ETH zürich

IGT-Kolloquium

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Advanced Seismic Designs of Buildings in Japan - Seismic Isolation Methods and Response Control Methods

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5 pm, ETH Zurich, Hönggerberg, HIL E7

Great earthquakes repeatedly attack our society, and cause extensive damage to human life, property, buildings and infrastructures, as well as social and economic activities. Innovative seismic design methods such as seismic isolation methods and response control methods have been developed and applied to building structures to reduce earthquake damage. The applications of the advanced building design methods have been increased remarkably in Japan since the 1995 Kobe Earthquake. The effects of seismic isolation methods were verified through the observed earthquake responses of seismic isolated buildings subjected the 2011 Great East Japan Earthquake. Most of new high-rise buildings in Japan employ vibration control dampers.
The lecture covers the following subjects:

1. Destructive damage by the past great earthquakes, and the concept of 'Resilient Society'
2. Seismic isolation method: technical principles, applications and proven effects
3. Response control method: a damping device utilizing high-damping rubber and applications

Dr. Yutaka Nakamura is a chief research engineer at Institute of Technology, Shimizu Corporation, which is a leading Japanese engineering and construction company. He obtained a doctorate in Engineering at Kyoto University (Japan) in 1997 after receiving a master's degree in architectural engineering at Kyoto University and a master's degree in civil engineering at University of California at Berkeley. His research fields are earthquake engineering, response control of structures, seismic isolation, and performance-based design. He has served as visiting professor at Kaohsiung University of Applied Science (Taiwan) and at Shibaura Institute of Technology (Japan). He has published a dozen of papers in English on response control methods and seismic isolation methods.