



EUGEN BRÜHWILER



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THE DEPARTMENT OF CIVIL &
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DESIGN



Spring 2017 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 **PROFESSOR DAN M. FRANGOPOL**

The Fazlur Rahman Khan Endowed Chair of Structural Engineering and Architecture
Department of Civil and Environmental Engineering, ATLSS Engineering Research Center,
Lehigh University

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Professor, Dr Structural Engineer, Swiss Federal Institute of Technology Lausanne (EPFL),
Lausanne, Switzerland

“Getting More Out of Existing Bridges”

Friday, February 17, 2017 – 4:30 pm

Location: Whitaker Lab 303, Lehigh University, 5 E. Packer Avenue, Bethlehem, PA

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

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.



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 & Design.

Eugen Brühwiler is a Professor of structural engineering and Director of the Laboratory of Maintenance and Safety of existing Structures at the EPFL – Swiss Federal Institute of Technology in Lausanne, Switzerland, since 1995. He received his civil engineering and doctoral degrees from the Swiss Federal Institutes of Technology in Zurich in 1983 and Lausanne in 1988. His teaching and research activities include modern methods of examination in structural engineering including structural and fatigue safety, monitoring and reliability of bridges and buildings as well as the use of Ultra-High Performance Fiber Reinforced Cement-based Composites (UHPFRC) for the rehabilitation and strengthening of structures. As an expert for the Swiss Government, he is involved in the examination and restoration of bridges and buildings of high cultural value.

Getting More Out of Existing Bridges. Novel structural engineering methods and technologies are urgently needed to improve the performance of existing structures, such as bridges, and to avoid the “infrastructure collapse”. Limited funding and ever increasing user demands challenge current technologies which are often invasive and not cost-effective. The objective of this lecture is to demonstrate how novel engineering methods and technologies can be implemented in structural engineering with the goal to provide a next service duration to existing bridges.

The lecture will be illustrated by application cases including several bridges of high aesthetic and cultural value. History of structures will be highlighted as a basic engineering discipline necessary to develop soft improvement interventions respecting both cultural values and safety requirements.

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.”**



1 PDH will be awarded to eligible attendees for each lecture

Please contact the Khan Chair office at 610-758-6123 or Email: infrk@lehigh.edu with any questions.