Wind resistant design of tall buildings and relevant emerging issues

**abstract：**

The lecture discusses various topics related to wind-resistant design of buildings and structures. Starting from some historical matters including statistics of economic and human losses due to strong wind events, it discusses various wind climates causing damage to human societies such as tropical cyclones, extra-tropical cyclones, tornados, downbursts, dust devils, gravity winds and so on. Various wind related issues relevant to tall building constructions including pedestrian level wind environment, habitability to building vibrations, wind-induced acoustic noise, and so on are discussed. Then, typical wind-induced vibrations such as vortex-resonance of circular elements and tower-like structures, galloping and rain-wind-induced vibrations of cables, torsional flutter of bridges and so on are introduced. Next, various measures to suppress those wind-induced vibrations, e.g. aerodynamic measures changing building configurations; structural design measures; auxiliary damping devices, and some recent trends of aerodynamic measures and damping devices, are also introduced. Finally, it introduces recent and future trends of structural wind engineering, including climate change effects, virtual engineering organizations, and full-scale storm simulators.

**主讲人简介：**

田村幸雄(Yukio Tamura) 教授为东京工艺大学教授，国际著名风工程专家，现任国际风工程协会主席、联合国防灾减灾国际顾问团主席、世界风能协会执委会委员和日本科学委员会理事，2011年被授予日本工程院院士，2014年成功入选第四批“外专千人计划”。担任联合国防灾减灾国际顾问团主席期间，为孟加拉国国、海地、日本、韩国等国的减灾做出了突出贡献。田村教授在诸多风工程问题上有重要的研究成果，特别值得一提的是他在一致等效静力风荷载，建筑物阻尼及其数据库，建筑振动舒适度，涡激振动数学模型方面进行了创新性研究。由于田村教授杰出的研究成果，2004年获得了由美国土木工程师学会颁发的J. E. Cermak奖章以表彰他在风工程教学研究上的卓越贡献。此外，田村教授担任Journal of Wind Engineering and Industrial Aerodynamics等十多个国际著名期刊编委，并在美国圣母大学、波兰奥波莱工业大学及国内多所大学担任荣誉教授与客座教授，继续为风工程的教学研究贡献心力。

