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Engineering conference to seek better ways of building disaster-resistant structures

UCT will confer honorary doctorate on MIT professor

Structural engineers need to find better ways of designing and building structures that can withstand extreme events such as earthquakes, storms, fire, blasts and floods. This is exactly what they aim to do at the upcoming International Conference on Structural Engineering, Mechanics and Computation (SEMC 2013), hosted by the University of Cape Town from 2 to 4 September 2013. It will take place in the Leslie Social Science Building on UCT's upper campus.

Ahead of the 500-delegate conference, on Sunday, 1 September 2013, UCT will award an honorary Doctor of Science degree to one of the keynote speakers, Klaus-Jürgen Bathe, a professor in mechanical engineering at the Massachusetts Institute of Technology (MIT), USA. He will be recognised for his outstanding contributions in the field of computational engineering mechanics.

Professor Bathe, a UCT alumnus, is regarded as a giant in the field of computational mechanics and ranks among a handful of pioneers of a powerful procedure called the Finite Element Method. It is a numerical method for simulating on computer the response of complex structural and fluid systems in engineering and the sciences - from bridges and cars to biomedical and nano structures. At Professor Bathe's SEMC 2013 lecture, entitled "Insights and advances in the analysis of structures", he will present recent work on simulations of wave propagation, large strains in shells, fluid-structure interactions and electromagnetic effects.

At SEMC 2013, the fifth of its kind, academics and researchers from 60 countries will review recent progress made in structural engineering, share the latest developments and address the challenges that the present and future pose. Engineering authorities will deliver six keynote addresses and 450 papers will be presented over the three days.

Despite all the great strides structural mechanics have made - tall buildings, long-span bridges, stadiums, airports, harbours, tunnels and aerospace structures - structural engineers continue to face challenges caused by catastrophic events, for example the 2001 attack on the New York World Trade Centre, the 2004 Indian Ocean tsunami and the 2010

Haiti earthquake.

UCT Structural Engineering and Mechanics Professor Alphose Zingoni says: "In response to these challenges, a huge amount of research is going on around the world in search of a better understanding of how materials and structures behave, and hence better ways of designing and building engineering structures. Not only is better design information being generated and codified as a result of these efforts, but also some wonderful new structural materials are coming onto the scene, promising more effective solutions for achieving larger spatial spans, greater structural heights, more economical usage of materials, higher levels of safety and longer lifespan of structures.

"Without these advances, spectacular engineering achievements such as the Burj Khalifa (the world's tallest skyscraper at 828m) would not be possible. These innovations have seen applications not only in civil engineering construction, but also in the fields of mechanical, marine, aerospace and biomedical engineering. It is the latest advances of this type that the SEMC conferences seek to disseminate," says Professor Zingoni, who is also the Chair of SEMC 2013.

For more information please visit www.semc.uct.ac.za, or contact Mary Hilton, Communications and Marketing Manager, Faculty of Engineering & the Built Environment, UCT, at 021 650 4108, 073 236 5783 or mary.hilton@uct.ac.za.

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