

THE DEPARTMENT OF MECHANICAL & AEROSPACE ENGINEERING  
STANFORD S. AND BEVERLY P. PENNER  
DISTINGUISHED LECTURES

**An Odyssey in Solid Mechanics  
(or Gangin' Aft A-gley)**

*Robert M. McMeeking*



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Tony Evans Professor of Structural Materials, UCSB  
Distinguished Professor of Mechanical Engineering, UCSB  
Sixth Century Prof. of Engineering Materials,  
University of Aberdeen, Scotland

Monday, February 26, 2018 4:00 p.m.-5:00 p.m.  
CMRR Auditorium, UCSD

**ABSTRACT**

In this lecture, I will describe some of my history in solid mechanics, and the problems that I have had the good fortune to work on. An emphasis will be the themes, approach, methodologies and interdisciplinary collaborations that ensure that mechanics has a major impact on today's technical and scientific challenges. I will give my perspective on how mechanics can and does contribute significantly today across a wide variety of technologies. In my presentation I will briefly review a selection of the areas I worked on at the beginning of my career. I will then cover in more detail a selection from the topics I have worked on more recently, such as blast and projectile impact effects on metal and ceramic targets, bio-chemo-mechanics models for the cell cytoskeleton and cell adhesions, non-chemical adhesion surfaces inspired by gecko toes, zero thermal expansion lattice materials, the mechanics of electric battery storage materials, toughening mechanism in elastomers and crack tip fields, and low density lattice materials including isotropic ones achieving the Hashin-Shtrikman upper bound on elastic moduli.

**BIO**

Robert McMeeking completed his Ph.D. in solid mechanics at Brown University in 1976 and then was a post-doc for 2 years at Stanford University. Thereafter he joined the faculty of the Theoretical and Applied Mechanics Department in the University of Illinois at Urbana-Champaign. He moved to UCSB in 1985 as Professor of Materials and of Mechanical Engineering, and was Chair of the Department of Mechanical Engineering 1992-1995 and again during 1999-2003. He has published approximately 300 papers on a variety of subjects in the mechanics of materials area. McMeeking was Editor-in-Chief of the Journal of Applied Mechanics from 2002 to 2012, and is currently Secretary of the Congress Committee of the International Union of Theoretical and Applied Mechanics, and President of the International Congress on Fracture. He is a member of the National Academy of Engineering, Fellow of the American Society of Mechanical Engineers, Fellow of the U.K. Royal Academy of Engineering and Fellow of the Royal Society of Edinburgh. He held a Humboldt Award for Senior Scientists in 2006 and again in 2013. He was awarded the Brown Engineering Alumni Medal in 2007, the 2014 William Prager Medal of the Society of Engineering Science, and the 2014 Timoshenko Medal of the American Society of Mechanical Engineers.

The Professional Community is Cordially Invited

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