



2002 Timoshenko Medal

Presented to

Professor JOHN W. HUTCHINSON

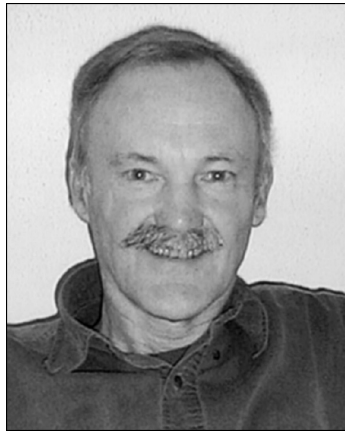
In recognition of

**Seminal contributions in the mechanical behavior
and failure of materials and structures**

Presented at

**The 2002 International Mechanical Engineering
Congress & Exposition
New Orleans, LA**





John W. Hutchinson
Professor of Applied Mechanics
Harvard University, Cambridge, MA

John W. Hutchinson was born in Hartford, Connecticut in 1939. He was awarded a B.S. degree in Engineering Mechanics from Lehigh University in 1960 and a Ph.D. degree in Mechanical Engineering from Harvard University in 1963. Following a year as a postdoctoral research fellow at the Technical University of Denmark, he joined the faculty of Applied Sciences at Harvard where he has spent his career and presently serves as the Abbott and James Lawrence Professor of Engineering. He has also held visiting appointments from Oxford University, Cambridge University, the Technical University of Denmark and the University of California at Santa Barbara.

During his 40 year career he has made seminal contributions to most of the important developments of solid and structural mechanics as well as in mechanics of materials. He started his career with a series of important contributions on the imperfection sensitivity of buckling of elastic structures, the most prominent subject of mechanics at the time. His papers in this subject remain some of the most quoted. From the mid-1960s he became interested in the then emerging subject of fracture mechanics where his insightful perspective of inelastic processes and his pursuit of the simple but useful approach helped propel the subject forward. The famous HRR fields is perhaps the most prominent of these contributions. During the early 1970s along with Miles and Hill he produced two key papers which clarified plastic bifurcation theory in solids.

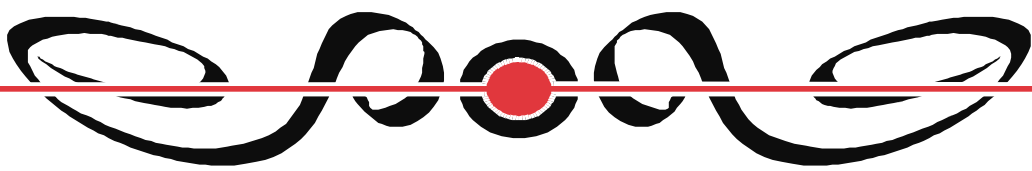
Hutchinson has always had a keen interest in inelastic behavior of metals which started with his Ph.D. work on plasticity of polychrystals; it continued with contributions to the thorny subject of plastic bifurcations applied to thin walled structures in tension or compression which eventually lead to the corner theory of plasticity developed with Cristoffersen (1979). More recently, as he moved to smaller scales, he has been instrumental in the development and proliferation of gradient plasticity. He has had a major impact on interfacial fracture mechanics since its rebirth in the late 80's. He provided several extremely useful and practical solutions to interface elastic crack problems particularly in layered media including, once again, the effect of inelastic effects. The results have been very useful for helping interpret mechanisms of interfacial crack growth and are leading to methods for handling the range of scales that can be encountered at interfaces. A review article with Suo (1992) nicely summarizes these results and is again the main reference in the subject.

In nonlinear micromechanics papers such as that on "Void Growth and Collapse in Viscous Solids" (with Budiansky and Slutsky) have provided a clear understanding of various complex phenomena associated with the nucleation and growth of microvoids or microcracks, and they have formed the basis for the development of physically based constitutive relations for elastic and inelastic solids containing damage.

This is an extraordinarily broad set of technical areas affecting a large variety of mechanical engineering applications. Hutchinson's work affected each area in a significant and permanent manner.

An interesting aspect of his personality but also of his impact on mechanics of solids and materials becomes apparent if we look at the names of some of the people with whom he worked: Budiansky, Amazigo, Tennyson, Niordson, Miles, Koiter, Hill, Freund, Paris, Tvergaard, Byskov, Neale, Cristoffersen, Evans, Fleck, Ashby, McMeeking, Ohno, Thouless and many others. He has mentored several outstanding disciples many of whom have gone on to impact mechanics with their own contributions.

John Hutchinson served on the AMD Executive Committee for five years and chaired it in 1995. He is a Fellow of the ASME and the American Academy of Mechanics; he is a Member of the National Academy of Engineering, the National Academy of Sciences and the American Academy of Arts and Sciences. He has served the community as a member of several national committees and by being a member of numerous editorial boards of international journals. His awards include the Irwin Medal from the American Society of Testing and Materials, the Nadai Medal from ASME and the Prager Medal from the Society of Engineering Science. He has received honorary doctorates from the Technical University of Denmark, Northwestern University and the Royal Institute of Technology (KTH) in Sweden.





Timoshenko Medal

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THE TIMOSHENKO MEDAL was established in 1957 and is conferred annually in recognition of distinguished contributions to the field of applied mechanics. Instituted by the Applied Mechanics Division, it honors Stephen P. Timoshenko, world-renowned authority in the field, and it commemorates his contributions as author and teacher.