



## **ROBERT H. DODDS, JR.**

*Research Professor (part-time)  
University of Tennessee, Knoxville*

*M.T. Geoffrey Yeh Endowed Chair of Civil Engineering (Emeritus)  
University of Illinois at Urbana-Champaign*

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Professor Dodds earned the Ph.D. in Civil Engineering at the University of Illinois at Urbana-Champaign in 1978. Before returning to Illinois in 1987, he served on the faculty at the University of Kansas for nine years. He has been an active researcher in the field of nonlinear fracture mechanics and computational methods for more than 35 years. Recent sponsors of his research have included: U.S. Navy, AFRL, USNRC, NASA (Marshall, Ames), ORNL and ANL. Professor Dodds has published more than 125 refereed journal papers in the areas of fracture mechanics, fatigue, computational methods, and software engineering.

From 1996 through 2005, he served as Co-Editor of *Engineering Fracture Mechanics*, a leading international journal on fracture mechanics for the past 40 years. He has been named Honorary Editor for the journal. He is an Associate Editor for three other international journals on these topics and actively participates in related technical societies including the American Society for Testing and Materials. Professor Dodds' awards for research include the American Society of Civil Engineers Walter L. Huber Research Prize (1992) and the Nathan M. Newmark Medal (2001); the George R. Irwin Medal from ASTM (2000), the 2001 Award of Merit with Fellow status from ASTM and the Fracture Mechanics Medal from ASTM (2013); Fellow of the Engineering Mechanics Institute 2013 (ASCE); the 2002 speaker for the Southwest Mechanics Tour; and Honorary Fellow of the International Congress on Fracture (selected in 2005), the ASME PVP 2014 Conference Award (technical paper). He has delivered more than 50 invited keynote and plenary lectures at international conferences. Students have recognized his classroom teaching with regular selection for the List of Teachers Ranked as Excellent.

In 1997, Professor Dodds was named the inaugural holder of the Nathan and Anne M. Newmark Endowed Professorship in Civil Engineering at the University of Illinois. In 2000, he became the first holder of the M.T. Geoffrey Yeh Endowed Chair in Civil Engineering.

Professor Dodds served as the 13<sup>th</sup> Head of the Department of Civil and Environmental Engineering from 2004 through 2009, where he led a tenured faculty of 52, a staff of 50, 800 undergraduate and 450 graduate students to excel in education, research and public engagement.

Professor Dodds was elected to the National Academy of Engineering in 2008. He retired from the University in May 2012 and maintains an active research program, consults with government agencies and laboratories and contributes to engineering professional societies. He most recently served as Co-PI for the Intel Parallel Computing Center at the Ohio Supercomputer Center.

### **EDUCATION**

M.S., Ph.D. University of Illinois at Urbana-Champaign. Structural Engineering Major. 1975, 1978.

BS. University of Memphis, Memphis, Tennessee. Civil Engineering. 1973.

### **RESEARCH INTERESTS**

Professor Dodds primary research efforts explore the processes and modeling of fracture in structural metals (*e.g.*, steel, aluminum, titanium) under static, dynamic and environmental loading. The work considers fracture at length-scales from full-size structural components, to small laboratory specimens, to the scale at which discrete features of the microstructure dominate. The improved understanding of complex, nonlinear fracture behavior leads to more robust designs and to reliable assessments of the residual strength and remaining service life of critical infrastructure including, for example, pressure vessels, pipelines, bridges, air and spacecraft, ships and offshore structures. The research relies strongly on integrated experimental-computational approaches for validation and to transition research discoveries into engineering codes and standards.