2012

She is a Fellow of the American Association for the Advancement of Science, an Associate Fellow of the American Institute of Aeronautics and Astronautics, a senior member of the Society of Women Engineers (SWE), and incoming chair of the ICHMT Executive Committee.

Her other honors include SWE's 1997 Distinguished Engineering Educator Award; and the 2012 Achievement Award, SWE's highest award.

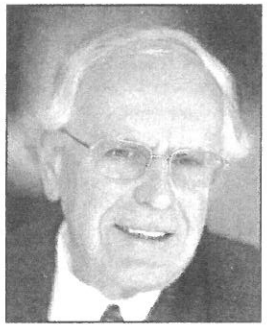
Bayazitoglu earned her three degrees in mechanical engineering: a bachelor's degree at Middle East Technical University (Ankara, Turkey) in 1967; and a master's degree and Ph.D. at the University of Michigan, Ann Arbor, in 1969 and 1974, respectively. According to a National Science Foundation report, Bayazitoglu was one of only 34 women to receive a Ph.D. in engineering in 1974, whereas 3,127 men received the same degree that year. That accomplishment and Bayazitoglu's subsequent achievements have made her an outstanding role model for women and other underrepresented groups.

Honorary Membership

ZDENĚK P. BAŽANT

Conferral at the Honors Assembly,
2012 International Mechanical Engineering Congress and Exposition

ZDENĚK P. BAŽANT, Ph.D., McCormick Institute professor and W.P. Murphy professor of civil and mechanical engineering, and materials science, Northwestern University (Evanston, Ill.), *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. He has been on the faculty at Northwestern University (Evanston, Ill.) since 1969, serving in various professional and administrative positions including director of the Center for Concrete and Geomaterials (1981–87). He is currently McCormick Institute professor and W.P. Murphy professor of civil and mechanical engineering, and materials science.

His research interests include mechanics of materials and structures, and structural safety, with emphasis on the mechanics of fracture, damage and creep, size effects and scaling, impact, modeling, probabilistic mechanics, nano-mechanics, poromechanics and hydrothermal effects. His groundbreaking concepts have been applied to numerous areas including the modeling of concrete, fiber composites, tough ceramics, rocks, soils, bone, snow and sea ice; and the safety of bridges, tall buildings, aircraft, ships and nuclear structures.

Bažant's 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

(continued)

explosions, ground shock and missile impact on hardened structures and rock; and in nuclear containment safety analysis. He 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 Twin Towers in New York City and also produced a comprehensive study of the creep and service life of a large number of bridges in the U.S. and elsewhere.

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, 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.

Bažant was induced 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 an honorary member of the American Society of Civil Engineers (ASCE), the Czech Society for Mechanics and the American Concrete Institute; a Fellow of the Society of Engineering Science (SES), the American Academy of Mechanics and RILEM–the International Union of Laboratories in Construction Materials, Systems and Structures; and a member of the American Institute of Aeronautics and Astronautics, the International Association for Bridge and Structural Engineering, the American Ceramic Society and the Structural Engineers Association of Illinois. He served as editor-in-chief of ASCE's *Journal of Engineering Mechanics* (1988–94), and as president of SES (1993). 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.

Among his other honors are SES's Prager Medal (1996); and ASCE's Theodore von Karman Medal (2005), Newmark Medal (1996), J.J.R. Croes Medal (1997) and Lifetime Achievement Award (2003). In 2011, the Czech Society for Mechanics named an engineering prize after Bažant, and the initial bestowal of the annual Z.P. Bažant Prize for Engineering Mechanics was in 2012.

Bažant received his Ing. degree in civil engineering from Czech Technical University (CTU) 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 CTU. He holds seven honorary doctorates. Bažant is a registered structural engineer in Illinois.