

IBPSA BOSTON – 10th February 2016

The Simulation Horizon: Research Conference Roundup

Below you can find a list of the selected papers' references by topic and presenter. For access to the full papers in PDF you can access the complete proceedings of the conference at ibpsa.org

Christoph Reinhart (creinhart@mit.edu)

Urban scale energy modelling and real life applications

- **High resolution energy simulations at the city scale**
W. Tian, A. Rysanek, R. Choudhary, Y. Heo
IBPSA Building Simulation 2015
- **An exergy-based simulation stock model: A new approach for policy making**
I. Garcia Kerdan, R. Rasdan, P. Ruyssevelt
IBPSA Building Simulation 2015
- **Lessons learned from the calibration of 5 building models with electric demand measurement at 15 minute intervals**
S. Sansregret, K. Lavigne
IBPSA Building Simulation 2015

Carlos Cerezo Dávila (ccerezod@mit.edu)

Modeling occupant behavior uncertainty for urban energy modelling

- **Coupling a stochastic occupancy model to E-Plus to predict hourly thermal demand of a neighborhood**
M. He, T. Lee, S. Taylor, S. K. Firth, K. Lomas
IBPSA Building Simulation 2015
- **Domestic building energy prediction in design stage utilizing large-scale consumption data from realized projects**
J. Kim, G. Augenbroe, H. Suh, Q. Wang
IBPSA Building Simulation 2015
- **Three methods for characterizing building archetypes in urban energy simulation: A case study in Kuwait city**
C. Cerezo, J. Sokol, C. Reinhart, A. AlMumin
IBPSA Building Simulation 2015

Nathaniel Jones (nljones@mit.edu)

New tools for daylighting assessment

- **Spectral lighting simulations: Computing circadian light**
M. Inanici, M. Brennan, E. Clark
IBPSA Building Simulation 2015
- **Human perceptions of daylight composition in architecture: A preliminary study to compare quantitative contrast measures with subjective user assessments in HDR renderings**
S. Rockcastle, M. Andersen
IBPSA Building Simulation 2015

Elliot Glassman (info@elliott-glassman.com)

Facade optimization with adaptive transparent and opaque assemblies

- **Simulating switchable glazing with E-Plus: An empirical validation and calibration of thermotropic glazing model**
F. Favoino, Y. Cascone, L. Bianco, F. Goia, M. Zinzi, M. Overend, V. Serra
IBPSA Building Simulation 2015
- **The potential opaque adaptive facades for office buildings in a temperate climate**
Q. Jin, F. Favoino, M. Overend
IBPSA Building Simulation 2015

Cody Rose (cmrose@mit.edu)

Automated model generation of energy models directly from building

- **Testing RAPMOD: Can a portable scanner collect existing building data and create an energy model faster and more accurately than a human**
A. Marston, E. Turner, A. Zakhor, O. Baumann, P. Haves
IBPSA Building Simulation 2015
- **BIM geometry generation from low resolution aerial photographs for building energy modeling**
J. Cao, H. Metzsmacher, J. O'Donnell, L. Kobbelt, C. Van Treeck
IBPSA Building Simulation 2015

Irmak Turan (ituran@mit.edu)

Advances for effective building lifecycle design and simulation

- **The application of inverse approach to the early stage of performance based building design**
R. Rezaee, J. Brown, G. Augenbroe, J. Haymaker
IBPSA Building Simulation 2015
- **Enriching the digital cadaster with material properties for an urban simulation of heat demand and life cycle analysis**
M. E. Munoz Hidalgo
IBPSA Building Simulation 2015

Alejandra Menchaca (alejandra@alum.mit.edu)

Accurate modeling of double skin facades with buoyancy driven airflow

- **Numerical investigation on thermal performance and correlations of double skin façade with buoyancy-driven flow**
A. Pappas, Z. Zhai
Energy and Buildings 40 (2008)

David Blum (dhb5014@mit.edu)

Next generation building energy modeling for integration with district energy systems

- **IEA EBC Annex 60 Modelica Library: An international collaboration to develop a free open source model library for buildings and community energy systems**
M. Wetter, M. Fuchs, P. Grozman, L. Helsen, F. Jorissen, M. Lauster, D. Muller, C. Nytsch-Geusen, D. Picard, P. Sahlin, M. Thorade
IBPSA Building Simulation 2015
- **Modelica Buildings Library 2.0**
M. Wetter, M. Bonvini, T. Nouidui, W. Tian, and W. Zuo
IBPSA Building Simulation 2015
- **Dynamic simulation and analysis of ancillary services demand response strategies for VAV HVAC systems**
D. H. Blum, L. K. Norford
ASHRAE Winter Conference 2016 / HVAC&R Research, 20(8), 908-921
- **Gradient-Based Optimal Control of Batteries and HVAC in District Energy Systems**
M. Bonvini, M. Wetter
IBPSA Building Simulation 2015
- **IEA Annex 60 Activity 2.3: Model Use During Operation, Approach and Case Studies**
R. Sterling, A. Giretti, M. Bonvini, Z. O'Neill, M. Wetter, M. Vande Cavey, A. Costa, G. Boehme, W. Zuo, R. Klein, B. Dong, M. Keane
IBPSA Building Simulation 2015