LEHIGH UNIVERSITY®

P. C. ROSSIN COLLEGE OF ENGINEERING AND APPLIED SCIENCE

Spring 2010

FAZLUR RAHMAN KHAN LECTURE SERIES

Honoring a legacy in structural engineering and architecture

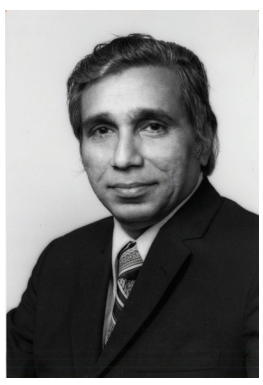
Presentations will be held in the Sinclair Laboratory Auditorium at Lehigh University

Receptions to precede events starting at 4:10 P.M.

http://www.lehigh.edu/frkseries

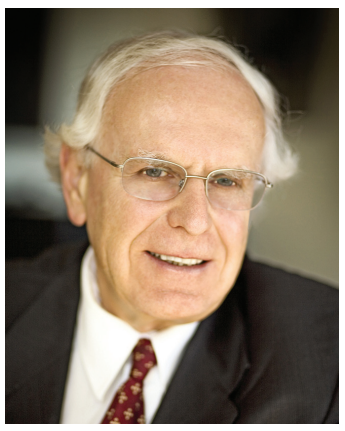
About the Khan Series

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 (www.fazlurrkhan.com). 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.



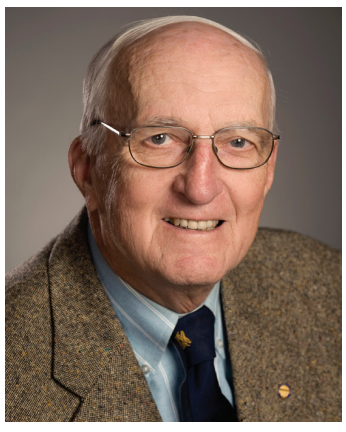
Fazlur Rahman Khan

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.



Zdeněk P. Bažant
McCormick Institute & W.P. Murphy Prof
Northwestern Univ. (Evanston)

Ron Klemencic
President
Magnusson Klemencic Associates (Seattle)



John E. Breen
Al-Rashid Chair in Civil Eng. - Univ. of Texas (Austin)

Friday, February 26th, 2010
4:30 P.M.
"Progress Engendered by Collapses of Record Setting Structures: Malpasset Dam, World Trade Center Towers and KB Bridge in Palau"

Friday, March 19th, 2010
4:30 P.M.
"OUTRAGEOUS!"

Friday, April 16th, 2010
4:30 P.M.
"The ABCD's of Bridge Building: Affordable, Beautiful, Constructible, Durable"

Progress Engendered by Collapses of Record Setting Structures: Malpasset Dam, World Trade Center Towers and KB Bridge in Palau

When built, these were the tallest and slenderest arch dam, the tallest building, and the prestressed box girder of world-record span. The mechanisms of collapse of these structures are clarified. The size effect is shown to have been an important factor in the 1959 failure of the Malpasset Dam. Second, the disputed causes of the twin WTC towers collapse in New York on 9/11/01 are discussed. Third, the 1996 collapse of the Koror-Babeldaob prestress concrete box girder in Palau, with a 241 m span, is analyzed. The lessons from these regrettable catastrophes are bound to advance the structural engineering profession.

OUTRAGEOUS!

"Outrageous," "wacky," and "wild" are words not typically associated with building design. However, today's modern architecture many times evokes these thoughts. While the general public may be asking "why?, most structural engineers are contemplating "how." Ron Klemencic, P.E., S.E., will guide a visual tour through the structural design of some of the most interesting and challenging structures in the world today. The advances in design and construction technology, materials, and communication capabilities which make these projects possible will be highlighted.

The ABCD's of Bridge Building: Affordable, Beautiful, Constructible, Durable

The interrelation of aesthetics with overall bridge design, construction, and maintenance is presented. Beauty is highly desirable, but aesthetics must always be balanced with consideration of efficiency, constructability, and attention to durability. The enigma of deciding "What price beauty?" is clearly illustrated in this comparison but can not be definitely answered because of the societal and political factors involved. The presentation concludes with a discussion of delay related user costs and the impact that they are having on choice of bridge structural systems such as in the Minneapolis I-35 bridge replacement.

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This lecture series is sponsored by:
Civil & Environmental Engineering: College of Engineering & Applied Science
Art & Architecture: College of Arts & Sciences