

## Full Listing of Technical Papers

Because paper titles and author sets were abbreviated in the program due to space constraints, a full listing is provided here.



<b>WEDNESDAY, 10:45AM TO 12 NOON</b>			
<b>TECHNICAL SESSION 1A - DAYLIGHT AND ENERGY I CHAIR: SPENCER DUTTON</b>		<b>TECHNICAL SESSION 1B - EXISTING BUILDING AND MODEL CALIBRATION CHAIR: DAVID ELDRIDGE</b>	
R Versage, A Melo, and R Lamberts	Impact of different daylighting simulation results on the prediction of total energy consumption	A Nassiopoulos, F Bourquin	Real-time monitoring of building energy behaviour: a conceptual framework
S Kleindienst, and M Andersen	Solar Heat Surplus and Solar Heat Scarcity: the inclusion of solar heat gain in a dynamic and holistic daylight analysis	G Salvalai, J Pfafferott, and D Jacob	Validation of a low-energy whole building simulation model
W O'Brien, K Kapsis, A Athienitis, and T Kesik	Methodology for quantifying the performance implications of intelligent shade control in existing buildings in an urban context	T Leibing, C Reiser, and O Baumann	Development of a calibration methodology for the energy simulation of an existing building from 1969
<b>WEDNESDAY, 1:30PM TO 2:45PM</b>			
<b>TECHNICAL SESSION 2A - MODELING PROCESS IN PRACTICE CHAIR: OLIVER BAUMANN</b>		<b>TECHNICAL SESSION 2B - PARAMETRIC MODELING CHAIR: HARVEY BRYAN</b>	
K Tupper and C Fluhrer	Energy modeling at each design phase: strategies to minimize design energy use	E Hale, N Long	Enumerating a diverse set of building designs using discrete optimization
S Ali	Analysis of procedures and workflow for conducting energy analysis using Autodesk Revit, GBXML, and TRACE 700	K Field, M Deru, and D Studer	Using DOE commercial reference buildings for simulation studies
C Baker, P Vaidya, and A D'Souza	Modeling protocol for early energy design assistance	W Sheta, and S Sharples	A building simulation sustainability analysis to assess dwellings in a new Cairo development
<b>WEDNESDAY, 3:15PM TO 4:30PM</b>			
<b>TECHNICAL SESSION 3A - DESIGN OPTIMIZATION CHAIR: TIMOTHY MCDOWELL</b>		<b>TECHNICAL SESSION 3B - ENERGY MODELING SOFTWARE - DEVELOPMENT AND COMPARISON CHAIR: JOSEPH BOROWIEC</b>	
L Peters, M Wetter, A Ferguson, and W D'haeseleer	The coupling of ESP-r and GenOpt: a simple case study	Y Pan	Visual Eplus: A Chinese interactive graphical user interface (GUI) for Energyplus
J Gagne and M Andersen	Multi-objective facade optimization for daylighting design using a genetic algorithm	N Krus	Reconciling differences in residential DX cooling models in DOE-2 and EnergyPlus
D Jacob, S Burhenne, A Florita, and G Henze	Optimizing building energy simulation models in the face of uncertainty	S Andolsun, C Culp, and J Haberl	Energyplus vs DOE-2: The effect of ground coupling on heating and cooling energy consumption of a slab-on-grade code house in a cold climate
<b>THURSDAY, 9:00AM TO 10:15AM</b>			
<b>TECHNICAL SESSION 4A - FAÇADE AND WINDOW MODELING CHAIR: SAM MASON</b>		<b>TECHNICAL SESSION 4B - HVAC SYSTEM MODELING CHAIR: DAN NALL</b>	
S Kasarekar and C Waddell	Space load & system load comparison using energy modeling software	D Kang, and R Strand	A new model for calculating the convective and radiant impact of radiators and baseboards in Energyplus
A Brun, E Wurtz, and D Quenard	Experimental and numerical comparison of heat transfer in a naturally ventilated roof cavity	X Li, Y Li, and J Seem	Dynamic modeling of mechanical draft counter-flow wet cooling tower with Modelica
M Azarbayjani	Beyond arrows: CFD modeling of a new configuration of naturally ventilated double-skin facade in a high rise Office Building	C Miller and C Sekhar	Modeling of the single coil, twin fan air-conditioning system in Energyplus
P Lyons, J Wong, and M Bhandari	A Comparison of Window Modeling Methods in EnergyPlus 4.0		
<b>TECHNICAL SESSION 4C - MODELING OF BUILDING LOADS CHAIR: ANDREW MCNAMARA</b>			
M Mirsadeghi, D Costola, B Blocken, and J Hensen	Towards the application of distributed simulation in whole building heat, air and moisture performance engineering	A Jain and A Osborne	Thermodynamics of the microclimate: effects of external elements on internal heat gains
G Zimmermann, Y Lu, and G Lo	Heat flow modeling of HVAC systems for fault detection and diagnosis		

**THURSDAY, 10:30AM TO 11:45AM**

<b>TECHNICAL SESSION 5A - MODELING ON A LARGE SCALE I CHAIR: JEFF HABERL</b>		<b>TECHNICAL SESSION 5B - MODELING OF OCCUPANT BEHAVIOR CHAIR: TIANZHEN HONG</b>	
A Rosheidat and H Bryan	Optimizing the effect of vegetation for pedestrian thermal comfort and urban heat island mitigation in a hot arid urban environment	R Goldstein, A Tessier, and A Khan	Customizing the behavior of interacting occupants using personas
C Yimprayoon and M Navvab	Quantification of available solar irradiation on rooftops using orthophotograph and LiDar data	S Dutton and L Shao	Window opening behavior in a naturally ventilated school
R Brandao and M Alucci	Thermal behavior of urban canyons using numerical modeling, CFD simulation and GIS mapping	G Zimmermann	Agent-based modeling and simulation of individual building occupants

<b>TECHNICAL SESSION 5C - RESIDENTIAL ENERGY CHAIR: JOHN SCHOTT</b>			
Z Liu, H Kim, M Malhotra, J Mukhopadhyay, J Baltazar, J Haberl, C Culp, B Yazdani, and C Montgomery	Going beyond a RESnet certification for code-compliant simulations: a comparison of detailed results of three RESnet-certified, code-compliant residential simulation programs	K Otto, R Taylor, R Brahme, and W Sisson	What does it take for the residential building sector to reach net-zero energy?
M Malhotra, J Haberl	Simulating building energy performance of single-family detached residences designed for off-grid, off-pipe operation		

**THURSDAY, 1:15PM TO 2:30PM**

<b>TECHNICAL SESSION 6A - DAYLIGHT AND ENERGY II CHAIR: CHRISTOPH REINHART</b>		<b>TECHNICAL SESSION 6B - RENEWABLE ENERGY MODELING METHODS CHAIR: JESSICA MCKEE</b>	
R Guglielmetti, S Pless, and P Torcellini	On the use of integrated daylighting and energy simulations to drive the design of a large net-zero energy office building	R Hendron, J Burch, G Barker	Tool for generating realistic residential hot water event schedules
J An and S Mason	Integrating advanced daylight analysis into building energy analysis	D Kang, and R Strand	Implementation of a model for a wind turbine system in Energyplus
K Lagios, J Niemasz, and C Reinhart	Animated building performance simulation (ABPS) - Linking Rhinoceros/Grasshopper with Radiance/Daysim	S Cho, and J Haberl	Integrating solar thermal and photovoltaic systems in whole building energy simulation

<b>TECHNICAL SESSION 7A - MODELING ON A LARGE SCALE II CHAIR: JORGE GONZALEZ</b>		<b>TECHNICAL SESSION 7B - CONTROL OPTIMIZATION CHAIR: MICHAEL WETTER</b>	
C Amorim, M Cintra, C e Silva, J Fernandes, L Sudbrack	Energy efficiency code in Brazil: Experiences in the first public building labelled in Brasilia	V Zavala, J Wang, S Leyffer, E Constantinescu, M Anitescu, and G Conzelmann	Proactive energy management for next-generation building systems
A Strzalka, U Eicker, V Coors, and J Schumacher	Modeling energy demand for heating at city scale	P Li, Y Li, J Seem	Dynamic modeling and consistent initialization of system of differential-algebraic equations for centrifugal chillers
D Quinn, and J Fernandez	Estimating material usage of road infrastructure in US cities	R Zhang, K Lam	Comparison of building load performance between first principle based shading algorithm and implementable shading control algorithm

**FRIDAY, 9:00AM TO 10:15AM**

<b>TECHNICAL SESSION 8A - DAYLIGHT MODELING PROCESS AND METHODS CHAIR: SHANTA TUCKER</b>		<b>TECHNICAL SESSION 8B - UNCERTAINTY ANALYSIS AND STATISTICAL METHODS CHAIR: MICHAEL COLGROVE</b>	
M Saxena, G Ward, T Perry, L Heschong, and R Higa	Dynamic radiance - predicting annual daylighting with variable fenestration optics using BSDFs	S Burhenne, D Jacob, and G Henze	Uncertainty analysis in building simulation with monte carlo techniques
C Reinhart and J Weinold	The daylighting dashboard - a simulation-based analysis for daylight spaces	J Yuan, L Glicksman	Using statistical methods to investigate the mapping from initial values to the multiple steady states in complex building simulation problems
R Manudhane, C Reinhart	Daylight nomographs revisited	B Eisenhower, T Maile, M Fischer, and I Mezic	Decomposing building system data for model validation and analysis using the Koopman operator

**FRIDAY, 10:30AM TO 11:45AM**

<b>TECHNICAL SESSION 9A - BUILDING COMPONENT INTERACTION CHAIR: WANGDA ZUO</b>		<b>TECHNICAL SESSION 9B - HVAC AND BUILDING ENERGY PERFORMANCE CHAIR: ADRIAN TULUCA</b>	
N Khan	Use of building simulation software TAS to investigate the dynamic thermal performance of a school building with installation of a Monodraught natural ventilation and cooling system	T Webster, KH Lee, F Bauman, S Schiavon, T Hoyt, J Feng, A Daly	Influence of supply air temperature on underfloor air distribution (UFAD) system energy performance
C Brown, L Glicksman, and M Lehar	Toward zero energy buildings: optimized for energy use and cost	Z O'Neill, S Narayanan, R Brahme	Model-based thermal load estimation in buildings
Y Chae and R Strand	Development of a dedicated outdoor air system module for a whole building annual energy simulation program	P Im, and J Haberl	Analysis of the Energy Savings Potential in K-5 Schools in Hot and Humid Climates: Application of high performance measures and renewable energy systems

**FRIDAY, 1:15 TO 2:30**

<b>TECHNICAL SESSION 10A - CFD CASE STUDIES AND APPLICATION CHAIR: GREGORY DOBBS</b>		<b>TECHNICAL SESSION 10B - GETTING TO ZERO CHAIR: ANUPAM JAIN</b>	
L Wang, W Dols, Q Chen	An introduction to the CFD capabilities in CONTAM 3.0	M Karpman	Performance-based incentive program for new buildings: Report from the field
M Popovac	Robust eddy viscosity turbulence modeling with elliptic relaxation for external building flow analysis	M Jones, S Ledinger	Pushing the limits of simulation complexity - a building energy performance simulation of an exhibition center in the U.A.E
G Tan and K Venerable	CFD simulation enhances the optimization of a data center's expansion process	J Perlman, A McNamara, D Huang, and L Audin	Is Real Time Pricing Right For Solar PV?
W Zuo and Q Chen	Improvements on the fast fluid dynamic model for indoor airflow simulation		

