



Professor Stelios Kyriakides, P.E.

See:

<http://www.worldcat.org/identities/lccn-n84-81785>

<http://65.54.113.26/Author/10925412/stelios-kyriakides>

http://research.ae.utexas.edu/mssm/SK_04.htm

<http://research.ae.utexas.edu/mssm/stelios-kyriakides.html>

<http://www.ae.utexas.edu/faculty/faculty-directory/kyriakides>

imechanica.org/node/1080

<http://65.54.113.26/Author/10925412/stelios-kyriakides>

University of Texas at Austin

Director, Center for Research in Mechanics of Solids, Structures and Materials

Professor, Aerospace Engineering and Engineering Mechanics

Cockrell Family Chair in Engineering No. 10

Dr. Kyriakides received a B.Sc. degree in Aeronautical Engineering with first class honors in 1975 from the University of Bristol in the U.K., and graduate degrees in Aeronautics, with specialty in the mechanics of solids,

from the California Institute of Technology (M.S. 1976, Ph.D. 1980). He joined the University of Texas at Austin in September 1980, where he currently holds the Cockrell Family Chair in Engineering No. 10.

Dr. Kyriakides' major technical interests are in the mechanics of solids, with an emphasis on instability at both the macro (structural) and micro (material) levels. His work is motivated by practical problems and usually involves combined experimental, analytical and numerical efforts. He has published extensively in major national and international journals (120 journal papers, 40 proceedings papers, 25 technical reports, co-edited 5 books, and co-authored one book) and has lectured at 35 Universities and 16 different countries--often as an invited speaker. Together with his graduate students, he has pioneered the area of propagating instabilities in solids, structures and materials. Such instabilities have been shown to govern the mechanical behavior of large structures such as offshore pipelines, oil well casings, etc. This work was summarized in a monograph in the *Advances in Applied Mechanics* in 1994. In the 1990s, the problem area has experienced exponential growth after it was demonstrated that propagating necks in polymers, the compressive response and the spreading of crushing in cellular materials, in bone and wood, 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 governed by the same underlying fundamental mechanism. Each of these problems either was or is currently under study in Dr. Kyriakides' laboratory. He also has maintained a long-term interest in plasticity, manufacturing forming problems, crushing, localization and failure, the mechanical behavior of composites, etc. and he is recognized as a major contributor to these areas.

Dr. Kyriakides was recognized with the Presidential Young Investigator Award in 1984, the first year the awards were granted. Prompted by a requirement of this award, he started a long and productive involvement with the offshore oil and gas industry. Since then his work has been supported by this industry to investigate plastic buckling problems of tubular structures used as pipelines, as well casings, as platform legs, as tethers and as downhole tubulars. Together with his students, he investigated this class of problems in depth and developed experimental data-bases and analytical and numerical models which have become the benchmarks worldwide and are quoted in the main offshore structures design codes. Analysis of this class of practical problems starts with evaluation of the manufacturing procedures at the steel and pipe mills, of the procedures for installing them in the sea, and end with evaluation of the performance of the structures under the operational loads. During the past several years Kyriakides has been pulling this body of work together in a book entitled "Mechanics of Offshore Pipelines;" Volume 1 "Buckling and Collapse," was published by Elsevier in 2007. Dr. Kyriakides' basic and applied research has taken him world-wide including: Australia, Brazil, Japan, Hong Kong, Germany, U.K., Norway, The Netherlands, Denmark, Spain, Italy, France, Portugal, Canada, China, Israel, Greece, Cyprus. Over the years he has served the engineering practice as a consultant to more than 40 companies, often on a long-term basis, including major oil companies, steel companies, construction companies, and automotive companies.

Dr. Kyriakides is proud of the quality graduate students he has attracted to the University of Texas and mentored to excellence. Eight of his twenty doctoral students are in University tenure positions and the rest hold prominent positions in a variety of industries. His thirty five MS advisees can be found in companies such as Boeing, Lockheed Martin, Northrop, ExxonMobil, Shell, Applied Materials, Stress Engineering, Technip, Carbomedics, Sandia National Labs, Lucent Technologies, Aerospatiale, and others.

At the national and international level, Dr. Kyriakides has played a leading role in forming the Offshore Mechanics and Arctic Engineering Division of the ASME, and was the founding chairman of the ASME/AMD technical committee Instability in Solids and Structures. He served as a member of the Executive Committee of

the Applied Mechanics Division of the ASME, which he chaired from July 2002 to June 2003. He has been a member of the US National Committee on Theoretical and Applied Mechanics since 1998 (a branch of the US Research Council), and presently serves as its Vice Chair. He also serves on the Congress Committee and the General Assembly of the International Union of Theoretical and Applied Mechanics. From 2005 to 2007 he served as president-elect, president, and past president of the American Academy of Mechanics. He has participated in the organization of several national and international conferences including the US Congress of Applied Mechanics in 1986, the 1999 Society of Engineering Science Conference, and the 2007 ASME Mechanics and Materials Conference. He also organized and co-chaired special IUTAM international symposia: "Material Instabilities" (May 2001) and "Mechanics of Liquid and Solid Foams" (2011). He has been a member of the editorial boards of four international journals, and since 2005 serves as the Editor of the International Journal of Solids & Structures, one of the premier journals in the field. He also serves regularly on national and international committees and panels that review proposals, current research trends and future directions. He has been recognized by several national awards, including the 2009 Koiter Medal of the ASME, and is a Fellow of the ASME and of the American Academy of Mechanics and a member of the National Academy of Engineering. In 2009 he received Docteur Honoris Causa from the Institut National des Sciences Appliquées de Lyon, France.