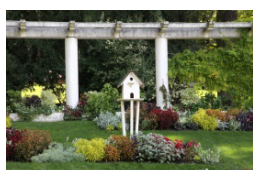
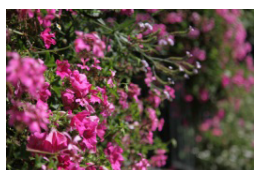
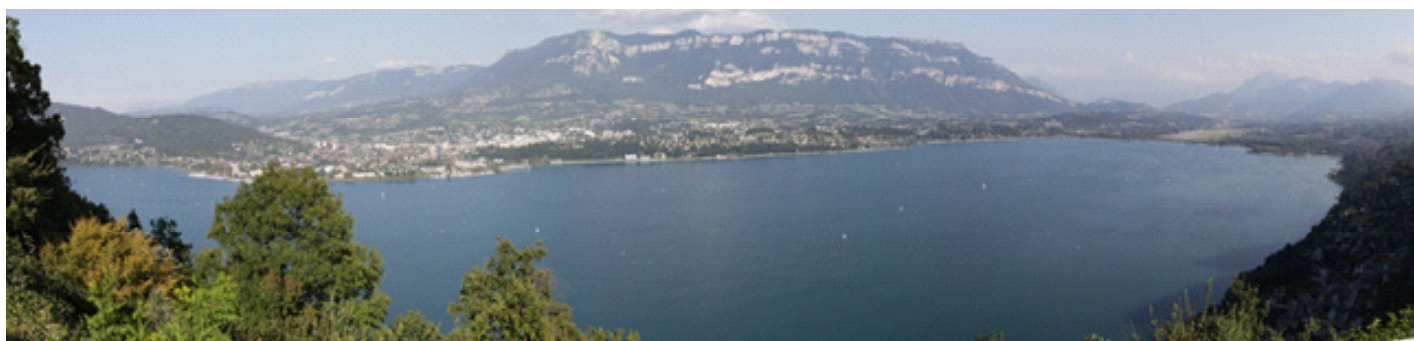




*ibpsa*NEWS

volume 23 number 2 www.ibpsa.org

Oct 2013



Building Simulation 2013 in Aix-les-Bains and Chambéry, France

A REPORT on Building Simulation 2013, held in Aix-les-Bains and Chambéry, France in August

INTERVIEWS with Monika Woloszyn about Projects and work in the Savoie region of France and with Yeonsook Heo, IBPSA Young Contributor award winner

BIOGRAPHIES of the 18 new IBPSA Fellows announced at BS2013

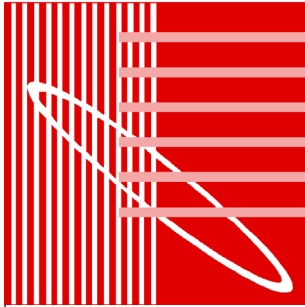
GLOBAL COMMUNITY NEWS from IBPSA affiliates in Argentina, Australasia, the Netherlands, the Nordic countries, Poland and the USA — and 12 events for your diary from around the world, including BS2015 and 5 others organised by or in collaboration with IBPSA or IBPSA affiliates

CALL FOR PROPOSALS for Building Simulation 2017



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The International Building Performance Simulation Association exists to advance and promote the science of building performance simulation in order to improve the design, construction, operation and maintenance of new and existing buildings worldwide.

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President's message

Dear IBPSA colleagues and friends,

Those of you who attended will surely agree that the *Building Simulation 2013* conference was a huge success. From the opening reception, where we were treated to a first-class wine and cheese tasting, to the walking tour of Chambéry's historical treasures, a wonderful banquet dinner, and outdoor dining at lunch with views of the mountains, we were certainly treated well by our hosts. And let's not forget about the conference's technical programme: some fascinating keynote speeches and presentations of nearly 500 papers of recent contributions to the BPS field. So *merci beaucoup* once again to Etienne Wurtz, Monika Woloszyn, Jean-Jacques Roux, and all the organizers and volunteers who made this such a fabulous event!

IBPSA continues to grow its membership and expand into new regions to help develop the field of BPS. One of the newer affiliates, IBPSA-India, has generously offered to host our conference in 2015. At the closing of the Chambéry conference, Vishal Garg, chair of *Building Simulation 2015*, gave us a flavour of what we have to look forward to when we meet again in Hyderabad for IBPSA's next international conference.

But, of course, we do not need to wait until then to participate in an IBPSA conference. Many regional affiliates have already launched calls for abstracts for BPS conferences they will hold in 2014. The list includes eSim in May (Canada), BSO in June (UK), BauSIM in September (Germany), SimBuild in September (USA), and ASim (Japan).

I am pleased to announce that IBPSA has launched a new membership grade, the "Supporting Member". This is a dues-paying membership grade which will help to sustain IBPSA financially, allowing the organization to continue and expand its efforts to develop the BPS domain. In return for an annual membership fee, Supporting Members will receive a subscription to IBPSA's official journal, the *Journal of Building Performance Simulation*. Additionally, Supporting Members will be able to display a logo on business cards and email signatures. Details on how to become a Supporting Member are provided elsewhere in this newsletter.

It was a pleasure to induct the newest 18 IBPSA Fellows at the conference's banquet dinner in France. The grade of IBPSA Fellow is awarded to members who have attained distinction in the field of building performance simulation. If you know of someone who you feel merits this distinction, then I strongly encourage you to prepare a nomination for consideration for the next round. The IBPSA website provides detailed instructions and the nomination form.

Happy simulating to all.

Notes from Building Simulation 2013

Building Simulation for a sustainable world

Christina J Hopfe and Monika Woloszyn with photographs from Alain Bastide and Christina Hopfe

IBPSA's 13th International Conference and Exhibition was successfully held at Aix-les-Bains and Chambéry between 25 and 28 August 2013, with the theme of Building Simulation for a Sustainable World.

The conference was held at Savoie Technolac, and co-organized by INES (CEA, University of Savoie, CNRS and CSTB) and INSA Lyon. The venue was an hour's travel from the metropolitan area of Lyon in the heart of the French Alps halfway between Chambéry (the third largest city in the Alps) and the spa town of Aix-les-Bains.

A cheese and wine/champagne tasting on the Sunday evening made a memorable start to the conference before the official opening in Aix-les-Bains. This provided an opportunity for tasting the delicacies of the different French regions as well as a lot of enjoyable mingling and networking.



The welcome evening and cheese and wine tasting on Sunday, 25th August in the congress center in Aix-les-Bains

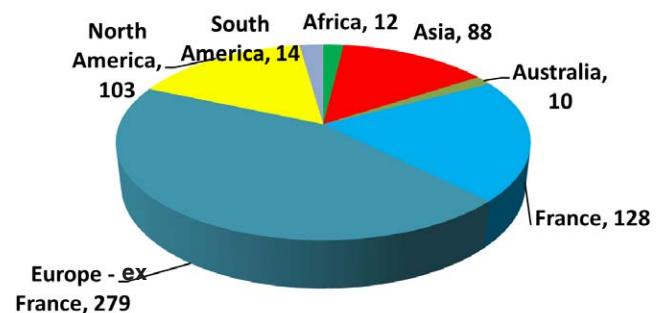
This year's conference attracted even more participants than the last: a total of 630 (450 in 2011), with delegates from 45 countries (36 in 2011). Papers were presented in six parallel sessions with one poster session per day over the three days.

Etienne Wurtz explaining the signposting



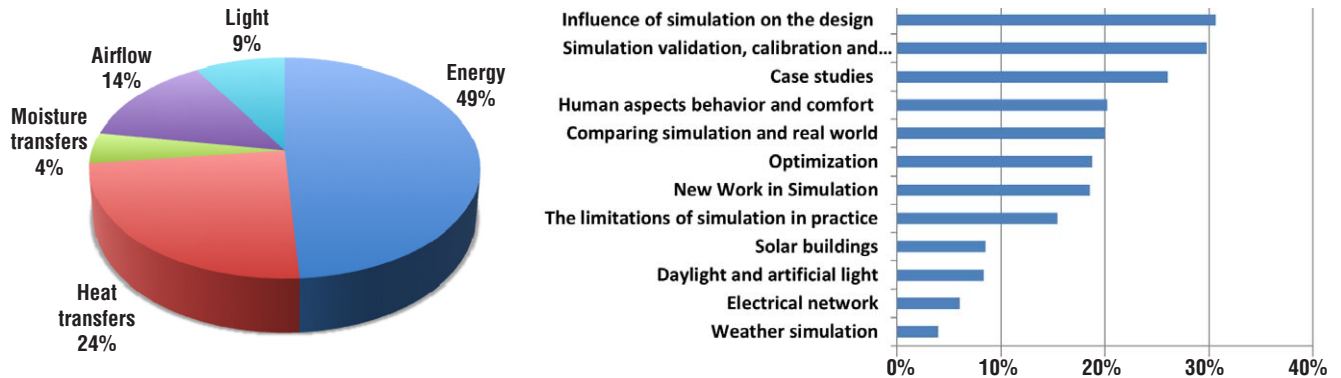
An increased number of students and PhD students attended the conference, too: 256, making up circa 50% of all delegates, and submitting 238 publications between them. In total, 72 parallel sessions were held (3 oral sessions and 1 poster per day) in 6 rooms over three days.

All papers submitted to BS2013 were double-blind reviewed. Unlike previous BS conferences, this year's poster presentations were accompanied by brief (two minute) presentations.



Participants came from all over the world

Contributions accepted for BS 2013: topics (left) and keywords (right)



In a breathtaking setting surrounded by the mountains, the French caterers offered exquisite food, especially for those with a sweet tooth. Conference participants could enjoy this year's lunch outside allowing them to savour the experience of an al fresco glass of wine in the middle of the day.

On each of the three conference days, a workshop was held during the lunch breaks, starting on the first day with a DOE information session, followed by an EQUA Simulation and a Gura-W introduction session on day 2 and a Simergy information session on day 3.

There were again three keynote speeches. Francis Allard from the Université de La Rochelle began, with a speech on *European perspectives on building simulation* describing how energy models evolved from the 1960s to the present and paved the path into new areas of research. Francis's speech was an excellent introduction to building simulation and made a perfect opening for the conference.

On the second day Donald P Greenberg from Cornell University gave a talk on progress "from Mickey Mouse to Building Simulation". We learnt that computer-animated comedy-adventure films produced by Pixar such as *Ratatouille* and *Up* have more in common with building simulation than we might have previously thought. A man who turns his house into a makeshift airship, using thousands of helium balloons to lift it off its foundation will need no further excuses to be watched in the cinema!

Finally, on day 3, Hans Bloem from the Institute of Energy and Transport spoke on *Evaluating and modelling near-Zero Energy Buildings: Are we ready for 2018?*. Hans discussed the timeline from existing concepts and standards in Europe to the current Energy Performance Building



Keynote speakers: Francis Allard (top left), Don Greenberg (top centre and below), Hans Bloem (top right)

Directive (EPBD), addressing the “20-20-20” target, the three key objectives for 2020: a 20% reduction in EU greenhouse gas emissions from 1990 levels; raising the share of EU energy consumption produced from renewable resources to 20%; and a 20% improvement in the EU’s energy efficiency. Hans’ presentation asked whether we are ready for the 2018 EPBD deadline, when all newly built public buildings within the European Union will have to be nearly zero-energy, as defined in the EPBD.

On Tuesday, 27 August, the conference banquet was held in the casino in Aix-les-Bains. A four course dinner was served. The conference organizers had spared no efforts and prepared a game addressing building simulation- and building-related questions to be played between the dinner courses. The new IBPSA Fellows were announced during the banquet (see pages 28-34 for more information).



“Old” friends coming together

Congratulations to Jeff and Jan on their IBPSA Fellowships



Struggling with the Quiz questions

Michael Wetter: “Cheese Fondue originates in Switzerland, where there is no salad with fondue!”



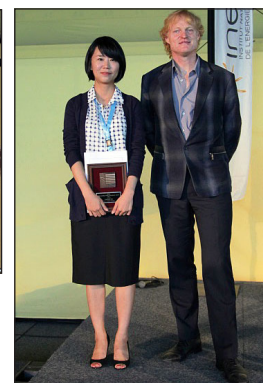
IBPSA Distinguished Services Award winner Qingyan Chen



IBPSA president



Paul Strachan (second right) thanking the organizing Vice president of the scientific committee Monika Woloszyn, President of the Scientific Committee Jean Jacques Roux, and conference chair Etienne Wurtz



IBPSA young contributor award winner Yeonsook Heo

Finally, towards the end of the conference, it was officially announced that IBPSA-India would host Building Simulation 2015 in Hyderabad in India. This was followed by a brief presentation from Conference Organizing Committee Chair Dr. Vishal Garg.

BS 2013 has left us all deeply impressed by the overwhelming volume of high quality presentations, workshops, and posters as well as by a host of haute cuisine, delicious wines, and memorable events.

Building Simulation for a sustainable world has once again opened new issues and challenges to discuss and debate further at IBPSA's next conference, Building Simulation 2015. As Lori McElroy said, "The door between designers and researchers seems to be open."



Announcing the next BS2015 conference to be held in Hyderabad, India

The results of the feedback survey conducted at the end of BS 2013 will be available shortly at www.bs2013.fr.

All papers from Building Simulation 2013 are now available online at www.ibpsa.org/?page_id=292, and photographs taken during the conference by conference staff can be found at https://plus.google.com/photos/100259588717235712254/albums/5918088020909805249?authkey=CKfly_qpj9q_7AE. ■

... and the winners are

... and the winners are

The IBPSA Outstanding Young Contributor Award

This year's award goes to: **Yeonsook Heo - Argonne National Laboratory**

Dr Yeonsook Heo studied architecture at Chung Ang University in Korea. She then undertook an MSc and a PhD at GeorgiaTech in the USA. Here she developed her background in architectural design into scholarship in architectural engineering, indeed a challenging change of direction. She has proven to be up to this challenge through relentless studying and foraging into new areas, mastering complex engineering fields and acquiring the necessary mathematical skills in the process. She has become a very broadly skilled researcher who can apply a broad palette of theories and tools in any field of building technology.

IBPSA Award for Distinguished Service to Building Simulation

This year, the Board has decided to bestow this honour on **Professor Qingyan Chen - Purdue University**

Professor Qingyan Chen, “Yan”, has a distinguished record of contributions to the field of building performance simulation covering his entire career. Yan was the first person in the world to couple building energy simulations with CFD simulations for studying airflow, air quality, and energy consumption in buildings, as evidenced by his PhD thesis published in 1988.

Yan developed a zero-equation turbulence model for fast simulations of airflow and contaminant distributions in buildings. The model was used as the default turbulence model for the commercial CFD program Airpak, a variation of ANSYS Fluent. As its current Editor-in-Chief, Yan has been and continues to be the main driver behind the success of the highly respected academic journal Building and Environment.

Student travel awards

This year there are 5 recipients:

Young-Jin Kim - SungKyunKwan University

Paper 1103: *Gaussian emulator for stochastic optimal design of a double glazing system*

Ki-cheol Kim - SungKyunKwan University

Paper 1104: *Cognitive response of occupants to indoor environmental information and its impact on simulation*

Jianjun Hu - Purdue University

Paper 1411: *Simulation of anticipatory control strategies in buildings with mixed-mode cooling*

Justin Dobbs - Cornell University

Paper 2179: *Structured building model reduction toward parallel simulation*

Deuk-Woo Kim - SungKyunKwan University

Paper 1089: *Use of Kalman filter for estimating unknown internal loads*

... and the winners are

Poster Award winner

1st place:

Fan Lu, Borong Lin, Bo Peng - Tsinghua University, China

Paper 2470: *Comparison of simulation tools for optimization and evaluation of green building performance in China*

2nd place:

Valentina Fabi ⁽¹⁾, Tiziana Buso ⁽¹⁾, Rune V. Andersen ⁽²⁾, Stefano P. Corgnati ⁽¹⁾, Bjarne W. Olesen ⁽²⁾

⁽¹⁾ Politecnico di Torino, Italy

⁽²⁾ Technical University of Denmark, Denmark

paper 1215: *Robustness of building design with respect to occupant behaviour*

3rd place:

Matthieu Labat ^(1,2), Monika Woloszyn ⁽³⁾, Géraldine Garnier ⁽²⁾, Jean-Jacques Roux ⁽¹⁾

⁽¹⁾ CETHIL, Université de Lyon, CNRS, INSA-Lyon, France

⁽²⁾ CSTB, France

⁽³⁾ Laboratoire Optimisation de la Conception et Ingénierie de l'Environnement (LOCIE), CNRS-UMR5271, Université de Savoie, France

Paper 1121: *Simulation of coupled heat, air and moisture transfers in an experimental house exposed to natural climate*

Building Simulation Competition winners

The winner of the individual entrant is:

Halla Huws, Birmingham Institute of Art and Design from Birmingham City University

The winners of the group entrant are:

For the first place:

Apoorv Goyal, Arta Yazdanseta, Keojin Jin and Saurabh Shrestha from Harvard University graduate school of design

For the second place:

Ovidiu Serban, Martha Soare and Nicolae Bajenaru from the Technical University of Civil Engineering, Bucharest, Romania

The Journal of Building Performance Simulation Best Paper Award 2013:

Bruno Bueno, Leslie Norford, Julia Hidalgo & Grégoire Pigeon, *The urban weather generator* ■

BS2013 Student Modelling Competition

As with previous Building Simulations conferences, IBPSA ran a student modelling competition as part of this year's conference.

The general aim of the competition is to facilitate wider participation in the conference and to provide a competitive forum for student members of the building simulation community. It is expected that tutors of building simulation courses in universities around the world will use this as part of their teaching material.

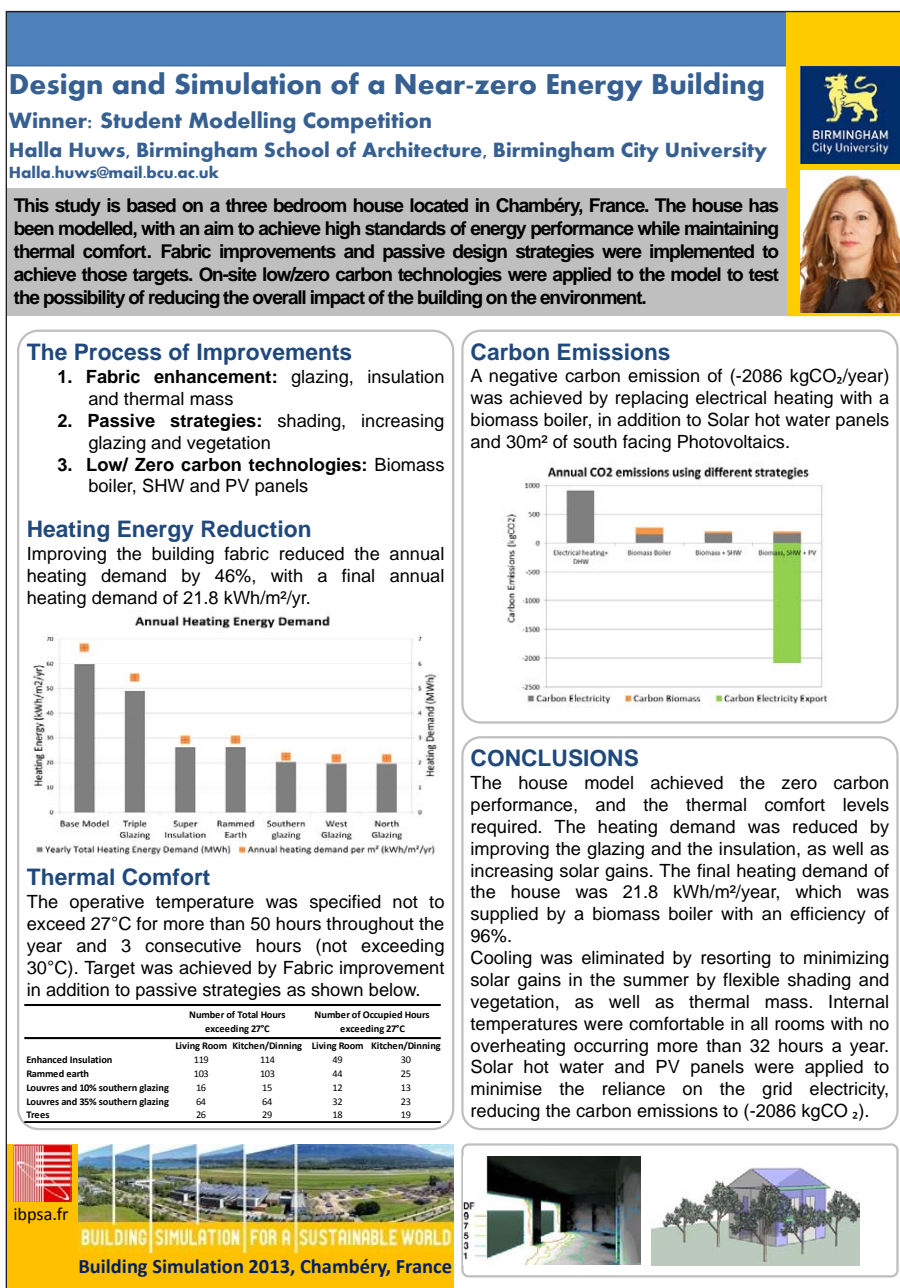
This year's student modelling competition was about the design and simulation of an energy-positive house.

Entries were judged before the conference, and three awards were made: one for the winner of the individual entrants, and others for the first and second placed group entrants. The full list of prizewinners is on page 10.

All participants had to prepare a detailed report summarizing their methodology, simulation results, findings and conclusions.

This year's winner of the individual entrant award, Halla Huws (a student from Birmingham Institute of Art and Design, Birmingham City University), kindly prepared a poster summary from her 12-page report. This is presented to *ibpsaNEWS* readers here — for the first time since the modelling competition's inception.

Thank you, Halla, for sharing your submission with us, and congratulations again on winning the competition! ■



Journal of Building Performance Simulation impact factor doubles!

2012 Impact Factor: 1.524* — 2011 Impact Factor: 0.718
Now ranked 12/57 in Construction & Building Technology

The **Journal of Building Performance Simulation** is the official journal of IBPSA. It is an international refereed journal, publishing only articles of the highest quality that are original, cutting-edge, well-researched and of significance to the international community. The journal also publishes original review papers and researched case studies of international significance.

The wide scope of **JBPS** embraces research, technology and tool development related to building performance modelling and simulation, as well as their applications to design, operation and management of the built environment. This includes modelling and simulation aspects of building performance in relation to other research areas such as building physics, environmental engineering, mechanical engineering, control engineering, facility management, architecture, ergonomics, psychology, physiology, computational engineering, information technology and education.

The scope of topics includes the following:

- Theoretical aspects of building performance modelling and simulation.
- Methodology and application of building performance simulation for any stage of design, construction, commissioning, operation or management of buildings and the systems which service them.
- Uncertainty, sensitivity analysis, calibration, and optimization.
- Methods and algorithms for performance optimization of buildings and the systems which service them.
- Methods and algorithms for software design, validation, verification and solution methods.

All articles published in **JBPS** have undergone rigorous peer review, based on initial editor screening and anonymous refereeing by independent expert referees.

The journal's Impact Factor has recently increased to 1.524, now ranking **JBPS** 12/57 in Construction & Building Technology. This great achievement is testament to the high quality of papers being published in the journal, including the winner of the **JBPS Best Paper Award 2013: *The urban weather generator*** by Bruno Bueno, Leslie Norford, Julia Hidalgo & Grégoire Pigeon.

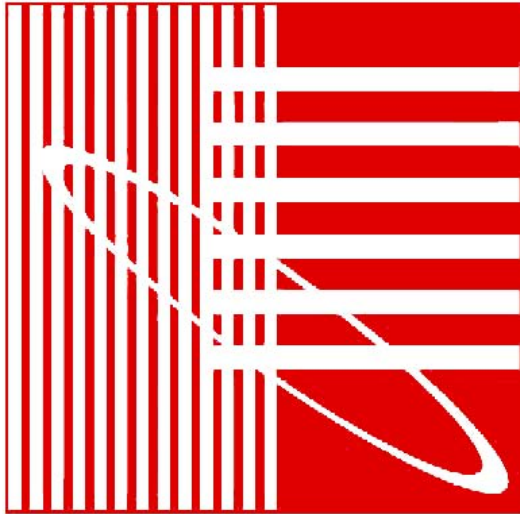
For more information, visit the journal's homepage www.tandfonline.com/jbps where you can:

- Read the full **aims and scope**
- View the full **Editorial Board**
- Find **submission information**
- Sign up for **Table of Contents Alerts**
- **Subscribe or recommend the journal to your librarian**

*All figures © 2013 Thomson Reuters, 2012 Journal Citation Reports™. ■



Fly the IBPSA colours!



**IBPSA
SUPPORTING
MEMBER
2014**

Looking for more ways to show your support for IBPSA? The IBPSA Board is pleased to announce that we have established two new grades of membership — Supporting Members and Student Supporting Members. These new grades of membership offer the opportunity to concretely support IBPSA and to receive several benefits: a print subscription to the Journal of Building Performance Simulation, online access to the Journal, and the right to use the IBPSA Supporting Member logo.

Supporting memberships will run on a calendar year basis, starting in 2014 — and you can sign up now for 2014 via the Supporting Members link on the IBPSA home page. (Or go directly to the membership site: <http://ibpsa.wildapricot.org/>). For 2014, Supporting Membership dues are set at \$120/year and Student Supporting Membership is \$80/year. Dues payment can be made via PayPal or credit card.

The Supporting Membership grade does not alter the traditional system that automatically confers membership via membership in an affiliate organization. Instead, the new grade provides an additional way to help IBPSA while receiving benefits and recognition.

Questions may be addressed to the chair of the Membership Development Committee, Jeff Spitler (spitler@okstate.edu). ■

Forthcoming events

Date(s)	Event	Web site
2013		
25 October 2013	IBPSA-England Symposium: Bridging the Energy Performance Gap Plymouth University, Devon, UK	email pieter.dewilde@plymouth.ac.uk
05-06 November 2013	8th Energy Forum Conference on Advanced Building Skins Bressanone, Italy	www.energy-forum.com
2014		
18-22 January 2014	ASHRAE 2014 Winter Conference New York, USA	www.ashrae.org
03-04 April 2014	CIBSE ASHRAE Technical Symposium DIT, Dublin, Ireland	www.cibse.org/index.cfm?go=events.view&item=4703#!
13-16 April 2014	SimAUD Tampa, Florida, USA	http://simaud.org/2014/
07-10 May 2014	eSim Ottawa, Canada	http://esim.ca
23-24 June 2014	Building Simulation and Optimization 2014 London, UK	www.bso14.org
28 June - 02 July 2014	ASHRAE Annual Conference Seattle, Washington, USA	www.ashrae.org
08-12 September 2014	2014 ASHRAE/IBPSA-USA Building Simulation Conference Atlanta, Georgia, USA	www.ashrae.org/Simulation2014
22-24 September 2014	BauSIM2014: Human-Centred Building RWTH, Aachen University, Germany	http://bausim2014.ibpsa-germany.org
16-18 December 2014	PLEA 2014 Ahmedabad, India	www.plea2014.in
2015		
07-09 December 2015	BS2015 Hyderabad, India	www.bs2015.in

Note that the dates in this calendar may, but do not necessarily, include pre and/or post-conference workshop days

25 October 2013
Plymouth, UK

**BUILDING
PERFORMANCE
ANALYSIS
WITH
PLYMOUTH
UNIVERSITY**

IBPSA-England Symposium: Bridging the Energy Performance Gap

There is a significant gap between predictions of building energy use at the building design and engineering stage, and measurement results once buildings are operational. This 'energy performance gap' erodes the credibility of the design and engineering sectors of the building industry, and leads to general public scepticism of new high-performance building concepts. Bridging the gap between predicted and measured performance is crucial if the design/engineering stage is to provide serious input to the delivery of buildings that meet their (quantified) ambitions. Bridging the gap is also crucial if the industry wants to deliver buildings that are robust, for instance in terms of 'occupant proofing' or 'climate change proofing', and which are engineered to adapt to changing use conditions.

The newly established chair for Building Performance Analysis at Plymouth University will host a one day symposium on this subject on 25 October 2013, organised in conjunction with IBPSA-England. The venue will be the Rolle Building, room 605, on the Plymouth University campus.

The symposium will present the results of the Royal Academy of Engineering and Leverhulme Trust Senior Research Fellowship of Professor Pieter de Wilde on the subject. We will have 10 experts from academia, industry and government speaking on the subject. The day will close with a forum discussion that will attempt to take stock of recent work on the performance gap, and further research and developments needed to bridge the gap.

Book online at http://estore.plymouth.ac.uk/browse/extra_info.asp?compid=1&modid=2&catid=10&prodid=515, or for further information email pieter.dewilde@plymouth.ac.uk or rory.jones@plymouth.ac.uk. ■

05-06 November 2013
Bressanone, Italy
www.energy-forum.com



8th Energy Forum on Advanced Building Skins

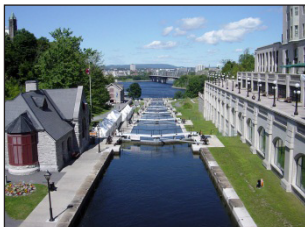
The Free University of Bolzano, in collaboration with the University of Trento and with the support of IBPSA-Italy, is organizing a special session on building performance simulation at the 8th Energy Forum Conference in November 2013. Details of the whole conference are available on the conference web site at www.energy-forum.com.

The theme of the special session is **Building performance simulation for assessment, management and renovation of existing buildings**. It will focus on:

- the use of simulation calibration techniques to improve the diagnosis capability of existing buildings performance
- the use of simulation for multi-objective technical and economic optimization of different envelope renovation measures
- integration of simulation and control techniques for improving the energy efficiency of existing buildings ■

07-10 May 2014
Ottawa, Canada
www.esim.ca

eSim 2014



The 8th biennial eSim will be hosted by Carleton University in Ottawa on 08 and 09 May 2014, with workshops in the preceding and following days. The conference will consist of two days of paper presentations, theory and software workshops, a technical tour, and a banquet.

In keeping with the theme “Removing barriers to application of building performance simulation in design practice”, members of the building and urban design community will be invited to an evening showcase of simulation excellence.

Carleton University is in the Nation’s capital city, and is scenically surrounded by the Rideau River, and the Rideau Canal, a UNESCO World Heritage Site. The Rideau Canal is also the largest skating rink in the world. However, typical May weather sees highs of 20°C, so hikes along the Canal and in the nearby parks systems would be more seasonal! As a capital city, Ottawa is a city of 1.2-million diverse residents, world-class museums, and direct flights to most Canadian cities and European and American hubs. It is also a short train ride away from Montreal, Toronto, and Quebec City.

Further information can be found at www.esim.ca. Please direct any questions to eSim 2014 Chair Liam O’Brien at liam_obrien@carleton.ca. ■

23-24 June 2014
London, UK
www.bso14.org

Building Simulation and Optimization 2014: 2nd IBPSA-England conference

The second conference on Building Simulation and Optimization will take place on the 23-24 June 2014 in London. This biennial conference, organised by IBPSA-England and CIBSE, will be hosted by UCL (University College London). Post-conference workshops, training, and other events will be held on the 25 and 26 June.

BSO14 provides a forum for the exchange of knowledge on the development and application of building performance simulation to the optimum design and operation of buildings. It has four broad themes:

- New performance models and simulation methods
- Procedures for optimizing design and operation
- Real-world case studies
- Visualisation in the built environment



Keynote addresses will be given by Professor Ursula Eicker of the University of Applied Sciences Stuttgart (www.hft-stuttgart.de/Hochschule/Organisation/Professoren/UrsulaEicker.html/de) and Professor Philip Haves of Lawrence Berkeley National Laboratories (<http://simulationresearch.lbl.gov/people/haves-philip>).

Call for papers

Building performance modelling and simulation is routinely used in the design of buildings, yet several challenges in the application and development of performance simulation remain. This conference aims to address these challenges, and the conference themes promise to make it a popular event which will appeal to practising engineers as well as academic members.

The abstract submission deadline (4 October 2013) has passed; the deadline for submitting full papers is **16 January 2014**.

For the full call for papers, author instructions and registration check out the conference website www.bso14.org.

Conference venue

The conference will be held at UCL, London's global university. UCL was established in 1826 to open up education in England for the first time to students of any race, class or religion. It was also the first university to welcome female students on equal terms with men. Today UCL attracts students from 150 countries and has active exchange and research links with more than 280 overseas universities. League tables compiled using varying methodologies rank UCL as the 4th (QS World Rankings, 2012), 17th (Times Higher World Ranking, 2012) and 21st (Shanghai Jiao Tong University, 2012) best university in the world. ■

**A full
conference flyer
is attached
to the back of
this edition of
*ibpsaNEWS***



**08-12 September
2014**

**Atlanta, Georgia,
USA**

**[www.ashrae.
org/Simulation2014](http://www.ashrae.org/Simulation2014)**

2014 ASHRAE/IBPSA-USA Building Simulation Conference

On September 8-12, 2014, ASHRAE and IBPSA-USA will jointly host a conference at the Marriott Buckhead Hotel and Conference Center in Atlanta, Georgia. This conference merges the IBPSA-USA SimBuild and ASHRAE Energy Modeling Conferences. ASHRAE and IBPSA-USA are convening this conference to improve the industry's ability to accurately model building performance. The focus is on making better decisions through the application of simulation and modeling over the entire building life cycle from the earliest concept through operation and maintenance. The conference brings together the building energy analysis and performance simulation community for three days of discussion, seminars, and short courses. Modelers, software developers, owners, and researchers will address the practices of energy modeling and building performance simulation using existing simulation tools, software development, and future simulation research and applications.

The theme of the conference is **BIM, BEM and SIM – Integrated Building Design and Modeling**. The conference seeks papers on topics addressing the integration and interoperability of analytic modeling tools (BEM and SIM) with physical modeling tools (BIM) including (but not limited to):

- Energy efficiency
- HVAC component modeling
- Urban scale modeling
- HVAC load analysis
- Lighting and daylighting
- Combined use of tools
- Co-simulation
- Optimization
- Algorithm advances
- Computational fluid dynamics
- Data exchange
- Data Interoperability
- Energy auditing
- Life cycle cost analysis
- Economic analysis
- Model calibration
- Model validation

Papers describing workarounds, case studies, how to's, challenges, barriers, and cloud based solutions are welcome. Paper Abstracts (400 or less words in length) are due November 4, 2013. If accepted, papers are due March 3, 2014.

In addition to refereed papers, the conference will include informal seminar presentations. A call for presenters will be circulated at a later date with **abstracts due February 2014**. Vendor workshops and invited speakers will complete the conference program.

For more information, see www.ashrae.org/Simulation2014. ■

**22-24 September
2014**

Aachen, Germany
[http://bausim2014.
ibpsa-germany.org](http://bausim2014.ibpsa-germany.org)

BauSIM 2014: Human-Centred Building

The next IBPSA-Germany and Austria conference BauSIM2014 will take place from 22-24 September 2014 in Aachen, Germany, with *Human-Centred Building* as its main theme. The event will be hosted by RWTH Aachen University.

The town of Aachen (Aix-la-Chapelle) is located at the three-country border of Belgium, The Netherlands and Germany. The conference venue is located in the city centre of Aachen within walking distance of most hotels.

Abstracts are due by **30 April 2014**.

For further details please refer to the conference website <http://bausim2014.ibpsa-germany.org> (still under construction as we go to press). ■

**16-18 December
2014**

Ahmedabad, India
www.plea2014.in



PLEA 2014: 30th International Passive Low Energy Architecture Conference **Sustainable habitat for developing societies: choosing the way forward**

Goal and Theme of PLEA 2014

PLEA is an autonomous, non-profit, network of individuals sharing expertise in the arts, sciences, planning and design of the built environment. Founded in 1981, PLEA organises international conferences and workshops; expert group meetings and consultancies; scientific and technical publications; architectural competitions and exhibitions. The goal of the 30th International PLEA Conference (PLEA 2014) is to promote discussion and debate on the learning, opportunities and challenges in passive low energy architecture and design in a rapidly growing world. Within this conference, we will deliberate on the choices we have and the choices we need to make in order to move towards a more sustainable habitat, especially for developing societies and emerging economies.

The local theme of this international conference speaks to the urgent need to reduce energy use in new and existing buildings in cities that are witnessing rapid growth and urbanization. Energy consumption in the building sector is more than one-third of the national energy use in India, and with further growth in this sector, India faces a formidable challenge in reducing its dependence on fossil fuels, natural resources and energy supply infrastructure. Buildings and cities in other emerging economies are also being challenged by such context.

During the course of this conference, deliberations will help us in deploying various dimensions of architectural and design science to help realise buildings, neighbourhoods and cities that have minimal impact on natural resources whilst satisfying the comfort requirements and aspirations of a fast developing society. Under this central theme, the conference will propose a diverse range of topics to understand the role of architectural practice, research and education towards addressing the issues of energy conservation, efficiency and management through design, construction and operational stages of buildings, neighbourhoods and cities.

Indicative Schedule

- **First Call for Abstracts: 15 October 2013**
- **Second Call and Preliminary Programme of Event: 15 January 2013**
- **Collection of Full Papers: 15 September 2014**
- **Announcement of Oral and Poster Presentations to Authors: 15 October 2014**
- **Final Programme and Timetable: 15 November 2014**

About Passive Low Energy Architecture (PLEA)

PLEA is an organisation engaged in a worldwide discourse on sustainable architecture and urban design through annual international conferences, workshops and publications.

It has a membership of several thousand professionals, academics and students from over 40 countries.

Participation in PLEA activities is open to all whose work deals with architecture and the built environment, who share our objectives and who attend PLEA events.

PLEA stands for “Passive and Low Energy Architecture”, a commitment to the development, documentation and diffusion of the principles of bioclimatic design and the application of natural and innovative techniques for sustainable architecture and urban design.

PLEA serves as an open, international, interdisciplinary forum to promote high quality research, practice and education in environmentally sustainable design.

About CEPT University and CARBSE

Established in 1962, CEPT University is India's premiere institute for providing education and conducting research in the areas of designing, planning, constructing and managing human habitats. The Centre for Advanced Research in Building Science & Energy (CARBSE) at CEPT University aims to provide an impetus for research on energy efficiency in the built environment and energy resource management in general. Its objective is to conduct research in the fields of energy efficient building design, energy efficient construction processes, sustainable materials, and resource audit and management. The Centre has been awarded the status of a 'Regional Energy Efficiency Centre' on Building Energy Efficiency by the USAID ECO-III program and 'Centre of Excellence' by the Government of India's Ministry of New and Renewable Energy. CARBSE is supported by Gujarat Energy Development Agency, industry and various philanthropic organisations. CARBSE is also the Indian lead for research under the prestigious US-India Joint Centre for Building Energy Research and Development.

For further information visit us at www.plea2014.in or email info@plea2014.in . ■

**07-09 December
2015**

Hyderabad, India
www.bs2015.in

Building Simulation 2015: 14th IBPSA International Conference

The International Building Performance Simulation Association's 14th international conference will be held in Hyderabad, India. The International Institute of Information Technology – Hyderabad (IIITH) will act as secretariat for this conference. BS 2015 will bring together academics, researchers and professionals from a broad range of science and engineering disciplines with the aim of sharing the latest technology and innovations and spearheading the practical application of building simulation in developing nations.

India is the second-fastest growing economy in the world and its construction sector is the country's second-largest economic activity, so we expect this conference to attract a rich mix of local and international participants.

BS 2015 will feature a wide range of topics such as:

- Thermal simulation
- Thermal comfort
- Daylight simulation
- Simulation of natural ventilation
- Simulation for passive measures
- Building-integrated photovoltaic systems
- Simulation for Code compliance
- Urban Scale simulation

The conference programme will include both oral presentations with question-and-answer sessions and poster sessions. There will be workshops on the energy performance of buildings and other building-related aspects such as acoustics, fire and water both before and after the main conference.

Conference Venue

Hyderabad is the 6th most populous city in India, with a rich mix of academic institutes and industries. It has been rated as best city in Asia for meetings, incentives, conferences and exhibitions. The city is emerging as a global hub for Information Technology, and the industry's growth is driving both commercial and residential construction. Hyderabad also leads the green building movement in India, with the local presence of the Indian Green Building Council, and it has a rich heritage of UNESCO Asia-Pacific historical sites. It was rated the best heritage city in India in March 2012.

The conference will be held in a state-of-the-art convention center managed by the Accor hospitality group. This has space for 32 breakout sessions, and the keynote session hall can accommodate over 1000 delegates.

More details about the conference can be found at www.bs2015.in . ■



Projects and work in the Savoie region of France:

an interview with Monika Woloszyn

IBPSA related research: Tell us more about your work!

This edition of ibpsaNEWS introduces a new feature describing the work of research institutes, university faculties and other organizations that are actively involved with IBPSA related research. This is intended to provide more insight into organisations around the world and to answer questions that cannot be easily found on a website, to update you about news and openings, or to showcase potential collaboration opportunities.

We plan to make this a recurring feature, commencing with the BS2013 conference hosted by the Université de Savoie – LOCIE, INES and CEA.

If you are interested in publishing an article describing the work of your faculty or research group, please contact Christina Hopfe (HopfeC@cardiff.ac.uk).



Monika Woloszyn has been a full professor at the Université de Savoie (LOCIE), France since 2011, having previously been associate professor at the Université de Lyon. She obtained her PhD in 1999 at INSA Lyon (France) in the modelling of whole building heat-air-moisture behaviour. Her research interests are heat-air-moisture transfers in buildings and building components, investigated by modeling and experimental measurements. She is also interested in the properties of building materials, airflow in building cavities, and at a more general level solar buildings and building energy performance.

She is the leader of the Building Performance Group at LOCIE, and participates in several national collaborative projects with leading French institutes.

Christina J Hopfe (CJH): First of all, thank you very much for being willing to be the first organisation to open its doors via this new IBPSA newsletter feature. Could you please start by explaining a little bit about the different names as well as abbreviations of the different institutions and their origins? What are the main weblinks that refer to all these institutions?

Monika Woloszyn (MW): This is a complex question! To make it simple, let's talk about Université de Savoie – LOCIE, INES and CEA.

In recent years research activity related to the energy efficiency of buildings has grown fast in Savoie (a region in South-East France, in the Alps) where we are located. The foundation of INES (Institut National de l'Energie Solaire) was an important step, setting a framework for collaboration between the local Université

de Savoie (UdS), represented by its research department LOCIE (Laboratoire Optimisation de la Conception et Ingénierie de l'Environnement), the Commissariat à l'Énergie Atomique (CEA) represented by its research department LEB (Laboratoire Énergétique du Bâtiment), CNRS (Centre National pour la Recherche Scientifique) and CSTB (Centre Scientifique et Technique du Bâtiment). Unique experimental facilities have been developed. UdS and CEA set up their teams and facilities on the same campus at Bourget-du-Lac, and many collaborative projects on solar energy and building energy efficiency were initiated.



The new INES research building, almost complete

The main links where you can find more information are www.univ-savoie.fr, www.locie.univ-savoie.fr, www.ines-solaire.com, and www.liten.cea.fr.

CJH: What is the primary aim of these different institutions? Are they more research focussed, or interested in industry collaboration? Or is it a combination of both?

MW: While CEA is interested mainly in industrial collaborations, UdS-LOCIE focuses on academic research. LOCIE and LEB work on the energy systems and their integration in new and retrofitted buildings. This includes innovative systems for the production, transport and storage of energy, and for sustainable building. The main research focus is on sustainable energy and buildings. 25 full and associate professors work at UdS LOCIE together with about 35 doctoral and post-doctoral researchers, while 25 researchers are working on this topic at LEB CEA-INES.

CJH: What is the focus of your current research activities, what are the key aspects respectively? Could you please tell us, Monika, what sort of on-going projects you have at the moment and whether they are more national or international in focus?



**Experimental investigation of innovative ventilated wall element.
Left: Facility for assessing airflow using PIV measurements.
Right: instrumented wall installed in Passys cell**

MW: The main focus is on the simulation of building energy performance related to Building Envelope and Solar Systems.

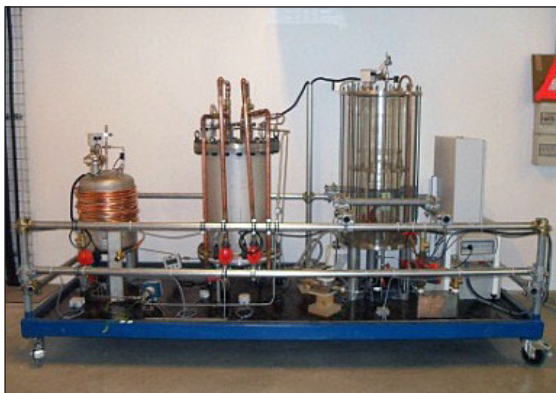
Several on-going projects are concerned with the validation and improvement of simulation tools, using sensitivity and uncertainty analysis as well as empirical validation on INES experimental platforms. Detailed investigations are also conducted on modelling and measuring the impact of mass transfers on the energy performance of building envelopes. This includes moisture diffusion in highly hygroscopic building materials as well as airflow and air leakage through the construction.



Experimental cell from partner institute CSTB Grenoble used for assessment of heat-air-moisture flows in buildings and constructions

Another aspect of the work is investigating the integration of solar energy into buildings, by modelling and prototyping innovative systems for thermal energy capture and storage as well as for solar cooling. Short term storage is done using sensible heat, while systems based on absorption are being investigated for long term storage and for solar cooling.

Different building performance simulation tools are used, chosen according to their own capabilities as well as the possibilities of interfacing with complementary software. The main tools are TRNSYS, EnergyPlus, Modelica/Dymola, together with Python, Matlab, EES, ANSYS-CFX and Comsol for some specific developments.



Prototypes of a long term energy storage system using absorption (left) and an Integral Collector Storage

CJH: What would you say is or are your (greatest) asset(s)? For instance, particular expertise, or specific lab equipment, or some key software development or personnel?

MW: Up to now the most visible INES' asset is the full scale experimental facility, called INCAs platform, that includes four experimental houses (same geometry and different construction) and four Passys cells with movable façades. The platform is run by CEA and supported by many collaborative projects between UdS and CEA.



General view of the INES experimental research facility



In addition, smaller scale original experimental facilities are being developed together with numerical models for the investigation of solar systems and modelling of heat-air-moisture transfers in buildings.



Two of the experimental houses at the INCA facility (above) and Passys cell at the facility (left)

CJH: Where do you obtain your funding?

MW: The situation is somewhat different for UdS-LOCIE and CEA. For UdS-LOCIE, a large part of the budget comes directly from the government. Moreover numerous research grants, awarded mainly by the French research agency (ANR), allow us to develop experimental facilities, hire PhD researchers, etc. Some additional sources of funding are direct contracts with industry, and some international collaborative projects, including EU calls. CEA focuses more on direct industrial projects funded by the French government and European projects.

CJH: Where do you expect your institution to be in 5 years and in 20 years time? Are you aiming for organic growth or are you actively seeking more expertise in a different area?

MW: I believe that building energy efficiency will continue to be one of the main topics in Savoie's research activities. More specifically we will continue to work on extending the scope of simulation tools by improving physical models for HAM transfers (heat-air-moisture models) and for solar energy storage and use in buildings, both by numerical simulation and experimental investigations.

Moreover we aim to develop the use of original mathematical methods to enhance building simulation. This includes (i) model reduction techniques for non-linear problems that have already been successfully applied in HAM simulation (ii) uncertainty studies and sensitivity analysis, including the impact of varying parameters, and (iii) optimisation techniques for finding optimal solutions but also for identifying the main characteristics of complex systems.

In the future we would like to promote international contacts and activities, and to attract colleagues from leading institutions throughout the world. For young researchers there are opportunities for doctoral scholarships and post-doctoral contracts. We should mention here also our new Masters program in English: Renewable Energies and Intelligent Systems (www.polytech.univ-savoie.fr/en/programs/masters/renewable-energies-and-intelligent-systems.html). Several options are also possible for senior researchers. Short fundings (1 or 2 months) can be obtained for stays as "visiting professors". Moreover the Université de

Savoie will soon offer an International Research Chair designed to welcome a high level international researcher for a period of 3 to 5 years. For further information please do not hesitate to contact monika.woloszyn@univ-savoie.fr.

CJH: One final question, Monika: Are you currently looking for national or international collaborations – and if yes, in what area/ what sort of expertise are you looking for?

MW: We are looking for international collaborations connected with our main topics:

- Characterization of the energy performance of existing buildings (building envelope as well as hvac systems as integrated into buildings).
- Thermal energy storage and global optimization of solar systems for buildings.

In addition, we are looking for expertise in the fields of Indoor Air Quality and ventilation to investigate integration in buildings of an innovative air-purification system, combining electro-filtration and adsorption, which is being developed at LOCIE.

CJH: Thank you Monika!

If you would like more information about Université de Savoie – LOCIE, INES and CEA, or are interested in collaboration or knowledge exchange please contact Monika Woloszyn or Etienne Wurtz:

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Interview with Yeonsook Heo

IBPSA Young Contributor award winner

Christina J Hopfe, Editor-in-Chief of *ibpsaNEWS*, interviews the recipient of IBPSA's 2013 Outstanding Young Contributor Award.

Christina Hopfe (CJH): Yeonsook, you received this year's IBPSA Outstanding Young Contributor Award. I am very pleased about this and would like to congratulate you wholeheartedly on your success. Having known you personally since 2006, I also know that you are one of the regular Building Simulation (BS) conference attendees. How did you enjoy this year's BS conference in Aix-le-Bains and Chambéry? Is there anything in particular that you would like to share with us from this year's experience?

Yeonsook Heo (YH): Attending IBPSA conferences has been a professionally rewarding and learning experience. As always, I very much enjoyed knowing more about ongoing research projects from presentations and having conversations with researchers across the world during this conference. Particularly, it was great to learn about new research initiatives during lunch sessions and briefly know about various methods used for a theme through mini-presentations. In addition, I personally appreciate receiving the prestigious award very much, and would like to thank Prof. Godfried Augenbroe, Dr. Ruchi Choudhary, and Dr. Ralph T. Muehleisen for their full support and inspiration in my professional career.

CJH: Your doctoral thesis that you have finalized in 2011 focussed on uncertainty analysis and risk conscious design.

Could you please elaborate what the major accomplishment in this approach has been and whether this relates to macro, micro and meso scale building simulation?

YH: In my doctoral thesis, *Bayesian Calibration of Building Energy Models for Energy Retrofit Decision-making under Uncertainty*, I developed a scalable, adaptable methodology that is suitable for large-scale retrofit analysis by enhancing the cost-effectiveness and objectivity of the modelling process. The methodology is based on normative models and Bayesian calibration. Normative models are light-weight quasi-steady state energy models that can scale up to large sets of buildings. In addition, normative models do not require modelling expertise since they follow a set of modelling rules stipulated in the standards that produce a standard measure for energy performance. Normative models are furthermore calibrated under a Bayesian approach such that the resulting calibrated models quantify uncertainties in the model. In addition, Bayesian calibration models can incorporate additional uncertainties coming from retrofit interventions to generate probabilistic predictions of retrofit performance. Probabilistic outputs can be straightforwardly translated to quantify risks of under-performance associated with retrofit interventions. In my thesis, this methodology was proven by case studies to correctly evaluate energy retrofit options across a portfolio and support risk-conscious decision-making by explicitly inspecting risks associated with each retrofit option. As a result, this method serves as the meso-scale building simulation framework for developing community-scale models and evaluating the impact of government policies associated with retrofits on energy reduction in cities.

CJH: In IBPSA's 2013 conference you presented a paper on The evaluation of calibration efficacy under different levels of uncertainty. Could you please comment on the challenges and difficulties you envisage in this approach and how you see this research evolving in the future?

YH: I see great potential for applying inverse methods, specifically Bayesian inference in my paper, not only for enhancing the reliability of calibrated models but also for enhancing our understanding of building performance by extracting available data. Indeed, there are various sources of sparse monitored data at different levels (e.g., monthly utility bills, submetered energy, and system-operation interval data). Hence, further research is needed on developing advanced calibration algorithms that can utilize an extensive set of measurement data at different time resolution. This research requires solid foundations in both building physics and statistics for integrating advanced statistical methods in the context of building performance.

“I see great potential for applying Bayesian inference for enhancing the reliability of calibrated models and our understanding of building performance”

CJH: Finally, I am very pleased to know that you are moving from the US to the UK to take up a position at Cambridge University and hopefully becoming a member of IBPSA-England very soon. Can you share with us what your plans are for the next couple of years?

YH: I look forward to working at the University of Cambridge in the UK. In Cambridge, I will continue to research on enhancing the scalability of retrofit analysis, extending the usability of calibration methods, and applying advanced statistical methods for large-scale data analysis. Working as a member of IBPSA-England will be a good opportunity for me to understand UK contexts better and identify problems or needs for future research. In addition, as a teacher I am excited to teach multidisciplinary courses in which students in architecture and engineering can build up methodological and practical foundations for formalizing design problems and analysing systems design.

CJH: Thank you, Yeonsook. ■

2013 IBPSA Fellows

Many engineering, scientific, and architecture societies have a grade of membership entitled “Fellow” that recognizes members who have attained distinction in their field and made substantial contributions to the related arts and sciences.

The IBPSA board established the grade of Fellow several years ago. This was followed by a number of calls for nominations. Nominations were submitted with careful justification, and were then approved by the board, culminating in the elevation of six members to the grade of Fellow in 2011. A further 18 new Fellowships have been awarded at BS2013.

We are pleased to introduce the 2013 class of new IBPSA Fellows:

Godfried Augenbroe

is Professor in Building Technology, Head of the Building Simulation Group
and Director of MSc and PhD studies in High Performance Building
at College of Architecture, Georgia Institute of Technology, Atlanta, USA
holds an MSc (cum laude) in building simulation from Delft University of Technology
in the Netherlands.



Godfried Augenbroe has a 30+ year track record of research into the modeling and simulation of buildings and assessment of their performance. He is internationally recognized in promoting professional use of building simulation, e.g. through the co-founding of the Dutch national building physics society and International Building Performance Simulation Association (IBPSA) in which he has also served as board member. Professor Augenbroe has supervised over 20 completed PhD theses and has published more than 100 peer-reviewed papers.

Jan Hensen

is Professor in Building Performance Simulation and Head of the Building Physics
and Services Unit
at Faculty of Architecture at Eindhoven University of Technology, Netherlands
and Full professor in Mechanical Engineering
at Czech Technical University in Prague, Czech Republic
holds a PhD in Building Science from Eindhoven University of Technology



Professor Hensen is one of the key actors in the building performance simulation community, with an international standing of the highest level. He is extremely well-respected in the allied fields of building services, building physics and architecture. His track record includes 16 PhD and over 45 MSc completions, more than 200 peer-reviewed papers and over 100 technical reports. Amongst his key accomplishments are the establishment of the Journal of Building Performance Simulation, for which he serves as editor, and the book on Building Performance Simulation for Design and Operation. He has also contributed much to the development of IBPSA as an Association.

Ardeshir Mahdavi

is University Professor and Director of the Department of Building Physics and Building Ecology
at Architecture at Vienna University of Technology, Vienna, Austria.
holds a PhD in Building Physics from Vienna University of Technology

Professor Mahdavi is very well known in the building simulation community. He has acted as the PI of a large number of scientific research projects pertaining to integrated computational design support systems, building automation, energy-efficient buildings, and user behavior. He has pioneered the application of simulation-based predictive building control and the introduction of human ecological reasoning in building science. He is a frequent keynote speaker at international scientific conferences and has authored over 400 publications in scientific conference proceedings and journals.



Daniel Fisher

is L. Andrew Maciula Professor and Interim Head
at School of Mechanical and Aerospace Engineering at Oklahoma State University, Stillwater, Oklahoma, USA.
holds a PhD in mechanical engineering from University of Illinois at Urbana Campaign

Professor Fisher has made significant contributions to the creation and development of EnergyPlus, as well as the BLAST program and the ASHRAE Load Calculation Toolkit. His experimental research has made important contributions to validation of building performance simulation models and provided needed data and correlation for such models. This experimental work has covered convective and radiative heat transfer in rooms, distribution of solar gains, performance of lighting heat gains, performance of air-source heat pumps, and ground-source heat pump systems.



Drury Crawley

is Director in Building Performance
at Bentley Systems, Washington DC, USA
holds a PhD in Mechanical Engineering from the University of Strathclyde

Dr. Crawley leads the Bentley Systems Building Performance group, developing tools for building energy and sustainability. He led DOE's Commercial Building Initiative – working to achieve cost-effective net-zero energy commercial buildings by 2025. He was also responsible for managing the U.S. Department of Energy's building energy software tools research and development activities. With more than 30 years of experience in buildings energy efficiency, renewable energy, and sustainability, he has worked in government research and standards development organizations, as well as building design, energy consulting, and engineering software companies.



Harunori Yoshida

is Emeritus Professor
at Faculty of Engineering, Department of Architecture, Okayama University of Science, Okayama, Japan
holds a BSc and MSc in Engineering from Kyoto University



Professor Yoshida is well known in the international building performance simulation field. His research focuses on optimization of the operation of building services in existing buildings. He developed many new simulation based methodologies, such as automatic fault detection of air distribution systems, air-conditioning load prediction used for thermal storage tank operation, total optimization of a heat source system, and others. He has also made fundamental contributions in the field of building science mainly related to air-conditioning load calculation. His unique computational approaches aimed at energy conservation in existing buildings have won him much acclaim. Apart from his academic duties and being very active in IBPSA-Japan, he is one of the key people in the Building Services Commissioning Association of Japan with the objective of promoting energy conservation in his country by means of building performance simulation.

Jean-Jacques Roux

is Full Professor and Director in Mechanical Engineering / energetics / civil engineering and acoustics
at INSA Lyon, France
holds a PhD and Habilitation in Civil Engineering from INSA Lyon



Professor Roux's research interests are modeling, simulation and model experimental validation, not only for energy, but also for airflows and moisture transfers. He has made significant contributions in establishing simplified models of heat transfers in two or three-dimensional configurations on solid mathematical basics: working on state model reduction techniques combined with finite volumes, finite elements and domain sub-structuration. In the past ten years he has extended his work to airflow simulation using novel mathematical approaches (based on Lattice-Boltzman methods) and on coupled hygro-thermal transfers. His work has been published in more than 50 articles in international journals (30 in the past 10 years), and a hundred papers in international conferences. He is principal author of two tools for energy simulation: CODYBA and SISLEY.

Jean Lebrun

is Emiritus Professor and Previous director of the Thermodynamics Laboratory/
Energy Systems Research Group
at Université de Liège, Liège, Belgium
holds a PhD in Engineering from Université de Liège



Jean Lebrun has had a long and prolific career in academia. He recently retired from his position as professor and head of the Laboratory of Thermodynamics at the University of Liège. Professor Lebrun is the author of more than 250 scientific papers. He directed numerous research projects including two ASHRAE projects on equipment simulation which

led to an ASHRAE HVAC toolkit. The System Simulation in Buildings international conference held every four years since 1982 became, under his chairmanship, an important event in the field of building simulation. Professor Lebrun was an inspiring teacher who trained several PhD students who are now carrying the tradition.

Jeff Haberl

is Professor, Associate Head for Research and Associate Director of the Energy Systems Laboratory
at Department of Architecture, Texas A&M University, College Station, Texas, USA
holds a PhD in Civil Engineering from the University of Colorado at Boulder



Professor Haberl is the author of over 200 technical papers and has made numerous contributions to industry handbooks. His work has focussed on existing buildings and use of building performance simulation to improve the operation and energy efficiency of these buildings. His work has included many contributions in the areas of measured building performance, data visualization, calibrated simulations, inverse modeling, and measurement and verification protocols.

Jeffrey Spitler

is Regents Professor and C.M. Leonard Professor
at School of Mechanical Engineering and Aerospace Engineering at Oklahoma State University, Stillwater, Oklahoma, USA
holds a PhD in Mechanical Engineering from the University of Illinois at Urbana-Campaign



Professor Spitler is best known for his research on ground source heat pump (GSHP) systems and building cooling and heating load calculations. His work on GSHP systems has included development of widely-used simulation-based design tools and now commonly-used models of ground heat exchangers and GSHP systems, along with experimental validation. His research in building cooling and heating load calculations has included development of simpler and more accurate methods now published by ASHRAE. He has published over 100 technical papers with several receiving awards from ASHRAE and CIBSE.

James Braun

is Herrick Professor of Engineering
at the School of Mechanical Engineering, Purdue University, West Lafayette, Indiana, USA
holds a PhD in Mechanical Engineering from the University of Wisconsin, Madison



Professor Braun is a prolific and highly-regarded researcher in the heating, ventilating, air-conditioning and refrigeration engineering field. His work has focussed on solar energy systems, design and optimal control of central cooling plants, use of building thermal mass to reduce energy consumption, thermal storage, and modelling of vapor compression cycles and components. This work has been published in over 250 technical papers, a textbook, and

four patents. Many of his research efforts in modeling and simulation have been brought to practice. These include several models for TRNSYS that are widely used today - for building loads (Types 19 and 56), cooling coils, cooling towers, chillers, and thermal storage. Dr Braun has also been involved in the development of interactive tools for quick assessment of energy retrofits for small commercial buildings.

Jon Hand

is Senior Research Officer
at Energy Systems Research Unit (ESRU) of the University of Strathclyde,
Glasgow, UK
holds a PhD in Mechanical Engineering from the University of Strathclyde

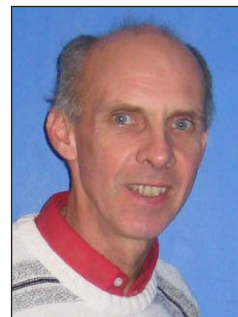


Jon Hand's research is driven by the evolution of tools that inject new information into design and research teams and the hope that this gives us that future buildings will be more comfortable and productive places to live and work. This involves wearing lots of 'different hats' e.g. energy consultant, trainer for PassivHaus practitioners, mentor to design and construction firms on working practices, quality assurance of other folks' models and software development (primarily in ESP-r).

Jon's main research contributions arise from a number of connected initiatives, which over a 15 - 20 year period have assisted design professionals to transfer building energy and environmental simulation technologies from the domain of specialists to routine use in practice, including consultancy support within ESRU for scores of simulation based assessments of projects, acting (variously) as project manager, simulation advisor, simulationist, quality assurance and report editor. Jon has also given unwavering support on software engineering issues to a growing international community of young researchers entering the field.

Kevin Lomas

is Professor of Building Simulation and Director, London-Loughborough Centre for Doctoral Research in
Energy Demand
at Loughborough University, Loughborough, UK.
holds a PhD in Geotechnics and a DSc in Building Simulation, Low Energy Design
and Sustainable Urban Environments from the University of Nottingham



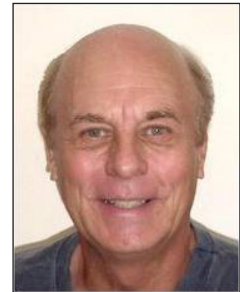
Throughout his career, Professor Lomas' work has been underpinned by the development and application of simulation programs and simpler models that describe the dynamic thermo-physical processes of heat and mass flow in buildings. His research has created new knowledge, contributed to national and international standards, enhanced the capability of practitioners to design energy efficient and comfortable buildings, contributed directly to the design of low-energy and architecturally significant buildings in a number of countries, and left a legacy of highly skilled researchers that continue to advance aspects of the research.

Professor Lomas' work has been published in 86 book chapters, refereed journals and conferences and, additionally, in around 59 other non-refereed publications, journals, conference proceedings and reports for professional institutions and national research funding bodies. Publications have been submitted to the last three UK Research Assessment Exercises.

Larry Degelman

is Professor Emeritus of Architecture
at Texas A&M University, College Station, Texas, USA
holds an MSc in Computer Simulation in Building Design from Pennsylvania State University

Larry Degelman is one of the key actors in the building performance simulation community in the US and worldwide, with an international standing of the highest level. He has made a tremendous contribution towards the development of IBPSA into the organisation it is today. He has supervised 50 PhD and MSc students and published over 110 papers. He has a long-term active role in the organisation that stretches back to the early 1990s; Larry Degelman was Secretary and Board Member of IBPSA from 1994-1997, the President of IBPSA from 1998-2000, the Newsletter Chairman and Board member of IBPSA from 1999-2010.



Michael Wetter

is Deputy Group Leader of the Simulation Research Group
at Lawrence Berkeley National Laboratory, Berkeley, California, USA
holds a PhD in Mechanical Engineering from the University of California at Berkeley

Although still relatively early in his career, Michael has already had a noticeable impact on the field of building performance simulation, most significantly in its application to building optimization. Michael is best known for the development of the GenOpt optimization shell, this having been used widely for academic research and by industry in real-world building design. It is a measure of the momentum of Michael's contribution to the field, that this software was developed and made available prior to completion of his PhD research. More recently, Michael has developed the Building Controls Virtual Test Bed (BCVTB), extending the capability of a number of established building performance simulation programs by allowing the modeling and simulation of novel systems and their operating strategies.



Although not strictly part of the criteria for promotion to Fellow, it is also worth noting that Michael is a committed member of IBPSA having made substantial contributions to the organization at both regional and international levels.

Paul Strachan

is Senior Lecturer
at Energy Systems Research Unit (ESRU) of the University of Strathclyde, Glasgow, UK
holds a PhD in Marine Technology from the University of Newcastle

Dr. Paul Strachan has contributed significantly to BPS through his research, through his ongoing development and support of ESP-r, by his many innovative efforts in applying BPS tools to building design, and in working diligently to transfer these tools to practice. His efforts to produce and assess high-quality data sets for empirically validating simulation models and tools have made a lasting contribution. He was Scientific Chair and Conference Co-Chair of Building Simulation 2009 in Glasgow and is a member of the editorial board of IBPSA's Journal of Building Performance Simulation.



Sanford (Sandy) Klein

is Ouweneel-Bascom Professor and Director of the Solar Energy Lab
at University of Wisconsin, Madison, Wisconsin, USA
holds a PhD in Mechanical Engineering from the University of Wisconsin - Madison
 and an honorary PhD from the Université de Liège

Professor Klein is the inventor and original author of the widely-used modular simulation application TRNSYS, the general engineering equation solver EES, the solar energy system design application F-Chart, and the finite element heat transfer program FEHT. These applications show a range of creativity and individual productivity unmatched in engineering software, all the more extraordinary given that much of this development has been done while he was also Ouweneel-Bascom Professor of Mechanical Engineering and Director of the Solar Energy Laboratory at the University of Wisconsin. In that capacity he supervised many students, received teaching awards, and generated a steady stream of academic papers and textbooks. Professor Klein is a Fellow of ASME, ASHRAE, and the American Solar Energy Society.



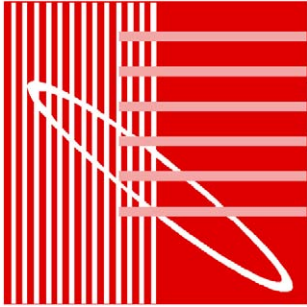
Yingxin Zhu

is Professor in Building Science
at The School of Architecture at Tsinghua University in Beijing, China
holds a PhD in HVAC system simulation from Tsinghua University

Prof. Yingxin Zhu has spent more than 20 years researching and teaching in the fields of sustainable building design, indoor thermal comfort and subway environment control. She is an Academy Fellow of ISIAQ (International Society of Indoor Air Quality and Climate), a Chinese representative on the IBPSA Board, and Chair of the China National Steering Committee for Education of Building Environment & Services Engineering. She has had a major impact on the development of building simulation research in China, and has earned the respect of the international scientific society.



Nominations for new IBPSA Fellows should be sent in the first instance to Pieter De Wilde, Chair of the Awards and fellows committee, at pieter.dewilde@plymouth.ac.uk. ■



Building Simulation 2017

Call for Proposals

The board of IBPSA is pleased to issue the following call for proposals from parties interested in hosting Building Simulation 2017. A complete proposal should be sent to the Conference Committee chairman, Paul Strachan (p.a.strachan@strath.ac.uk), no later than February 14, 2014. Discussions with Paul of potential proposals prior to the due date are strongly encouraged. The proposal should address the following items:

- proposed venue
- dates
- details of conference secretariat
- organization time line
- details of rooms for plenary sessions, parallel sessions and posters
- availability of free Wifi connections for participants
- detailed budget in local currency and in US dollars
- discussion of possibilities for sponsorship
- details of the conference presentation schedule (e.g. number of parallel and plenary sessions), publication of proceedings etc.
- details of accommodation, including costs, for delegates and students
- social events
- options for pre and post conference tours, software demos and courses
- options for program for accompanying persons
- plans for organization of an IBPSA Regional Affiliate Organization, if applicable
- involvement of existing or planned IBPSA Regional Affiliate(s)
- experience of organizing committee with IBPSA and with organizing similar conferences

To assist your decision there are several documents available from Paul (please email him for information):

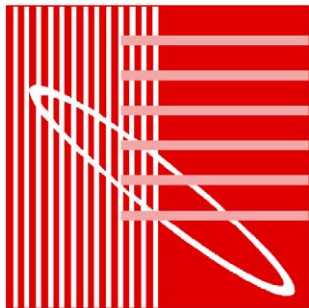
- The IBPSA Regionalization Guide (also available at www.ibpsa.org/IBPSA-Regionalization-Guide.pdf) describes IBPSA's regionalization plans: we schedule all of the Building Simulation conferences in regions with existing affiliates or regions that are starting a new affiliate organization. In a region currently without an affiliate, we will only consider holding the conference there if a regional affiliate organization will be in place by the time of the conference.
- Final reports for previous Building Simulation conferences, which include details of organization, finances (e.g. planned budget and actual expenses), post-conference surveys and other information useful to organizers of future Building Simulation conferences.
- A document on sponsorship containing suggestions regarding the exposure and benefits of Building Simulation sponsors.

- A recent memorandum of understanding serves as an example for the contract which will be agreed between IBPSA and the organizers of Building Simulation 2017.
- A budget template.

Proposals will be evaluated using the following criteria:

- Attractiveness and accessibility of location – is this location likely to attract delegates from around the world? (10%)
- Affordability of venue – is the combination of registration fee and accommodation costs likely to not be a hurdle to potential delegates? (In this respect, a range of accommodation types including student dorms or the like is a benefit.) (10%)
- Quality of conference plan and facilities – are the facilities and conference plan conducive to a well-run conference? (10%)
- Likelihood of financial success — will the conference financial plan likely lead to breaking even (at least.)? A financial plan that does not rely on unconfirmed sponsorships to break even is strongly preferred. (30%)
- Support of IBPSA goals – will choosing this proposal help draw new members into IBPSA (in new regions) or support membership in existing regions? (10%)
- Diversity of location - is this location sufficiently distant from recent conferences? (10%)
- Regional participation – is the proposal well-supported by volunteer effort from the regional affiliate and/or nearby regional affiliates? (10%)
- Experience of members of the organizing committee with IBPSA, and with organizing IBPSA affiliate conferences or conferences similar to Building Simulation. (10%)

The final decision regarding the location of Building Simulation 2017 resides with the IBPSA Board of Directors and will be made following a thorough evaluation of all submitted proposals. ■



IBPSA Elmer Morrissey memorial travel scholarship

The IBPSA board and University College Cork (UCC) Ireland would like to jointly announce the Elmer Morrissey memorial travel scholarship.

The scholarship is being funded through the IBPSA board to a value of \$1,000 and managed by the UCC Foundation for the year 2014 only. It is envisaged that UCC in conjunction with many of Elmer's colleagues and friends will continue to seek funding each year in association with UCC and that the scholarship will continue to be administered by UCC in association with IBPSA.



Elmer Morrissey

Dr. Elmer Morrissey tragically lost his life at sea in a boating accident near the Farallon Islands off the coast of San Francisco on 14 April 2012. Elmer was a first class honours Civil Engineering graduate of UCC (2002) and completed his PhD (2006) at UCC and LBNL while being jointly supervised by colleagues at UCC (Dr. Marcus Keane) and LBNL (Dr. Vladamir Bazjanac). Elmer made many valued contributions to the building simulation community in his capacity as both an academic and an engineering professional as evidenced by his published work at the Simbuild (2004 and 2008) and IBPSA (2005 and 2011) conferences and in peer reviewed journals such as Energy & Buildings (2006, 2013). Elmer was considered a rising star in building energy simulation as a researcher at Lawrence Berkeley National Laboratories (LBNL, 2011-2012).

The aim of this travel scholarship is to support early stage researchers to travel and conduct research internationally in the field of building simulation.

For more information about this travel fund, please contact Marcus Keane at marcus.keane@nuigalway.ie . ■

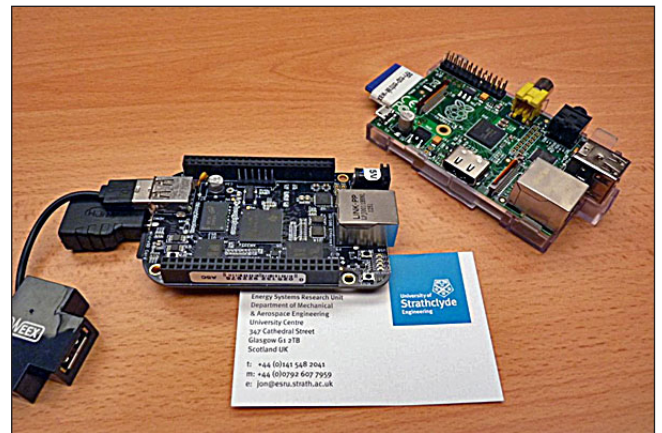
Software news

Business card simulation

Jon Hand, ESRU, University of Strathclyde

Computer servers have their fan-boys in the simulation community. And yet much of the work of creating and evolving simulation models takes a fraction of the computing power most machines deliver and many real-world simulation issues can be implemented in focused models.

The Energy Systems Research Unit (ESRU) in Glasgow are exploring a totally different scale of computing and ported ESP-r to work on ARM-based business card sized computers such as the Raspberry Pi and BeagleBone Black (BBB). Participants in the recent IBPSA conference might have noticed ESRU staff walking around with a Pi (see image). There are new platforms emerging every month which draw <5W, are silent, cost ~30-75 Dollars and carry their OS on SDHC cards.



ESRU is running ESP-r on the Raspberry Pi

The port requires tweaks to the initial hardware setup and build process as well as using alternative header files that constrain model geometric, CFD and flow network complexity. Otherwise ARM deployments use the same development tool chain and feature set as the Linux/OSX/Windows versions. Folk used to Linux and/or OSX can just sit down and get to work.

Blazing fast - not really. A 1.8 minute assessment (28 days at 15 minute timesteps for a 13 zone 1890s apartment) on an Intel Quad Core takes 18 minutes on a BBB and 28 on a Pi. Are you likely to be generating 2GB results sets - not so often. Coupled transient CFD? Who knows, but we are excited about the option to take a dozen to a training workshop and plug them into local keyboards, mice and monitors and bring numerical assessments to a new audience or hand them out to students for project work.

Contact Jon Hand at jon@esru.strath.ac.uk for instructions on setting up ARM based systems or to enquire about pre-configured disk images or SDHC cards with an ESP-r distribution, source and compiling tool chain. ■

New version of IES Virtual Environment released: VE 2013

In June this year IES released a new version of its Virtual Environment software suite, VE 2013, orientated towards enhancing the user experience for its existing customers. VE 2013 has many enhancements to its core modules. Highlights include:

ApacheSim

- New parametric batch processor tool
- New ability to colour visualise model inputs on a 3D model

MacroFlo

- More flexible positioning of bulk airflow arrows on the 3D model

VE-Gaia

- Significantly enhanced visuals for the solar image and video outputs
- New ability to calculate annual solar exposure on a facade

ModelIt

- New Tabular Edit facility for model level variables
- New master template capability
- New mapping functionality for setting site location and choosing weather files

ApacheHVAC

- Interface improved to allow for easy drag & drop onto connectors
- New “Find Node” search functionality
- Variable volume fan set up enhanced
- New autosizing capability for Radiators, Chilled Ceilings and Fans

VE-Navigator for ASHRAE 90.1 (LEED Energy)

- New utility which provides rule-based guidance on determining baseline HVAC system
- Ability to import all baseline scenarios into proposed building constructions
- Increased simulation flexibility

For full details please read the [IES New Features Document](#).

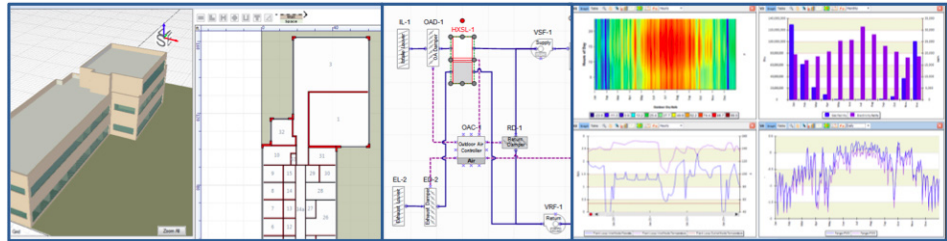
Training Events

IES have a number of upcoming training events in the UK, USA and Australia. These include:

- 16 Oct 2013, Sydney – **Virtual Environment Training**
- 18 Nov 2013, Philadelphia – **Virtual Environment Training**
- 19 Nov 2013, London – **Virtual Environment Training**
- 3 Dec 2013, Watford - **Environmental Impact & Cost Analysis Workshop** ■

Simergy: a free graphical user interface for EnergyPlus

Simergy v1.0, released in July, is a free graphical user interface (GUI) from Lawrence Berkeley National Laboratory that enables DOE's whole-building energy modeling engine EnergyPlus to be used more easily and effectively. Simergy helps meet the advanced building energy modeling needs of architects, mechanical engineers, simulation consultants, energy analysts and sustainability consultants.



Simergy can be downloaded from <http://simergy.lbl.gov>. The registration process is separate from the EnergyPlus registration process, though if you aren't already registered for EnergyPlus, you can download it with Simergy.

Simergy features include:

- The ability to manage and evaluate design alternatives.
- Versatile geometry creation capabilities that include: standard shapes, extruded floor plans from 2-D CAD and 3-D import from Building Information Models (BIM) using industry-based standard schemas such as IFC-Design Concept BIM and Green Building XML (gbXML).
- Libraries of construction materials, default operating schedules and HVAC equipment and templates for both conventional and low-energy HVAC systems.
- Drag-and-drop HVAC schematic editing that can be used to both customize standard templates and to create innovative HVAC designs from scratch.
- Customized summary reports and interactive results visualization that allow simulation results to be explored individually in different levels of detail and across multiple design alternatives.

Simergy supports both SI and IP units. Even though the default when you first install it is IP, it is easy to change the default to SI so that it opens in SI thereafter.

A series of video tutorials (<http://simergy.lbl.gov/video-tutorials.html>) and guides to Simergy's structure and capabilities is available on the Simergy website at <http://simergy.lbl.gov>.

Simergy is funded by a private-public partnership between DOE's BTO, the California Energy Commission, Infosys, Trane, Hydro-Québec and the Northwest Energy Efficiency Alliance. It is being developed by a team led by Lawrence Berkeley National Laboratory (Berkeley Lab), supported by software developer Digital Alchemy. ■

News from IBPSA affiliates

IBPSA affiliates are asked to submit a report to the IBPSA Board each year to keep Board members informed about their activities and membership. These are too detailed to include in *ibpsaNEWS*, so affiliates have been asked to make their latest annual report available through their web sites, and this section includes only selected, recent news. Other news from affiliates may be available from their websites; the URLs for these are available on the IBPSA Central web site at www.ibpsa.org/?page_id=29.

IBPSA-Argentina

We are pleased to present the IBPSA-Argentina Newsletter.

Organizational Structure

A formal application to set up IBPSA-Argentina was submitted in April 2013, after more than 12 months of meeting with possible members and organizations around the country. Approval was given in June 2013. IBPSA-Argentina operates as a network of volunteers; its board and members hold meetings every month in Buenos Aires and online with members from other provinces or abroad.

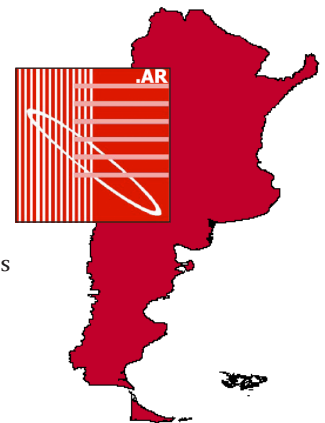
Membership

In September 2013 IBPSA-Argentina had 14 official members and a mailing list of more than 60 potential members. One of the organization's principal goals for the next year is to expand membership amongst leading academics, institutions and private organizations.

Membership fees are voluntary. IBPSA will make finding sponsors a priority over the next year.

Activities

- Nine meetings have been held to date to develop and formalise the IBPSA-Argentina constitution.
- In July, IBPSA-Argentina hosted a webinar in which Dr Mojtaba Navvab presented his recent work on lighting performance simulation. The webinar was held at the University of Buenos Aires and available worldwide.
- In August 2013 IBPSA-Argentina participated in a workshop on *Building energy modeling during early design* held at the first Biennial of the Faculty of Architecture and Design of the University of Buenos Aires (FADU-UBA).
- Javier Nuñez, Board Member, is coordinating a postgraduate diploma in *BIM – New techniques in project delivery* at the University of Buenos Aires Faculty of Architecture and Design. The course has been running since August and includes two sessions dedicated to building performance simulation. Students will work on a case study and will be taught using commercial energy simulation software.



Mojtaba Navvab presenting his webinar



Case study for BIM postgraduate Diploma

- The Argentina Green Building Council (AGBC) invited IBPSA-Argentina directors to present the organization at one of their monthly Sustainable Breakfast meetings. This meeting was held at the American Club of Buenos Aires and many members of the AGBC attended. The meeting was an excellent opportunity to inform a broad audience about the organization's goals and objectives.
- On September 4th and 5th, the treasurer and the general secretary of IBPSA-Argentina (who are also members of the Argentina GBC) took part in the South American Green Building Council Meeting, in the framework of the International Round Table. The purpose of this meeting was to discuss market and technical barriers in the implementation of the LEED standard in South American countries. One of the topics was the way building performance simulation is carried out. Members of IBPSA-Chile have shared valuable insights, particularly in the way Chilean consultants practice building simulation. Instead of waiting for the HVAC, lighting and exterior glass information from architects (which is often delivered too late in the process), once the modeler has access to the preliminary envelope, he develops an early model, suggesting HVAC systems, lighting equipment and glass types. This shortens design time and helps the design team to focus better on a technical solution which will meet their architectural goals.



South America Green Building Council Meeting – International Round Table in Chile.

The meeting served to strengthen the ties between IBPSA-Chile and IBPSA-Argentina, and foster further communication and collaboration in future events.

- In October 2013 members of the board will give a presentation on IBPSA-Argentina at the conference organized by the Argentina Association of Renewable Energy and Environment (ASADES). This is the biggest academic event in the country related to building performance.

Website status

Www.IBPSA.com.ar is up and running, as are the email accounts for the chapter members. The last update was in June 2013. A web master is in charge of maintaining the website. The link on IBPSA's affiliate page is also up to date. A LinkedIn discussion group was created and linked to the website.

Cooperation with other organizations

IBPSA-Argentina has initiated the development of relationships with the following institutions:

Universities:

- University of Buenos Aires
- National Technological University – Tucuman (UTN Tucuman)
- National university of San Juan – UNSJ
- National university of Salta - UNSA

Other Organizations:

- CONICET
- ASADES
- Argentina Green Building Council
- IBPSA-Chile
- IBPSA-Brazil. ■

IBPSA-Australasia

Dr Paul Bannister

The Australasian Affiliate is still recovering from the success of the April simulation workshop held in Melbourne with AIRAH. Around 70 people attended, and the feedback was very positive, with the education-based theme of the workshop being very popular. The workshop included a number of presentations on aspects of simulation practice as well as forums on the simulation harmonisation initiative launched at BS2011, and simulation education. An important outcome from the workshop was the agreement that more needed to be done towards the generation of quality training materials for simulation, which IBPSA-Australasia and AIRAH are going to follow up jointly. It is hoped that the simulation workshop will become a regular feature of the local calendar.

IBPSA-Australasia also achieved an important administrative milestone in August when it became an incorporated association, making the organisation official at last. This activity has been running in the background for nearly 2 years, so it is a relief to have it complete finally. It didn't help that the first time we received our certificate of incorporation the word "international" had been misspelled as "interational" which we are hoping is not a judgement on the profession, and the second time they spelled my name wrong.....

The Australasian affiliate also managed to get nearly 10 members to Aix-les-Bains for the BS2013 conference with several papers and posters, and contributed to the IBPSA Board and committee meetings held at the same time. ■

IBPSA-Netherlands

One of Hugo Hens' and Dirk Saelens' PhD students, Wout Parys, successfully completed his PhD in April 2013 on the cost optimization of cellular office buildings based on building energy simulation.

The overall aims of the research were to define the economically optimum office building configuration for a given cellular office building and to quantify the costs of measures taken to lower the energy use beyond this optimum. The scope of the research was limited to medium-sized cellular office buildings in a temperate climate.

A bi-dimensional optimization was performed to establish minimum net present cost from a micro-economic viewpoint and minimum annual operating primary energy use. The optimization variables were the building envelope properties, the lighting system properties and the selection of HVAC system. The primary energy use considered included heating, cooling, ventilation and associated auxiliary and lighting energy use, all calculated with dynamic simulations. An empirical, building specific model for the building use incorporating adaptive behaviour was used to establish internal boundary conditions for the energy calculations. Passive cooling through night ventilation and window operation was included as an option in the optimization process, and the building design requirements for this determined using an extensive uncertainty analysis. The results showed that the minimum net present cost is found for building designs with an average U-value of 0.60 W/m²K, together with measures to limit the solar heat gains. Daylighting, decreasing the average U-value to 0.35 W/m²K and increasing air tightness were shown to significantly lower energy use at a limited additional cost.

Wout Parys' thesis and viva presentation are available at <https://lirias.kuleuven.be/handle/123456789/394938> and https://lirias.kuleuven.be/bitstream/123456789/394938/1/PhD_WoutParys_2013.pdf respectively. ■

IBPSA-Nordic

General Meeting and New Board for IBPSA-Nordic

The general membership meeting of IBPSA-Nordic took place on 19 September 2013 at Lund University, Sweden. The new board elected for the next two years are:

President: Ala Hasan, VTT Technical Research Centre of Finland
Vice- President: Jørgen Erik Christensen, Technical University of Denmark
Treasurer: Åke Blomsterberg, Lund Institute of Technology, Sweden
Secretary: Matthias Haase, Norwegian University of Science and Technology
Kai Sirén, Aalto University, Finland
Pekka Tuomaala, VTT Technical Research Centre of Finland
Rasmus Jensen, Aalborg University, Denmark
Kim B. Wittchen, Danish Building Research Institute
Ivo Martinac, Royal Institute of Technology, Sweden
Patrik Rohdin, Linköping University, Sweden
Vojislav Novakovic, Norwegian University of Science and Technology
Ida Bryn, Erichsen & Horgen AS, Norway

IBPSA-Nordic Seminar 2013

IBPSA-Nordic held a seminar on building performance simulation on 19-20 September 2013 at Lund University, Sweden.

The seminar opened at 16:00 on 19 September with a two-hour session about Building Simulation Teaching in Nordic Universities. The second day was devoted to presentations, most of them by young researchers — Master and postgraduate degree students, and postdoctoral researchers.

The seminar programme and presentations are available at www.ibpsa-nordic.org/events.php.



IBPSA-Nordic and Equa Simulation Finland Seminar 2013

Equa Simulation Finland Oy held its annual seminar in collaboration with IBPSA-Nordic on 8 October 2013 in Innopoli II, Espoo, Finland. The topic this year was new developments in BIM and its integration with building simulation. The programme included presentations by Kymdata Oy, Datacubist Finland, VTT and Equa Simulation-Finland. ■

IBPSA-Poland

Special sessions at the XIV Polish Conference on Science & Technology Building Physics in Theory and Practice

IBPSA-Poland organised two special sessions at the XIV Polish Conference on Science and Technology Building Physics in Theory and Practice, held in Słok (near Łódź) on 18-20 June 2013. The conference focused on the review and evaluation of research methods and numerical models, and on new material and technological solutions in the built environment, with particular emphasis on energy performance simulation in sustainable building design. It aimed to present academics and practitioners with new ideas, and to encourage the exchange of ideas.

The papers presented at IBPSA-Poland's sessions were:

Session 1: Building Energy Performance Simulation

High performance interior insulation system Stotherm In Aevero, G. Rudolph
Temperature and humidity process accuracy in a single family house in Poland,
J Rucinska, B. Zawada

Simulation of humidity based demand controlled hybrid ventilation, M.
Mijakowski, J. Sowa, P. Narowski

Effect of occupancy profiles on efficiency of double-skin facade, A.
Machniewicz, D. Knera, D. Heim

Application of components with regulated solar transmittance and its effect on efficiency of double-skin facade,
D. Knera, A. Machniewicz, D. Heim

Acoustic modification of manufacturing room according to the requirements of voice alarm systems, M.
Jablonski, K. Wisniewski



Session 2: Modelling of physical processes

Thermoelastic response in infinite hollow cylinder with longitudinally graded material properties, P. Ostrowski.,
A. Radzikowska

Modelling of conduction transfer function for typical thermal bridges identified in BIM data, P. Narowski, J.
Stasierski, M. Mijakowski, J. Sowa

*The analysis of technical and exploitation requirements for buildings supplied from centralized heat energy
sources*, P. Ziembicki, A. Weglarz, M. Klimczak

A comparison of computations for k-ε profile modifications and wind tunnel test on rectangular prism, P.
Jaminska, T. Lipecski, E. Błazik-Borowa

Verification of CFD turbulence model used to simulate an air curtain, G. Krajewski

Natural ventilation in a road tunnel in a fire - numerical analysis, G. Sztarbała ■

IBPSA-USA

IBPSA-USA Meetings

IBPSA-USA held its 2013 Annual Meeting on June 22, 2013 in Denver Colorado. 95 people attended — a new high. President Shanta Tucker opened the meeting and introduced three short pre-dinner talks:

- Maurya McClintock and Chris Green from the American Institute of Architects gave a brief presentation to spur collaboration between AIA and IBPSA-USA to enhance the effectiveness of building modeling in design practices, particularly through new educational methods and venues.
- John Kennedy discussed Autodesk's activities in light of growing demand for building performance analyses and growing emphasis on Building Information Modeling (BIM). Some of the highlights included new Revit features to enhance BIM modeling, new illuminance rendering capabilities, and a new API for Green Building Studio.
- Gregor Henze and Jim Braun reported on the Intelligent Building Operation meeting held during the previous days in Boulder, Colorado. 130 participants gathered to discuss Model Predictive Control (MPC) including identification of the barriers and key applications.

General announcements and social hour followed. During the business meeting the organization's financial status

was presented, as well as updates pertaining to the joint 2014 ASHRAE/IBPSA-USA Building Simulation Conference (see below). Erik Kolderup discussed the new membership structure and potential benefits for dues-paying members. Erik and Chris Balbach reviewed activities by the IBPSA-USA chapters.

During dinner, Per Sahlin of EQUA Simulation AB gave a presentation on *Large-Scale Building and System Models on Parallel Hardware* that described methods used to reduce simulation time for large equation-based models by performing certain calculations in parallel paths, or by simulating portions of a model and then combining the results. The talk also reviewed some example applications using IDA/ICE modeling software.



Per Sahlin speaks to the June IBPSA-USA meeting in Denver, Colorado

The next IBPSA-USA meeting will be held January 18th, 2014 in New York City. Details will be available on www.ibpsa.us.

2014 ASHRAE/IBPSA-USA Building Simulation Conference

On September 8-12, 2014, ASHRAE and IBPSA-USA will jointly host a conference at the Marriott Buckhead Hotel and Conference Center in Atlanta, Georgia. This conference merges the IBPSA-USA SimBuild and ASHRAE Energy Modeling Conferences; full details are on [page 17](#) in *Forthcoming events*.

Chapter Activity

IBPSA-USA local groups continue to flourish. Chapters are active or in formation in at least 12 U.S. cities. Events during September, 2013 include:

- Chicago convened a kick-off meeting to brainstorm about activities and educational development.
- San Francisco and New York held a joint web meeting with more than 100 people connected.
- In Boston, about 50 enthusiastic members got together to meet incoming chapter officers and hear reports on the recent BS2013 conference in Chambéry, France. See <http://ibpsa-boston.com/>

Many chapter events are webcast, so world-wide participation is encouraged. A full list of chapters is maintained at www.ibpsa.us/chapters.shtml.

MSc thesis on the origins of analysis methods in energy simulation programs

Sukjoon Oh, a PhD Student at the Energy Systems Laboratory, Texas A&M University, has recently completed an MSc thesis on the origins of analysis methods in most widely-used energy simulation programs in the U.S. He studied and compared the origins of whole-building simulation, solar energy simulation, and lighting and daylighting simulation programs, categorizing them by time period, by specific analysis method, by specific simulation program, and by organization or funding. The results should contribute to better understanding of the capabilities of the simulation programs and help make simulation more accurate. The abstract says:

Current designs of high performance buildings utilize hourly building energy simulations of complex, interacting systems. Such simulations need to quantify the benefits of numerous features including: thermal mass, HVAC systems and, in some cases, special features such as active and passive solar systems, photovoltaic systems, and lighting and daylighting systems. Unfortunately, many high performance buildings today do not perform the way they were simulated. One potential reason for this discrepancy is that designers using the simulation programs do not understand the analysis methods that the programs are based on and therefore they may have unreasonable expectations about the system performance or use.

The purpose of this study is to trace the origins of a variety of simulation programs and the analysis methods used in the programs to analyze high performance buildings in the United States. Such an analysis is important to better understand the capabilities of the simulation programs so they can be used more accurately to simulate the performance of an intended design. The goal of this study is to help explain the origins of the analysis methods used in whole-building energy simulation, solar system analysis simulation or design, and lighting and daylighting analysis simulation programs. A comprehensive history diagram or genealogy chart, which resolves discrepancies between the diagrams of previous studies, has been provided to support the explanations for the above mentioned simulation programs.

The thesis is available at http://esl.tamu.edu/docs/publications/thesis_dissertations/ESL-TH-13-08-01.pdf . ■

Building Performance Simulation for Design and Operation

Jan L.M. Hensen and Roberto Lamberts

Effective building performance simulation can reduce the environmental impact of the built environment, improve indoor quality and productivity, and facilitate future innovation and technological progress in construction. It draws on many disciplines, including physics, mathematics, material science, biophysics and human behavioural, environmental and computational sciences. The discipline itself is continuously evolving and maturing, and improvements in model robustness and fidelity are constantly being made. This has sparked a new agenda focusing on the effectiveness of simulation in building life-cycle processes.

Building Performance Simulation for Design and Operation begins with an introduction to the concepts of performance indicators and targets, followed by a discussion on the role of building simulation in performance-based building design and operation. This sets the ground for in-depth discussion of performance prediction for energy demand, indoor environmental quality (including thermal, visual, indoor air quality and moisture phenomena), HVAC and renewable system performance, urban level modelling, building operational optimization and automation.

Produced in cooperation with the International Building Performance Simulation Association (IBPSA), and featuring contributions from fourteen internationally recognised experts in this field, this book provides a unique and comprehensive overview of building performance simulation for the complete building life-cycle from conception to demolition. It is primarily intended for advanced students in building services engineering, and in architectural, environmental or mechanical engineering; and will be useful for building and systems designers and operators.

Selected Table of Contents

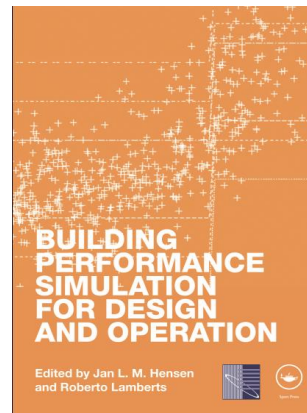
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Jan L. M. Hensen (Ph.D. & M.S., Eindhoven University of Technology) has his background in building physics and mechanical engineering. His professional interest is performance-based design in the interdisciplinary area of building physics, indoor environment and building systems. His teaching and research focuses on the development and application of computational building performance modelling and simulation for high performance.

Roberto Lamberts is a Professor in Construction at the Department of Civil Engineering of the Federal University of Santa Catarina, Brazil. He is also currently a board member of the IBPSA, Vice-President of the Brazilian Session and Counsellor of the Brazilian Council for Sustainable Buildings.



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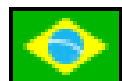
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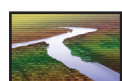
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For additional information about IBPSA, please visit the Association's web site at www.ibpsa.org. For information on joining, contact your nearest regional affiliate.

IBPSA's mailing list has been consolidated into another listserver known as BLDG-SIM, which is a mailing list for users of building energy simulation programs worldwide, including weather data and other software support resources. To **subscribe** to BLDG-SIM, to unsubscribe or to change your subscriber details, use the online forms at <http://lists.onebuilding.org/listinfo.cgi/bldg-sim-onebuilding.org>.

To post a message to all members, send email to bldg-sim@lists.onebuilding.org.

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