

# BS 2019

## Notes from an impressive conference

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*Christina J Hopfe with information from Vincenzo Corrado and Andrea Gasparella, and with photographs from the conference organizers and Christina Hopfe*

IBPSA's 16th International Conference and Exhibition was held at the Angelicum Pontifical University of St. Thomas Aquinas in Rome, Italy on 2 - 4 September 2019. A phenomenal 912 people attended, making it the Building Simulation conference with the highest attendance so far.

It also exceeded previous conferences in numbers of events and papers, with 5 plenary sessions (4 keynote speeches + 1 plenary panel), 130 technical sessions (7% panels, 6% case studies, 87% research papers), 47 case studies sessions, and 8 panel discussions. In total 660 research papers were presented, 461 with full oral presentations and 199 short oral presentations and poster presentation.

BS 2019 was hosted by IBPSA Italy. Established in 2011 and an active chapter with 170 members, IBPSA Italy has been running the yearly building simulation applications BSA conference since 2013.

The conference began with a welcome cocktail in the Angelicum courtyard on Sunday evening, accompanied by live music.



### Day 1

The first full day opened with a welcome from the organisers Vincenzo Corrado (conference chair) and Andrea Gasparella (conference co-chair), with Francesco Asdrubali (secretary) providing information on the conference and the venue.

The welcome address was given by IBPSA's president Lori McElroy who introduced the organisation and its mission. Further presentations were given by invited representatives from the Federation of European Heating, Ventilation and Air Conditioning Associations (REHVA), by REHVA vice president, Catalin Lungu; from the International Energy Agency's Energy in Buildings and Communities Programme (IEA EBC) Executive Committee Vice Chair Paul Ruyssevelt; the International Energy Agency's Solar Heating and Cooling Technology Collaboration Programme (IEA SHC TCP) and TCP Ex Committee member Alessandra Scognamiglio.

To attract the newer generation of building performance simulationists, the conference had three competitions on offer this year: the Student Modelling Competition, the Best Student Paper, and the Best Poster Award. The results can be found later in this article.

The first keynote was given by Yuguo Li, from the University of Hong Kong. Yuguo Li presented his work on simulating winds and thermal environment at city scale, identifying the difference between western and Asian

cities, notably open low rise and high rise, as well as dense high-rise cities. He divided his talk into three topics: city thermal environments; city winds; and heat/ moisture domes. It was a fantastic opening keynote and no one will forget his use of candle clusters and plumes to illustrate urban scale heat plumes, and the large scale convergence phenomenon of densely clustered heat sources.

(Photo, right)

An important event on day 1 was the student modelling competition, which attracted 12 entries. The brief was to use computer simulation to propose a retrofit design for a mixed-use building in Rome, Italy. The primary goal was to optimize performance whilst complying with architectural constraints. The competition committee (photo, right) shortlisted two teams and one individual to present their work and receive complimentary registration to BS2019. The winners were announced on the final day, and given copies of IBPSA's two books, *Building Performance Analysis* by Pieter de Wilde (kindly offered by Wiley) and the expanded second edition of *Building Performance Simulation for Design and Operation* edited by Jan Hensen and Roberto Lamberts (kindly offered by Routledge).

The second keynote speaker on day 1 was Christoph Reinhart, from MIT, US who gave an engaging and timely presentation on the topic of "digital worlds for analogue lives - building performance simulation in support of urban development" (photo, right). Christoph talked about how BPS can help address the world's most pressing problems: climate change, population growth, and societal inequality.

In the evening, participants were invited to the church of San Martino ai Monti for a concert, followed by the conference banquet. On this occasion, participation in a building simulation event crossed the 1000 threshold for the first time in history!

## Day 2

The second day commenced with the third keynote speaker, Ardeshir Mahdavi, from TU Vienna in Austria (photo, right). His keynote on "world simulation: thoughts on global boundary condition", drew analogies from the tale of two rabbits: (1) deployment of building simulation leads to optimal energy / environmental performance; (2) improving building performance offers a solution to global environmental problems. His thought-provoking lecture left us with ambiguous feelings similar to those he quoted from the famous Italian engineer Enrico Fermi "Before I came here, I was confused about this subject. Having listened to your lecture, I am still confused - but on a higher level."

Following this, IBPSA announced its new fellows and awardees.

## Day 3

The third and final day started with keynote speaker Susan Ubbelohde from the University of California, Berkeley (photo, right), on "Simulation in Practice: a wicked problem", which she defined as a problem that is difficult to define and inherently unsolvable. She quoted the philosopher Ludwig Wittgenstein who referred to his own subject as "nothing compared to the difficulty of being a good architect".



The conference ended with a plenary panel before the final closing ceremony followed by an Italian wine and cheese tasting event.

With 690 papers having been presented across 13 parallel sessions over 3 days, this was the largest conference on building simulation in the world. BS2019 has left us all deeply impressed by the volume and quality of the presentations, workshops, and posters which it generated.

During the opening ceremony President Lori McElroy confessed that her first BS conference was in 1997 in Prague and that since then she had attended every BS conference. At the closing ceremony she asked all those whose first conference it was to stand-up and to only sit down if they would not consider attending another one again - with a quick-witted Scottish 'don't you dare' to those who contemplated sitting down; we will see in 2021 if IBPSA NVL will be able to top the success of this year's conference. *Photos above right, IBPSA president Lori McElroy with conference chairs Vincenzo (on the right), Andrea (middle) and scientific conference chair Livio Mazzarella (on the left), and right, announcing BS 2021.*



### Some statistics

	Research Papers	Case Studies
Building acoustics	10	0
Building Information Modelling (BIM)	20	4
Building physics	51	4
CFD and air flow	36	5
Commissioning and control	20	2
Daylighting and lighting	39	6
Developments in simulation	46	4
Education	10	2
Energy storage	19	0
Heating, Ventilation and Air Conditioning	41	6
Human behaviour	41	0
Indoor Environmental Quality (IEQ)	20	1
New software development	23	1
Optimization	52	10
Simulation at urban scale	88	4
Simulation to support regulations	35	3
Simulation vs reality	45	12
Solar systems	15	0
Validation, calibration and uncertainty	31	1
Weather	16	0
Windows	12	1
Zero Energy Buildings (ZEB)	22	8

All the papers from Building Simulation 2019 will shortly be available online at [www.ibpsa.org](http://www.ibpsa.org).

## More scenes from the conference

Top row: left, a packed conference hall; centre and right, the concert on day 1

Middle row: left, IBPSA Italy and conference organisers on day 2; centre, Veronica Soebarto introducing the final keynote speaker on day 3; right, setting the scene for BS 2021

Bottom row: relaxing with drinks after a stimulating conference



Photographs taken during the conference by conference staff can be found at <http://buildingsimulation2019.org/conference-photographs>.

## IBPSA Student Modelling Competition



◀ Winner

Highly commended ▶



Tareq Abuimara, Luminita Dumitrascu, Michael Gutland, Larissa Ide, Adrian Soble, Carleton University, Canada

Elena Verticchio, La Sapienza University of Rome, Italy (on the left) and Clara Ceccolini, Nicola Franzoi, Pietro Malavolta, Silvia Ricciuti, Free University of Bolzano, Italy