

Organizing Committee (IBPSA-Italia)

Paolo Baggio University of Trento
Marco Baratieri Free University of Bozen-Bolzano
Francesca Cappelletti University IUAV of Venice
Alfonso Capozzoli Polytechnic University of Torino
Vincenzo Corrado Polytechnic University of Torino
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Paola Penna Free University of Bozen-Bolzano
Giovanni Pernigotto University of Padova
Alessandro Prada Free University of Bozen-Bolzano
Piercarlo Romagnoni – University IUAV of Venice

IBPSA Italy

IBPSA-Italy is the Italian regional affiliate of the International Building Performance Simulation Association. It is a non-profit-making association which includes researchers, developers and practitioners acting on the topic of building performance simulation. IBPSA-Italy's principal mission is to promote and advance the practice of building performance simulation. IBPSA-Italy was founded in January 2011 and it now has more than 100 members including university professors, researchers, practitioners, software developers, and students.

BSA 2015: Conference Informations

The conference program, as well as the author instruction and the link for the upload of abstracts will be available on the web:

[http://www.unibz.it/en/sciencetechnology/events/
bsa2015/default.html](http://www.unibz.it/en/sciencetechnology/events/bsa2015/default.html)
<http://www.ibpsa-italy.org/it/>

Conference Contacts

bsa2015@unibz.it

Free University of Bozen-Bolzano
Universitätsplatz - Piazza Università 5
39100 Bozen - Bolzano
Italy

[http://www.unibz.it/en/sciencetechnology/events/
bsa2015/default.html](http://www.unibz.it/en/sciencetechnology/events/bsa2015/default.html)

Call for papers

BSA | Building
Simulation
2015 | Applications

2nd IBPSA-ITALY CONFERENCE
BOZEN-BOLZANO 4–6.2.2015

unibz

Freie Universität Bozen
Libera Università di Bolzano
Università Ljedia de Bulsan



IBPSA *Italy*
International Building Performance Simulation Association

Time and Location

From February 4th to 6th 2015 IBPSA-Italy organizes the 2nd Conference on Building Simulation Applications at the Free University of Bozen-Bolzano.

Topics

1 Building physics: envelope and system components

- Heat and mass transfer modeling in buildings
- Building envelope system and facade, and innovative building materials
- Air flow, natural ventilation and mixed mode cooling
- Building control system

2 Integrated performance

- Building acoustics
- Lighting and daylighting
- Indoor environmental modeling: visual and thermal comfort, indoor air quality
- Net zero energy building
- Retrofit/Refurbishment of existing buildings
- Renewable energy technologies, district heating and CHP generation

3 Methodologies, calculation, simulation tools and regulations

- Model validation, sensitivity analysis and optimization techniques
- Building codes and regulations, simplified methods versus detailed simulation
- New simulation tools and improvements in existing simulation tools
- Integration, interoperability web-based techniques, software development, open sources initiatives
- Advances in teaching and education, eLearning

Target audience

- Public and private researchers in general sector of building simulation and energy modeling
- Public agencies, public utilities and policy makers
- Private firms: manufacturers, management companies, utilities, software houses
- Practitioners: building designers (architects, engineers, etc.)

Deadline for participants

Abstract submission: 19 September 2014

Abstract acceptance: 15 October 2014

Full paper due: 30 November 2014

Full paper acceptance: 15 December 2014

Early bird registration: 15 December 2015

Final submission: 7 January 2015

Best Paper

From excellent full papers selected by the BSA reviewers a top list will be formed by the Editor, Prof. Jan Hensen to be considered for publication in the “Journal of Building Performance Simulation” after appropriate editing.

PhD Student Session

A special Call for papers is addressed to PhD students who will discuss their works as first authors in a dedicated special session.

Designer and Professional Session

A special Call for papers is addressed to Designer and Professionals. In a dedicated session they will present building simulation best practices in design or service.

Opening Address and speeches

Prof. Ian Beausoleil Morrison- President of IBPSA
Word - Opening Address

Department of Mechanical and Aerospace Engineering
Carleton University, Ottawa, ON, Canada
Co-Editor of the “Journal of Building Performance Simulation”

Prof. Jan Hensen - 1st Keynote

Head of unit Building Physics & Services, Built Environment
Department
Technische Universiteit Eindhoven, the Netherland
Co-Editor of the “Journal of Building Performance Simulation”

Prof. Ardeshir Mahdavi - 2nd Keynote

Director of the Department of Building Physics and
Building Ecology
TU-Wien Austria
Board member of IBPSA-Germany/Austria

Prof. Athanasios Tzempelikos - 3rd Keynote

School of Civil Engineering and School of Mechanical
Engineering
Purdue University, West Lafayette, IN, United States

Scientific Committee

Ian Beausoleil-Morrison Carleton University Canada
Jan Hensen Technische Universiteit Eindhoven Netherland
Ardeshir Mahdavi TU-Wien Austria
Natale Arcuri University of Calabria
Paolo Baggio University of Trento
Vincenzo Corrado Polytechnic University of Turin
Andrea Gasparella Free University of Bozen-Bolzano
Livio Mazzarella Polytechnic University of Milan
Athanasios Tzempelikos Purdue University



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Wednesday 4th February 2015

15.00-16.00

City Tour

18.30-19.30

Welcome aperitif

Thursday 5th February 2015

8.30-9.00

Participant registration

9.00-9.30

Welcome speeches

9.30-10.00

Keynote speech

The past, present, and future of BPS and IBPSA's role
Prof. Ian Beausoleil-Morrison, Carlton University

10.00-10.30

Keynote speech

Challenges and opportunities for building performance simulation
Prof. Jan Hensen, TU Eindhoven

10.30-11.00

Coffee Break

11.00-12.45

Technical Sessions (in parallel)

A - Lighting modelling and control

171 *Window shades: selecting optical properties for visual comfort*

Ying-Chieh Chan, Athanasios Tzempelikos

144 *Energy saving exploiting light availability: a new method to evaluate daylight contribution.*

Claudio Campanile, Francesco Leccese, Michele Rocca, Giacomo Salvadori

129 *A new climate-based daylight metric for hot climates*

Islam Mashaly, Yusra Rashed, Muhammad Adel, Khaled Nassar

154 *Integrated dynamic thermal and daylighting simulation for complex fenestration systems*

Giuseppe De Michele, Ulrich Filippi Oberegger, Luca Baglivo

127 *Thermal modelling of complex fenestration systems - comparison of a BSDF-based model with simplified approaches*

Martin Hauer, David Geisler-Moroder, Marion Hiller

104 *The importance of software's and weather file's choice in dynamic daylight simulations*

Laura Bellia, Alessia Pedace, Francesca Fragliasso

B - User behavior and comfort

168 *Exploring the occupancy behaviour and perception in an office building*

Livia Seres, Ulrich Pont, Matthias Schuss, Ardeshir Mahdavi

109 *Aspects of uncertainty in representation of occupants' diversity in building performance simulation*

Ardeshir Mahdavi, Farhang Tahmasebi

105 *Comfort Outdoor: the ENVI-BUG tool to evaluate point by point PMV values*

Kristian Fabbri, Antonello Di Nunzio, Ernesto Antonini, Andrea Boeri

198 *Re-thinking of energy consumption classification by the patterns of occupant behaviour in dwellings: a conceptual framework*

Gülsu Ulukavak Harputlugil, Timuçin Harputlugil

134 *Energy consumption of buildings and occupant behavior. An investigation in Mediterranean climatic conditions*

Piero Bevilacqua, Cristina Carpino, Dafni Mora, Marilena De Simone

123 *Multi-zone buildings thermo-hygrometric analysis: a novel dynamic simulation code based on adaptive control*

Annamaria Buonomano, Umberto Montanaro, Adolfo Palombo, Stefania Santini

C - High performance buildings and retrofit

- 140 *Building and system dynamic simulation for a new zero energy building in Milan*
Alessandro Dama, Adriana Angelotti, Davide Penso
- 170 *Design Simulation and verification of performance results of net-zero energy house*
Mona Azarbayjani, Valentina Cecchi, Ben futrell, Aba Ebong
- 136 *Energy performances of a passive house for Mediterranean climate: a case study*
Natale Arcuri, Roberto Bruno, Cristina Carpino, Piero Bevilacqua
- 179 *Passive solutions for the optimization of the indoor environmental quality: a case study*
Fabio Sicurella, Perla Colamesta
- 189 *Energy building retrofitting of a multifamily house: a case study*
Chiara Dipasquale, Roberto Fedrizzi, Diego Bertesina, Alessandro Bellini
- 151 *Study of the energy performance of a retrofitting office*
Paolo Valdiserri

12.45-13.45

Buffet lunch

14.00-15.30

Technical Sessions (in parallel)

A - Energy systems

- 133 *SAGSHP performance analysis for residential energy supply in temperate climate.*
Natale Arcuri, Francesco Reda, Pasquale Loiacono, Domenico Mazzeo
- 190 *The use of biomass in the building renovation: a cost-optimal perspective analysis*
Enrico De Angelis, Giorgio Pansa, Martina Cereda
- 209 *A multi-objective optimization analysis on high-performance buildings connected to district heating-CHP system*
Dario Prando, Alessandro Prada, Fabian Ochs, Andrea Gasparella, Marco Baratieri
- 119 *Modelling, testing and optimization of a MVHR combined with a small-scale speed controlled exhaust air heat pump*
Fabian Ochs, Dietmar Siegele, Georgios Dermentzis, Wolfgang Feist
- 163 *Dynamic simulation and on-site monitoring of a combined solar and pellet system in a low energy house*
Elisa Carlon, Alessandro Prada, Markus Schwarz, Christoph Schmidl, Marco Baratieri, Andrea Gasparella, Walter Haslinger
- 160 *Application of Building Simulation to support ISO 50001 Energy Management: Case study of Fiumicino Airport*
Luis M. Blanes Restoy, Andrea Costa, Marcus M. Keane

B - Tools

- 172 *ProCasaClima 2013: CasaClima building simulation software*
Matteo Rondoni, Ulrich Santa, Ulrich Klammsteiner, Martina Demattio, Mariadonata Bancher, Alexander Told, Thomas Zelger
- 177 *BIM-generated data models for EnergyPlus: A comparison of gbXML and IFC Formats*
Ira IVANOVA, Kristina KIESEL, Ardeshir MAHDAVI
- 175 *Advancement in the development of an Open Source Object Oriented BPSt: development methodology*
Livio Mazzeola, Martina Pasini
- 156 *A new computational model: G.E.A.R. Graphical Expert Analytical Relations*
Martino Marini, Roberto Baccoli, Costantino Carlo Mastino, Valerio Da Pos, Zoltán Tóth
- 139 *A verification of CitySim results using the BESTEST and monitored consumption values*
Emmanuel Walter, Jérôme Kämpf
- 199 *CFD vs. lumped model applied to HAM: a comparison between HAM-Tools and Comsol*
Amos Ronzino, Vincenzo Corrado, Maximilian Neusser, Thomas Bednar

C - Envelope performance modelling

- 204 *Analysis of energy efficiency measures on envelope and control systems: case study for an existing building*
Giovanni Semprini, Alessandro Gober, Francesca Zandi

- 153 *Energy and environmental performance of Trullo stone shelters. An experimental and numerical survey*
Silvia Di Turi, Ida Fato, Francesco Ladisa, Pietro Stefanizzi
- 115 *Prediction of the Sound Insulation of Double Leaf Facades with Openings for Natural Ventilation*
Egzon Bajraktari, Josef Lechleitner, Ardeshir Mahdavi
- 162 *Energetic analysis of annual thermal performances of ventilated roofs*
Marco Noro, Filippo Busato
- 142 *A parametric approach to design a wooden climatic responsive village in the Atacama Desert (Chile)*
Francesco Leccese, Alessandro Mattocchia, Michele Rocca, Rodrigo Rubio, Giacomo Salvadori
- 210 *Experimental characterization of the dynamic thermal properties of opaque elements under dynamic periodic solicitation*
Giovanni Pernigotto, Alessandro Prada, Francesco Patuzzi, Marco Baratieri, Andrea Gasparella

15.30-16.00

Coffee Break

16.00-17.45

Technical Sessions (in parallel)

PhD 1 - Retrofit, optimization and mitigation

- 183 *Application of aerogel-based plaster towards thermal retrofit of historical facades: a computational assessment*
Olga Proskurnina, Ulrich Pont, Miroslawa Kornicki, Ardeshir Mahdavi
- 158 *Holistic method for energy retrofitting of buildings: application and analysis*
Giulia Degan, Carsten Rode, Daniele Vettorato, Marco Castagna
- 135 *Energy retrofit and conservation of built heritage using multi-objective optimization: demonstration on a medieval building*
Francesca Roberti, Ulrich Filippi Oberegger, Elena Lucchi, Andrea Gasparella
- 148 *Cost optimal and net zero energy office buildings solutions using small scale biomass-based cogeneration technologies*
Ayman Mohamed, Ala Hasan, Kai Sirén
- 138 *Building simulation based optimization through design of experiments*
Jay Dhariwal, Rangan Banerjee
- 155 *Simulation experiences for the thermal performance improvement of naturally ventilated classroom in the tropics of Costa Rica*
Emily Vargas Soto, Gerardo Saelzer Fuica
- 121 *Urban heat island in Padua, Italy: simulation analysis and mitigation strategies*
Luca Battistella, Marco Noro
- PhD 2 - Advanced modelling**
- 159 *The role of user behavior modeling on the energy performance simulations*
Marco Aldegheri, Alessandro Prada, Paolo Baggio
- 114 *Appraising uncertainties in different climates with the use of stochastic window behaviour*
Sara Torabi Moghadam, Federica Soncini, Valentina Fabi, Stefano P. Corgnati
- 191 *Passive cooling strategies in refurbishment of Mediterranean buildings: simulation analysis of thermal mass and natural ventilation combination*
Filippo Calcerano, Carlotta Cecchini
- 166 *A parametric design-based methodology to visualize building performance at the neighborhood scale*
Giuseppe Peronato, Emilie Nault, Francesca Cappelletti, Fabio Peron, Marilyne Andersen
- 113 *Performance evaluation towards improved Building Integrated Photovoltaic Systems - Simulation of BiPV-systems installed on existing building facades using TRNSYS*
Sascha Lindig, David Moser, Stefano Avesani, Roberto Lollini
- 149 *Integrated performance simulation of an innovative net zero energy modular building*
Francesco Fantauzzi, Paolo Belardi, Francesco Asdrubali, Samuele Schiavoni, Sara Sambuco

- 180 *Modelling of domestic fine particles indoor exposure, its main sources and potential mitigation scenarios: the case of Beijing*
Sandra Stefanović, Žarko Stevanović
- PhD 3 - Tools**
- 146 *Comparison between hourly simulation and bin-method for the seasonal performance evaluation of electric air-source heat pumps for heating*
Claudia Naldi, Matteo Dongellini, Gian Luca Morini, Enzo Zanchini
- 174 *Graphic and parametric tools for preliminary design stage of natural ventilation systems*
Margherita Ferrucci, Maurizio Brocato, Fabio Peron, Francesca Cappelletti
- 157 *A new simulation tool for the evaluation of energy performances of green roofs*
Mazzeo Domenico, Bevilacqua Piero, De Simone Marilena, Arcuri Natale
- 145 *Estimation of the water flow rate and heating consumption in an office building of a central heating system using system identification*
Daniele Antonucci, Federico Noris, Ulrich Filippi-Oberegger, Andrea Gasparella
- 126 *Comparison of energy simulations for a residential unit: a rapid method for an integrated decision tool*
Alberto Beltrami, Marco Picco, Marco Marengo
- 120 *BIM and interoperability for energy simulations*
Bernardino Chiaia, Sanaz Davardoust, Anna Osello, Niccolò Aste, Manlio Mazzon
- 118 *Achieving High-Performance Building Design in the Tropics through Modelling and Simulation: A case study in Singapore*
Zhou Jian, Adrian Lamano, Priya Pawar, Vincent Partenay
- 116 *Influence of varying mix proportions on thermo-physical properties of the soil-cement blocks*
N.C.Balaji, K.I.Praseeda, Monto Mani, B.V.Venkatarama Reddy

18.00-18.30

Keynote speech

Common fallacies in representation of occupants in building performance simulation
Prof. Ardeshir Mahdavi, TU Wien

20.00-22.30

Conference dinner

Friday 6th February 2015

9.00-10.00

IBPSA-Italy members meeting

10.00-10.30

Keynote speech

Balancing daylighting, comfort and energy requirements in perimeter building zones – dynamic facades
Prof. Athanasios Tzempelikos, Purdue University

10.30-11.00

Coffee Break

11.00-12.30

Technical Sessions (in parallel)

A - Lighting modelling and optimization

- 195 *Daylighting optimization for informal settlements in Cairo, Egypt*
Ayman Wagdy, Ahmed Abd Elghany Morsy, Mohamed Amer Hegazy
- 130 *The effect of vegetation on daylight availability*
Islam Mashaly, Yusra Rashed, Muhammad Adel, Khaled Nassar
- 187 *Long-term and spatial evaluation of the integrated performance of a window-shade system in an open space office located in Rome*
Anna Maria Atzeri, Francesca Cappelletti, Athanasios Tzempelikos, Andrea Gasparella
- 176 *A methodology to integrate advanced lighting and thermal analyses for building energy simulation*
Silvia Cammarano, Anna Pellegrino, Valerio Roberto Maria Lo Verso, Chiara Aghemo

B - Solar radiation modelling

- 125 *The Solar Response Factor for the dynamic response of buildings to solar heat gains*
Gianpiero Evola, Luigi Marletta
- 110 *Empirical assessment of predicted irradiance on vertical surfaces based on two sky models*
Ehsan Vazifeh, Matthias Schuss, Ardeshir Mahdavi

- 207 *Robustness of multi-objective optimization of building refurbishment to solar radiation model*
Alessandro Prada, Giovanni Pernigotto, Francesca Cappelletti, Andrea Gasparella
- 124 *Energy simulation in early stage building design: simplified models and impact on results*
Marco Picco, Marco Marengo

C - Performance optimization

- 208 *The impact of comfort in multi-objective optimization of building refurbishment*
Paola Penna, Alessandro Prada, Francesca Cappelletti, Andrea Gasparella
- 188 *Energy cost and discount rate influence on the optimal packages of energy efficiency measures*
Vincenzo Corrado, Ilaria Ballarini, Ilenia Ottati, Simona Paduos
- 201 *Optimizing window size of south facades in Tehran City and the environmental impacts*
Fazel Khayatian, Seyed Amin Tabatabaei Fard, Maryam Meshkin Kiya
- 111 *Improving energy efficiency through the optimization of buildings' operational regime: simulation based case-studies*
Farhang Tahmasebi, Mahnameh Taheri, Matthias Schuss, Ardeshir Mahdavi

12.30-13.30

IBPSA-Italy Awards

13.30-14.30

Buffet lunch