

TIMOSHENKO MEDAL



Prof. Thomas J.R. Hughes

*Department of Aerospace Engineering and Engineering Mechanics
University of Texas, Austin* For his pioneering contributions to computational mechanics, particularly nonlinear finite element methods for solids and fluids Professor Thomas J.R. Hughes holds B.E. and M.E. degrees in Mechanical Engineering from Pratt Institute, and an M.S. in Mathematics and Ph.D. in Engineering Science from the University of California at Berkeley. He began his career as a mechanical design engineer at Grumman Aerospace, subsequently joining General Dynamics as a research and development engineer. He started his teaching career at Berkeley, eventually moving to the California Institute of Technology and in 1980 to Stanford University. Since 2002 he holds the Computational and Applied Mathematics Chair III at the University of Texas at Austin.

Dr. Hughes has been a leading figure in the development of the field of computational mechanics. He has published over 300 works on computational methods in solid, structural and fluid mechanics and he is one of the most widely cited authors in the field. His research has included many pioneering studies of basic theory as well as diverse applications to practical problems.

His studies on contact-impact, plate and shell elements, time integration procedures, incompressible media, algorithms for inelastic materials, nonlinear solution strategies, iterative equation solvers, parallel computing, and finite elements for fluids have had a major impact on the development of software used throughout the world today. His most recent work includes the development of patient-specific simulation technologies for cardiovascular disease, variational multiscale methods for complex fluid flows and turbulence, and isogeometric analysis - geometrically exact methods in computational mechanics that hold promise to unify computer-aided design and engineering analysis methodologies.

He is a Fellow of the American Academy of Mechanics, the American Society of Mechanical Engineers (ASME), the American Institute of Aeronautics and Astronautics, the American Society of Civil Engineers (ASCE), the American Association for the Advancement of Science, the U.S. Association for

Computational Mechanics (USACM), and is a Founder of the International Association for Computational Mechanics (IACM). He also serves as co-editor of the international journal Computer Methods in Applied Mechanics and Engineering.

His many awards include the Walter L. Huber Civil Engineering Research Prize (ASCE), the Melville and Worcester Reed Warner Medals (ASME), the Von Neumann Medal (USACM) and the Gauss-Newton Medal (IACM). He has received honorary doctorates from Universite Catholique de Louvain, Belgium and from the universities of Pavia and Padua, in Italy. He is a member of the National Academy of Engineering and Fellow of the American Academy of Arts and Sciences.

The Timoshenko Medal was established in 1957 and is conferred in recognition of distinguished contributions to the field of applied mechanics. Instituted by the Applied Mechanics Division, it honors Stephen P. Timoshenko, worldrenowned authority in the field, and it commemorates his contributions as author and teacher.