a Life Cycle Energy Efficiency Index for Comparative Assessment of Insulation Materials' Performance*  
Hashem Amini Toosi, Ali Vakili Ardebili, Nasim Hasheminejad
- 14 *Thermal performance of innovative building envelope systems in Mediterranean climate*  
Maurizio Detommaso, Gianpiero Evola, Antonio Gagliano, Luigi Marletta, Francesco Nocera

**18.30-19.00**

**Evening Keynote Speech - Room D.102**

*Urban Energy Computing: an Hourglass Model*

Prof. Ardeshir Mahdavi, Technische Universität Wien, Austria

**19.00-20.00**

**IBPSA Italy General Meeting - Room D.102**

**20.30-22.30**

**Conference dinner - Lunas Restaurant (Hotel Luna)**

8.45-9.15

**Morning Keynote Speech - Room D.102**

*Thoughts on Emerging Technologies and Simulation Aspects for HVAC in Buildings*

Prof. Reinhard Radermacher, University of Maryland, USA

9.30-11.00

**Technical Sessions (in parallel)**

**A - Case Studies (chairman: prof. Enrico Fabrizio) - Room D.101**

- 37 *Introducing a hybrid energy-use model at the urban scale: the case study of Turin (IT)*  
Marta Carozza, Guglielmina Mutani, Silvia Coccolo, Jérôme Henri Kämpf
- 13 *How does microclimate mitigation affect building thermal-energy performance in residential zero energy Italian settlements*  
Anna Laura Pisello, Veronica Lucia Castaldo, Claudia Fabiani, Cristina Piselli, Franco
- 92 *Climate Based Daylight Modelling improvement in Tas Engineering*  
Enrico Baschieri, Anne Friederike Goy, Giorgio Soncini
- 99 *Calibrated simulation models for indoor comfort assessment: the case of a healthcare facility in Vienna*  
Luca Zaniboni, Giovanni Pernigotto, Kristina Kiesel, Matthias Schuss, Andrea Gasparella, Ardeshir Mahdavi
- 17 *Parametric Energy simulation in concept design phase: A dynamic simulation case study*  
Sadaf Alam

**B - Historical and existing buildings (chairman: prof. Francesco Asdrubali) - Room D.102**

- 94 *From energy signature to cluster analysis: comparison between different clustering algorithms*  
Lorenza Pistore, Giovanni Pernigotto, Francesca Cappelletti, Piercarlo Romagnoni, Andrea Gasparella
- 20 *Integrated numerical analysis and Building Information Modeling for Cultural Heritage*  
Elena Gigliarelli, Filippo Calcerano, Michele Calvano, Francesco Ruperto, Mario Sacco, Luciano Cessari
- 22 *Historical buildings in protected sites in Italy: a re-design study of a rural building*  
Maurizio Cellura, Giuseppina Ciulla, Francesco Guarino, Sonia Longo
- 34 *On-site measurements and whole-building thermal dynamic simulation of a semi-confined prefabricated building for heritage conservation*  
Francesca Frasca, Anna Maria Siani, Cristina Cornaro
- 78 *Simulation-assisted monitoring-based performance evaluation of a historically relevant architectural design*  
M. Schuss, U. Pont, M. Taheri, C. Lindner, A. Mahdavi

**C - Models and Tools (chairman: prof. Livio Mazzearella) - Room D.103**

- 7 *The benchmark of a new SIMULINK library for thermal dynamic simulation of buildings*  
Jean Pierre Campana, Mara Magni, Matteo Dongellini, Gian Luca Morini
- 28 *RC building modelling for control purposes: a case study*  
Erica Zavaglio, Rossano Scozzia, Mario Motta
- 39 *OpenBPS: a new building performance simulation tool*  
Livio Mazzearella, Martina Pasini
- 50 *Analysis of simplified lumped-capacitance models to simulate the thermal behaviour of buildings*  
Jacopo Vivian, Angelo Zarrella, Giuseppe Emmi, Michele De Carli
- 61 *The quasi-steady procedure for the evaluation of the cooling energy requirements in Mediterranean climatic context: criticality analysis by means of comparison with results provided by dynamic simulation code*  
Roberto Bruno, Natale Arcuri, Cristina Carpino
- 117 *Energy modelling case study: High School Building in Treviso*  
Rigoberto Arambula Lara

11.00-11.15

**Coffee Break**

11.15-12.45

**Technical Sessions (in parallel)**

**A - Envelope (chairman: Dr. Ulrich J. Pont) - Room D.101**

- 31 *Validation of a PCM simulation tool in IDA ICE dynamic building simulation software using experimental data from Solar Test Boxes*  
Cristina Cornaro, Marco Pierro, Daniele Roncarati

- 75 *A comparison of the performance of two- and three-dimensional thermal bridge assessment for typical construction joints.*  
Ulrich Pont, Ardeshir Mahdavi
- 81 *Bio-based and recycled-waste materials in buildings: A study of energy performance of hemp-lime concrete and recycled-PET facades for office facilities in France and Italy*  
Chadi Maalouf, Carlo Ingraio, Flavio Scrucca, Tala Moussa, Caterina Tricase, Francesco Asdrubali
- 89 *Building Integrated Photovoltaics/Thermal (BIPV/T) system: a new dynamic simulation model and a case study*  
Andreas K. Athienitis, Giovanni Barone, Annamaria Buonomano, Adolfo Palombo
- 30 *Architectural integration of photovoltaics: performance evaluation of curved modules*  
Marco Lovati, Laura Maturi, David Moser

**B - Simulation and Calibration (chairman: Dr. Matthias Haase) - Room D.102**

- 33 *Calibration of the energy simulation models using non-linear Tikhonov-type regularization: application to a residential building apartment*  
Maja Miletic, Chiara Dipasquale, Roberto Fedrizzi
- 65 *Effective building modelling for energy performance contracting*  
Alberto Giretti, Massimo Lemma, Miquel Casals, Marcel Macarulla, Alba Fuertes, Rory Jones
- 70 *The diversity challenge in models of occupants' presence in buildings*  
Ardeshir Mahdavi, Farhang Tahmasebi
- 71 *Accounting for the diversity of use patterns in representations of office plug loads in building performance simulation*  
Ardeshir Mahdavi, Farhang Tahmasebi
- 101 *Temporal and spatial predictability of occupants' presences in a library building*  
Ki Uhn Ahn, Won Jun Suh, Cheol Soo Park

**C - Comfort and Simulation (chairman: prof. Luigi Marletta) - Room D.103**

- 36 *Effect of blind control strategy on energy demand of office buildings and melanopic effect for occupants*  
Daniel Plörer, Matthias Werner, Martin Hauer, David Geisler-Moroder
- 69 *The development and verification of a computational tool for the evaluation of the visual accessibility of architectural spaces*  
Dawid Wolosiuk, Harald Hofstätter, Ardeshir Mahdavi
- 77 *Comparison between simulated and in-situ measured speech intelligibility in the bilingual context of the Free University of Bozen-Bolzano*  
Simone Torresin, Nicola Prodi, Chiara Visentin, Francesca Cappelletti, Andrea Gasparella
- 116 *Parametric analysis with technical and economic analysis of thermal comfort and productivity in productive buildings*  
Mariantonietta Tarantini, Giovanni Pernigotto, Andrea Gasparella
- 95 *The Building Information Model and the IFC standard : analysis the characteristics for the acoustic and energy simulation of buildings*  
Costantino Carlo Mastino, Roberto Baccoli, Andrea Frattolillo, Martino Marini, Antonino Di bella, Valerio Da Pos

12.45-13.30

**2nd IBPSA Italy Award for practitioners, Student Award and closing ceremony - Room D.102**

13.30-14.30

**Buffet lunch**

**Parallel events**

14.30-18.30

*1st IBPSA Italy Workshop for Designers and Practicioners - Room D.102*

15.00-17.00

*Students' Round Table session – presentation and networking - Rooms D.002 / D.003*

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