

Preface

BAUSIM conferences constitute the bi-annual symposia of the Germany-Austria chapter of IBPSA (International Building Performance Simulation Association). The BAUSIM 2010 (22. – 24. September) is hosted by the Department of Building Physics and Building Ecology, Vienna University of Technology, Vienna, Austria.

Conference theme

Reliable predictions of buildings' performance is an essential prerequisite of a productive and dependable building design process. In this context, the development and the timely application of computational building performance simulation tools is an established area of research in building-related disciplines and professions (such as architecture, civil engineering, mechanical engineering, and environmental physics). However, there are still sustained efforts needed to fully integrate building performance simulation in the practice of building design and operation. The critical importance of such efforts has become even more evident, given a number of recent developments and discussions that highlight the urgency of increased eco-efficiency in building construction and maintenance. The BAUSIM 2010 conference theme ("Building Performance Simulation in a Changing Environment") makes reference to some of these developments, including environmental challenges such as climate change and urban heat islands as well as occupancy-related issues pertaining to indoor climate, thermal and visual comfort, productivity, and the ability to control buildings' environmental systems. These challenges further highlight the significance of tools and processes for better building design and operation. Toward this end, improving the fidelity and accountability of the building delivery process via the development and application of increasingly versatile building performance simulation tools represents an essential opportunity and a major responsibility for the building performance simulation community.

Proceedings

The BAUSIM 2010 call for abstracts resulted in a large number of promising submissions, with the following topical distribution:

- . Advances in building physics 8,8%
- . Air flow simulation, room air quality 3,8%
- . Thermal comfort in rooms 14,1%
- . Thermal behavior 11,4%
- . Building codes and regulations 10,8%
- . Resource requirements of buildings, life-cycle assessment 3,8%
- . HVAC simulation, building control and optimization 11,9%
- . Solar energy systems, thermal storage 1,6%
- . Renewable energy resources, geothermics 2,2%
- . Lighting and acoustics 4,4%
- . Simulation tools and applications for sustainable building design 20,7%
- . Integration, interoperability Internet-based techniques 1,1%
- . Software development, open source initiatives 3,8%
- . Advances in teaching and education, eLearning 1,6%

Subsequent to the abstract review process, nearly 100 full papers were submitted, both in German (57 %) and in English (43 %). Participants from approximately 20 countries registered to attend the conference. Their contributions to the conference – as indicated by the present book of the abstracts and the conference proceedings – are witness to the high quality and creativity of research and development efforts in the building performance simulation community.

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