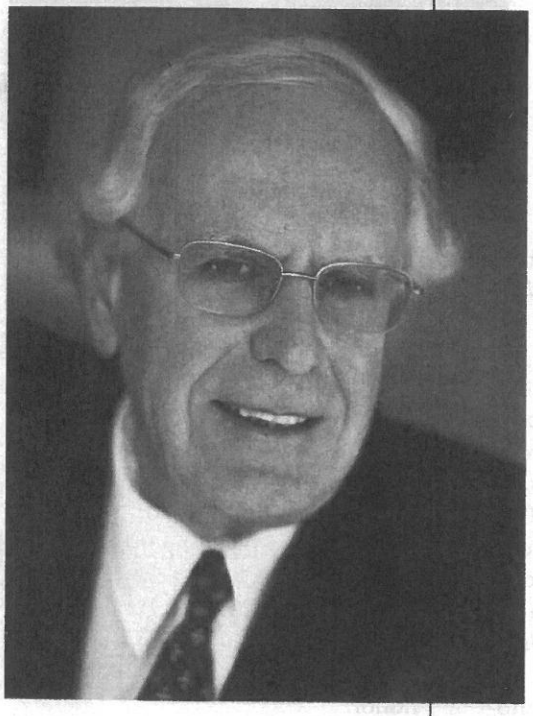
Honorary Membership

Zdeněk P. Bažant

When it came time to choose his career path in Czechoslovakia, Zdeněk P. Bažant, who loves mathematics and producing something useful, followed in the footsteps of his ancestors. He is the fifth in a row to become a civil engineer; and the third in one line, following his grandfather and father, to become a professor. Opportunities got him to France, Canada, and then the United States. "The best decision of my life," is what Dr. Bažant says of his August 1968 decision to stay in America.

Dr. Bažant has been on the faculty at Northwestern University in Evanston, Ill., since 1969. He is currently McCormick Institute Professor and W.P. Murphy Professor of Civil and Mechanical Engineering, and Materials Science.



He is recognized with Honorary Membership for groundbreaking contributions to engineering science, particularly the microplane constitutive model, statistical-energetic strength scaling law for distributed fracturing, theory of creep and hydrothermal effects in concrete nuclear structures, sea-ice strength scaling theory, and stability criteria for shear-deformable and three-dimensional structures.

Dr. Bažant is internationally renowned for his seminal work on solid mechanics and structures. His size effect law, as well as his crack band model and nonlocal model which automatically exhibit the size effect, have been used in structural engineering, in composites for ships, aircraft, and automobile structures; highway pavement tests; the prediction of sea ice breakage; wave-code finite element simulations of terrorist explosions, ground shock, and missile impact on hardened structures and rock; and in nuclear containment safety analysis. Dr. Bažant also provided the theoretical understanding of failure of shear-deformable structures, requiring three-dimensional buckling analysis of highly orthotropic media. In recent years he has become interested in the analysis of overall structural failures. He provided a detailed analysis of the collapse of the World Trade Center towers in New York City, and also produced a comprehensive study of the creep and service life of a large number of bridges.

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Dr. Bažant's six books and numerous journal articles received 22,800 citations and 71 of his articles have been cited at least 71 times each (i.e., his H-index is 71). He holds four patents. His models have been used in industry, Army laboratories, and commercial software, and some were introduced in design standards.

An ASME Fellow, Dr. Bažant has served on various technical committees in the Applied Mechanics and Materials divisions. He received the Society's Worcester Reed Warner Medal in 1997, the Nadai Medal in 2008, and the Timoshenko Medal in 2009.

Dr. Bažant was inducted into the National Academy of Sciences, the National Academy of Engineering, the American Academy of Arts and Sciences, and six European national academies. He is a member, honorary member, and Fellow of numerous societies. He was the founding president of IA-FRAMCOS (the International Association of Fracture Mechanics for Concrete and Associated Structures) in 1991 and of IA-CONCREEP (the International Association on Concrete Creep) in 2001.

The Czech Society for Mechanics named an engineering prize after him and bestowed the first annual Z.P. Bažant Prize for Engineering Mechanics in 2012.

Dr. Bažant received his Ing. degree in civil engineering from Czech Technical University in Prague in 1960. He earned his Ph.D. in engineering mechanics at the Czechoslovak Academy of Sciences, Prague, in 1963. In 1967, he earned his docent (habilitatis) in concrete structures at Czech Technical University. He holds seven honorary doctorates and is a registered structural engineer. ■