

Warner T. Koiter Medal



Stelios Kyriakides

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For pioneering contributions to the mechanics of propagating instabilities in solids, structures and materials

Professor Stelios Kyriakides received a BS with First Class Honours in Aeronautical Engineering from the University of Bristol in 1975 and his MS and PhD in Aeronautics from the California Institute of Technology in 1976 and 1980, respectively. He joined the faculty of the Department of Aerospace Engineering and Engineering Mechanics at the University of Texas in 1980 as an Assistant Professor and has built a long and productive career. He was promoted to the rank of Professor in 1989 and now holds the Cockrell Family Chair in Engineering No. 10. He is also the Director of the Research Center for the Mechanics of Solids, Structures, and Materials.

Professor Kyriakides is a world-class leader in the area of experimental solid and structural mechanics, with a particular emphasis on instabilities in solids – an area pioneered by Professor Koiter himself. Professor Kyriakides' work has had a major impact on the field, both at the macro (structural) and micro (material) levels. He has pioneered the area of propagating instabilities in solids, structures and materials. Such instabilities have been shown to limit the mechanical behavior of large structures such as offshore pipelines, oil well casings and tunnel linings as well as materials such as metals, composites and foams. In his collection of work, he has shown that a number of seemingly different phenomena (e.g., propagating necks in polymers, propagating failure zones in the form of kink bands in composites, the propagation of phase transition fronts in shape memory alloys and the propagation of Lüders bands in metals) are all governed by the same underlying fundamental mechanics. The scientific work of Professor Kyriakides is characterized by careful and elegant experiments, a keen eye for selecting relevant (and also beautiful) problems and the ability to go to the crux of a complicated phenomenon by an insightful analysis.

Professor Kyriakides has created a generation of structural engineers and researchers. He is also a tireless worker with great – and selfless – service to our field through his contributions to various professional organizations. While his intellectual contributions continue unabated, he has served the community through activities in the Applied Mechanics Division of the American Society of Mechanical Engineers (Chairman, 2003), the US National Committee on Theoretical and Applied Mechanics, International Union of Theoretical and Applied Mechanics, the American Academy of Mechanics and his industrial consortium dealing with offshore structures. He has recently taken on the role of Co-Editor-in-Chief of the *International Journal of Solids and Structures*, a major journal in our discipline.

Professor Kyriakides is a fellow of the ASME and the American Academy of Mechanics. He has been the recipient of numerous awards including the Presidential Young Investigator Award (1984-1989) and the Walter L. Huber Civil Engineering Research Prize, (1992) from the American Society of Civil Engineers. He is a member of the National Academy of Engineering and the Academy of Medicine, Engineering and Science of Texas.

The Warner T. Koiter Medal, established in 1996, is bestowed in recognition of distinguished contributions to the field of solid mechanics with special emphasis on the effective blending of theoretical and applied elements of the discipline, and on a high degree of leadership in the international solid mechanics community.