Preface

In recent years, Building Simulation has been confirmed as the technique based on computer calculation to estimate either the energy or the non-energy performance of buildings, building components and systems, considering in particular its detailed variability in time.

In the past, most of the efforts were put into improving the detail and increasing the reliability of the results and the capability of describing the behavior of the building more realistically. In this respect, validation has been one of the major concerns of the building simulation tool. The main aim of simulation was to understand better the behavior of some specific processes, their interaction and the behavior of the building. Modelling was particularly useful to compensate for missing experimental data and to overcome the impossibility of obtaining enough experimental data or any data at all, due to the complexity of the investigated system, the slow dynamic or long period of time. Starting from very specific aspects or components, BS has progressively included, typically with a modular approach, the whole building or even the urban scale.

In recent years, building simulation has increasingly taken advantage of the tremendous growth in the availability of computational capacity, thanks to new processors, parallel calculation, cloud computing, etc., and has opened new perspectives and uses. The enhancement of the level of detail, the extension of the size and application range of the domain of investigation and the increase in the level of accuracy and generality of the results have all been established as mainstream focal points. In parallel, the diffusion of calculation capacity has awoken the interest of practitioners and professionals in new practical applications.
These trends also characterized the second IBPSA-Italy conference, which took place for the second time at the Free University of Bozen/Bolzano from 4 to 6 February 2015. Almost 100 attendees, 198 authors, 67 presentations, and 4 keynote speakers confirmed not only the interest in building simulation, but also the relevance and coherence of the above focuses. In particular, four sections were devoted to the detailed modelling of phenomena and components (advanced modelling, solar radiation, energy systems and envelope modelling), three to the integrated and non-energy performance analysis (lighting and user behavior), three to the optimization techniques for high performance buildings and retrofit, and two to the development and validation of new tools.
The participation of authors and delegates from 15 countries, together with the keynote speakers Ardeshir Mahdavi (Vienna University of Technology), Ian Beausoleil-Morrison (Carleton University), Jan Hensen (Eindhoven University of Technology) and Athanasios Tzempelikos (Purdue University), offered the opportunity to discuss issues with an international audience as well as to compare and to enhance the quality of the national research.

The presentation of the first IBPSA Italy Awards for PhD Student Papers demonstrated the commitment towards the growth of a new generation of young researchers who will be able to sustain and diffuse the best use of BS.

The presentation of the first IBPSA Italy Awards for Simulation Assisted Design to distinguished practitioners using building simulation in their business confirmed how seriously the IBPSA takes practical applications of BS.

The presence of the local Engineers and Architects Orders, of the AICARR (the Italian Association of Air conditioning, Heating and Refrigeration), ANDIL (the Italian Association of Clay Brick and Roof Tile Producers) and ASSOVETRO (the Italian Association of Glass and Glazing Systems Producers), together with the institutional support of the Autonomous Province of South Tyrol and of the CasaClima Agency, allows us to be even more confident that the journey undertaken has been, and will continue to be, a great success.

Andrea Gasparella, Free University of Bozen-Bolzano