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Building Energy Performance Simulation - Challenges and Opportunities

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FORUM, Level 5

School of Architecture and Built Environment

Tuesday 4 December, 10:30 – 12:00

The presentation will start with a general view of the background and current state of computational building energy performance modelling and simulation. Arguably this technology has the potential to deliver, directly or indirectly, substantial benefits to building stakeholders and to the environment. However the building simulation community still faces many challenges both in terms of technology and application methodology. Several challenges relate to the need to provide better design support. Issues include early phase design support, multiscale approaches (from construction detail to district level), uncertainty and sensitivity analysis, robustness analysis (employing use and environmental change scenarios), optimization under uncertainty, inverse approach (to address "how to" instead of being able to answer "what if" questions), multi-physics (particularly inclusion of electrical power flow modeling), and integration in the construction process (using building information modeling (BIM), process modeling, etc). Another group of challenges relate to the need to provide support for building operation and management. Here the issues include accurate in-use energy consumption prediction and model predictive control. The presentation will also highlight recent and current research in these areas at Eindhoven University of Technology.

Professor Hensen (*http://janhensen.nl/*) is an internationally-renowned expert in computational modeling and simulation for optimizing design and operation of high-performance buildings. He has been awarded multi-million dollar/euro grants as well as several international scientific and practice awards over the past 20 years. He is the founding co-editor of Journal of Building Performance Simulation and co-editor of Building Performance Simulation for Design and Operation (Taylor & Francis, UK) as well as an Editorial Board member of Building and Environment, Energy and Buildings, and International Journal of Low-carbon Technologies.

ALL WELCOME

RSVP by 23 November to veronica.soebarto@adelaide.edu.au