



**Masayoshi Nakashima**

In step with the abounding vitality of the time, structural engineer **Fazlur Rahman Khan** (1929-1982) ushered in a renaissance in skyscraper construction during the second half of the 20th century. Fazlur Khan was a pragmatic visionary: the series of progressive ideas that he brought forth for efficient high-rise construction in the 1960s and '70s were validated in his own work, notably his efficient designs for Chicago's 100-story John Hancock Center and 110-story Sears Tower -- the tallest building in the United States since its completion in 1974. For more information on Fazlur R. Khan please visit:

<http://www.fazlurrkhan.com>



**Fazlur Rahman Khan**

Lehigh endowed a chair in structural engineering and architecture and has established this lecture series in Khan's honor. It is organized by **Professor Dan M. Frangopol**, the university's first holder of the Fazlur Rahman Khan Endowed Chair of Structural Engineering and Architecture, and sponsored by the Departments of Civil & Environmental Engineering, and Art & Architecture.



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## Fall 2011 Khan Distinguished Lecture Series

*The Fazlur Rahman Khan Distinguished Lecture Series honors Dr. Fazlur Rahman Khan's legacy of excellence in structural engineering and architecture*

**Initiated and Organized by: DAN M. FRANGOPOL**

Fazlur Rahman Khan Endowed Chair of Structural Engineering and Architecture  
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### Masayoshi Nakashima

Kyoto University, Disaster Prevention Research Institute, Kyoto, Japan  
E-Defense, National Research Institute for Earth Science and Disaster Prevention, Hyogo, Japan

#### "Safeguarding Quality of Life: The Role of Large-Scale Testing"

**Friday, September 23<sup>rd</sup>, 2011 – 4:10 pm**

**Location: Sinclair Lab Auditorium, Lehigh University, 7 Asa Drive, Bethlehem, PA**

<http://www.lehigh.edu/frkseries>

#### **Masayoshi Nakashima, Kyoto University, Disaster Prevention Research Institute, Kyoto, Japan:**

Masayoshi Nakashima, professor at the Disaster Prevention Research Institute, Kyoto University, graduated from Kyoto University and earned his doctoral degree from Lehigh University. He worked for the Building Research Institute of the Japanese Ministry of Construction and Kobe University before joining Kyoto University in 1992. Since 2004, Nakashima has also served as Director of E-Defense, National Research Institute for Earth Science and Disaster Prevention (NIED). E-Defense is a research center that operates the world's largest shaking table. Nakashima's fields of research include inelastic, stability, and collapse behavior of steel members and frames, seismic analysis and design of steel building structures, experimental techniques for simulating the earthquake responses of large structural systems, and seismic design of base-isolated buildings. Nakashima has received various national research awards, including Best Paper Prize of the Architectural Institute of Japan (AIJ) and the Moisseiff Award of ASCE. He is Editor of the International Journal of Earthquake Engineering and Structural Dynamics, the official journal of the International Association for Earthquake Engineering. Nakashima was Vice-President of AIJ, a learned society of about 36,000 members with expertise in all areas associated with buildings and inhabitants, including architecture, urban planning, building engineering, and building physics. Currently he serves as Vice-President of the Japan Association for Earthquake Engineering (JAE) and Chair of the AIJ Structures Technical Committee. In the past, Nakashima chaired the Review Panel of the Architecture and Building Engineering Program of the Japan Accreditation Board for Engineering Education (JABEE, equivalent to U.S. ABET).

#### **Safeguarding quality of life: the role of large-scale testing in earthquake engineering:**

A traditional attitude of earthquake engineering: "learning from actual earthquake damages", is no longer acceptable as the resilience of society is naturally lessened with increasing diversity and complexity of the society. A practical alternative to this old attitude is to "learn from quasi-actual earthquake damages", and one tool to this end is *E-Defense*, the largest shaking table in the world, developed in Japan after the 1995 Kobe earthquake. Since its inauguration in 2005, E-Defense has conducted forty some large-scale shaking table tests. This lecture introduces notable tests that had explored a variety of problems related to life-safety and quality-of-life during and after large earthquakes.

**FAZLUR RAHMAN KHAN** (1929 — 1982) One of the foremost structural engineers of the 20th century, Fazlur Khan epitomized both structural engineering achievement and creative collaborative effort between architect and engineer. Only when architectural design is grounded in structural realities, he believed — thus celebrating architecture's nature as a constructive art, rooted in the earth — can "the resulting aesthetics ... have a transcendental value and quality." His ideas for these sky-scraping towers offered more than economic construction and iconic architectural images; they gave people the opportunity to work and live "in the sky." Hancock Center residents thrive on the wide expanse of sky and lake before them, the stunning quiet in the heart of the city, and the intimacy with nature at such heights: the rising sun, the moon and stars, the migrating flocks of birds. Fazlur Khan was always clear about the purpose of architecture. His characteristic statement to an editor in 1971, having just been selected Construction's Man of the Year by *Engineering News-Record*, is commemorated in a plaque in Onterie Center (446 E. Ontario, Chicago): "**The technical man must not be lost in his own technology. He must be able to appreciate life; and life is art, drama, music, and most importantly, people.**" For more information on Fazlur Rahman Khan please visit:

<http://www.fazlurrkhan.com>

Please contact Leslie J. Ladick at 610-758-6123 or Email: [ljl2@lehigh.edu](mailto:ljl2@lehigh.edu) with any questions.