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Dr. Zdenek P. Bazant Receives the Structural Group 2003 Lifetime Achievement Award

The ASCE Illinois Section Structural Group is proud to announce that Dr. Zdenek P. Bazant is the recipient of their 2003 Lifetime Achievement Award. Dr. Bazant is both the McCormick School Professor and the Walter P. Murphy Professor of Civil Engineering and Material Science at Northwestern University. Along with his research assistants, he is the author of 430 journal articles and six books. He is best known for his work on the fracture of heterogeneous quasibrittle materials such as concretes, rocks, tough ceramics, fiber composites, sea ice and dry snow slabs as summarized in his 2002 monograph "Scaling of Structural Strength" and his 1998 textbook, "Fracture and Size Effect" coauthored with J. Planas.

Dr. Bazant was born and educated in Prague where his father was a renowned geotechnical engineering professor and his grandfather was a professor of structural mechanics. He received a Civil Engineering Degree from the Czech Technical University in Prague. He also received a Doctorate Degree in mechanics from the Czechoslovak Academy of Sciences, a postgraduate external study diploma in physics from Charles University and a docent degree in concrete from the Czech Technical University in Prague. However, he was never a graduate student. Despite having a straight A record and being first in his class during his undergraduate years, his application for graduate study was rejected. The political climate in Prague favored persons with the right connections and it did not help that he had refused membership in the Communist Party and that his roots were in an old family of well known, non-communist intellectuals. Consequently, Dr. Bazant had to do his graduate work and dissertation through external study without an advisor while being employed full time.

Despite the arduous process of self-education, Dr. Bazant came to love structural design. While doing his graduate studies, he worked briefly as a construction supervisor on an arch bridge but mainly as a bridge designer. He designed six bridges including, in 1961, a highly curved prestressed concrete box girder bridge that was analyzed according to thin wall beam and creep theories. He also designed a large prestressed concrete cable-stayed bridge over the Danube River which won the second prize in a public competition in 1964. Dr. Bazant believes that, without this experience, he would never have touched the fertile problems of size effect associated with distributed fracturing (typical of reinforced concrete), as well as the creep, moisture and durability effects in concrete.

In 1959, as an injured part-time ski instructor, he received one of the earliest patents on safety ski bindings. He supervised mass production as a hobby and, at its peak, his ZPB Bindings were used, according to one estimate, by one third of all the skiers in Czechoslovakia.

Dr. Bazant joined the faculty of Northwestern University in 1969 as an Associate Professor of Civil Engineering. He became a Professor of Civil Engineering in 1973, the Walter P. Murphy Professor in 1990 and the McCormick School Professor in 2002. Time permitting, Dr. Bazant engages in consulting work. He has been a consultant to Argonne National Laboratory, Sargent and Lundy, Babcock and Wilcox, Sandia National Laboratory, Oak Ridge National Laboratory, Ontario Hydro, Det Norske Veritas, Taisei Corporation, Hyundai Corporation, Korea Electric Power Institute, Swedish Cement and Concrete Institute, and Quadrio.

In 1996, Dr. Bazant was elected to the National Academy of Engineering, cited for his results on fracture stability, damage localization and thermodynamic concepts for stability of non-elastic structures.

In 2002, Dr. Bazant was elected to the National Academy of Sciences. His citation stated that he discovered the scaling law for the energetic size effect in quasibrittle structural failure bridging ductile and brittle behaviors, verified it experimentally for many important materials, showed its use for measuring

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fracture characteristics and conceived non-local and crack-band models now widely used in numerical simulations of quasibrittle failure of structures. Among the members of the National Academy of Sciences, he is one of only eight solid mechanicians, the only concrete researcher and the only registered structural engineer.

His treatise "Stability of Structures", written with L. Cedolin and published in 1991, was recognized with the Best Engineering Book of the Year Award from the Society of American Publishers. He has also been the recipient of the Prager Medal from the Society of Engineering Science and the Warner Medal from the American Society of Mechanical Engineers. Upon being awarded the Newmark Medal from ASCE, Dr. Bazant was cited for his fundamental contributions to the understanding of constitutive behavior of structural materials which include his plastic-fracturing and microplane models for concrete (which can also be extended to rock, clay, rigid foams and shape-memory alloys) and various contributions to plasticity covered in his textbook, "Inelastic Structural Analysis," co-authored with M. Jirasek in 2002.

Among civil engineering probabilists, Dr. Bazant is recognized for his statistical sampling and Bayesian models for creep and shrinkage and for his non-local generalization of the statistical theory of size effect which earned him the IASSAR Lecture Award. In concrete design, his most appreciated contributions are probably his models for concrete creep, and for drying and high temperature effects. His works on the foundation of creep theory in thermodynamics of adsorption in nano-porous materials was recognized with the L'Hermite Medal from RILEM and the Roy Award from the American Ceramic Society.

Other honors include four honorary doctorates (University of Colorado, Politecnico di Milano, Universitat Karlsruhe, and Czech Technical University in Prague), membership in the Austrian Academy of Science, Czech Engineering Academy and Academia di Scienze e Lettere (Italy). He has also been awarded the Croes Medal, Huber Prize and Lin Award from ASCE.

Dr. Bazant has served as President of the Society of Engineering Science and founding president of IA-FRAMCOS and IA-CONCREEP. He has been the editor-in-chief of the ASCE Journal of Engineering Mechanics, chairman of PCRV Division of IA-SMiRT, member of the United States National Committee on Theoretical and Applied Mechanics and chairman of committees in ASCE, RILEM, SES, IA-SMiRT and ACI. He has also received the prestigious Guggenheim, NATO, Ford, JSPS and Kajima Fellowships. His science citation index, which has recently been running at 500-600 citations annually, is probably the second highest in solid mechanics and the highest in concrete.

While watching the World Trade Center collapse, he immediately began to analyze it and within days he submitted a paper to ASCE. This paper has since been translated into seven languages.

A dinner was held on May 14, 2003 at the Como Restaurant in Chicago, Illinois to honor Dr. Bazant.

AMERICAN SOCIETY OF CIVIL ENGINEERS
ILLINOIS SECTION

87th Annual Awards Dinner

WEDNESDAY, OCTOBER 15, 2003
at the
CHICAGO HILTON AND TOWERS
GRAND BALLROOM

720 South Michigan Avenue, Chicago, Illinois
5:00 P.M. Cocktails 6:30 P.M. Dinner

THANK YOU!

THANK YOU!

2003 Illinois Section ASCE Golf Outing
The Illinois Section would like to thank the participants and sponsors for making this years outing a huge success. Money raised directly benefits Minority Affairs programs including scholarships for area high school students to summer engineering camps. Sponsors included:

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