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Innovation Solutions for Sustainable Cities

RISUD DISTINGUISHED LECTURE

Multi-Hazard Probabilistic Risk Assessment of Structures in a Life-Cycle Cost Perspective

by

Prof. Dan M. FRANGOPOL

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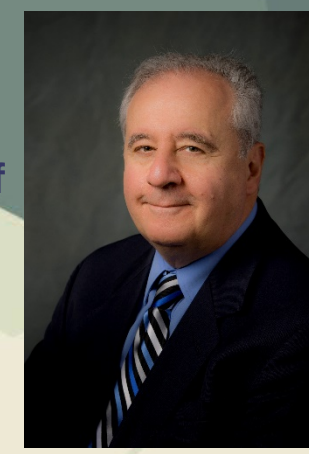

Time:
6:00p.m.-7:00p.m.
Tea reception: 5:30p.m.

7 Nov 2017 Tuesday

Venue: Room Y302, 3/F, Lee Shau Kee Building (Block Y), The Hong Kong Polytechnic University (Campus map)
Medium: English
Registration: https://www.polyu.edu.hk/mysurvey/index.php/925359
(Registration deadline: 3 November 2017, 12:00 n.n.)
Certificate: Attendance certificate will be issued to registered participants only
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Abstract

Civil infrastructure systems in the United States and other countries have become increasing vulnerable to natural and man-made hazards. The investments needed to improve the civil infrastructure continue to increase well beyond available funding. The American Society of Civil Engineers has issued a Grand Challenge to civil engineers and the industry for significantly reducing the life-cycle cost (LCC) of infrastructure by 2025. Along these lines, this lecture presents a framework for multi-hazard probabilistic risk assessment of structures in a life-cycle cost perspective. The effects of earthquakes, floods and hurricanes on civil infrastructure systems with emphasis on bridges are investigated in a life-cycle cost perspective. The life-cycle multi-hazard losses with and without climate change effects are reported for existing civil infrastructure systems. The benefits associated with the use of life-cycle cost analysis (LCCA) in multi-hazard probabilistic risk assessment are demonstrated.

Speaker's biography

Dr. Dan Frangopol is the inaugural holder of the Fazlur R. Khan Endowed Chair of Structural Engineering and Architecture at Lehigh University. Before joining Lehigh University in 2006, he was Professor of Civil Engineering at the University of Colorado at Boulder, where he is now Professor Emeritus. He is recognized as a leader in the field of life-cycle engineering of civil and marine structures. His main research interests are in the application of probabilistic concepts and methods to civil and marine engineering including structural reliability, probability-based design and optimization of buildings, bridges and naval ships, structural health monitoring, life-cycle performance maintenance, management and cost of structures and infrastructures under uncertainty, risk-based assessment and decision-making, infrastructure sustainability and resilience to disasters, and stochastic mechanics. Dr. Frangopol is the Founding President of the International Associations for Bridge Maintenance and Safety (IABMAS) and Life-Cycle Civil Engineering (IALCCE). He has authored/co-authored over 350 articles in archival journals including 9 prize winning papers. He is the Founding Editor of Structure and Infrastructure Engineering. Dr. Frangopol is the recipient of several medals, awards, and prizes, from ASCE, IABSE, IASSAR, and other professional organizations, such as the OPAL Award, the Newmark Medal, the Alfredo Ang Award, the T.Y. Lin Medal, the F. R. Khan Medal, and the Croes Medal (twice), to name a few. He holds 4 honorary doctorates and 12 honorary professorships from major universities. He is a foreign member of the Academia Europaea (Academy of Europe, London) and the Royal Academy of Belgium, an Honorary Member of the Romanian Academy, and a Distinguished Member of ASCE.