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Monie A. Ferst

The Monie A. Ferst award is named for the eponymous outstanding engineer and businessman, who received his B.S. in Mechanical Engineering from Georgia Tech in 1911. While a student, Ferst became interested in scientific research conducted in an educational setting. In 1933, he and two other influential Georgians used their own funds to establish the Georgia Tech Research Institute, to make it possible for faculty members to conduct research, in addition to teaching. Ferst believed that it is necessary for professors to conduct scientific research in order to stay abreast of their fields and to generate enthusiasm in the classroom. This led him to provide funding during his lifetime and in perpetuity through the Ferst Foundation of Atlanta for Sigma Xi research awards at Georgia Tech.

*Georgia Institute of Technology
Chapter of Sigma Xi*

Website: <http://sigmaxi.gatech.edu/>
Email: sigmaxi@me.gatech.edu



Georgia Institute of Technology Chapter

2017-2018

Sigma Xi Monie A. Ferst Award Symposium

In honor of

William D. Nix

*Lee Otterson Professor of Engineering (Emeritus)
Stanford University*

***Thursday, November 16, 2017
Georgia Institute of Technology
Marcus Nanotechnology Research Center
345 Ferst Drive NW, Atlanta, GA 30318***

Monie A. Ferst Award

The award is given annually to an educator in engineering or science who has made *"notable contributions to the motivation and encouragement of research through education."* Its purpose is to *"recognize significant contributions to scientific research by an educator in engineering or science."* The award consists of a medal and \$10,000. Since 1977, it has been given to educators who have inspired their students and colleagues to significant research achievements.

Biography of William D. Nix

William D. Nix is an internationally renowned scholar in the field of the mechanical behavior of solids. He received his B.S. in Metallurgical Engineering from San Jose State College in 1959, and his Ph.D. in Metallurgical Engineering and Materials Science from Stanford in 1963. His professional life began at Stanford in 1963, where, as a distinguished faculty member who excelled in both teaching and research, he was named the Lee Otterson Professor of Engineering in 1989.

Professor Nix started his research career in the 1960's with a series of seminal scientific contributions on the mechanisms of high temperature creep and failure of metals. In the mid-1980's, his attention shifted to the then-emerging field of the mechanical behavior of thin films, as widely used in microelectronics and other advanced materials technologies. He and his students pioneered many of the now widely used experimental techniques for measuring and understanding the behavior of thin films including nanoindentation, substrate curvature, bulge testing, and micro-pillar testing. His most recent work has dealt with size effects on the mechanical properties of crystalline materials and the mechanical behavior of lithiated nanostructures for advanced battery technologies. Throughout his career, he has used and advanced dislocation modeling principles to aid in the basic understanding of deformation. His research has helped to define many of the most exciting frontiers in materials research in significant and long-lasting ways.

Professor Nix is a member of the US National Academy of Engineering, the US National Academy of Sciences, and a Fellow of the American Academy of Arts and Sciences. His numerous awards include the Bradley Stoughton Teaching Award, Robert Franklin Mehl Award, ASM Gold Medal, Albert Easton White Distinguished Teacher Award, Albert Sauveur Achievement Award, Nadai Medal, and von Hippel Award. Professor Nix has authored or co-authored more than of 450 technical publications, two major textbooks, and has trained 79 Ph.D. students.

Program

Thursday, November 16

7:30 – 8:30	Continental breakfast	Marcus Nanotechnology Research Center
8:30 – 8:40	Paul A. Kohl, GT Sigma Xi President	Welcome
AM1: Chair George Pharr		
8:40 – 9:00	David Matlock, Colorado School of Mines	Steels to enable light weight designs: Practical applications of Prof. Nix's systematic approach to research
9:00 – 9:20	Bryan Chin, Auburn University	Detection of pathogens on fresh fruits and vegetables
9:20 – 9:40	Warren Oliver, Nanomechanics Inc.	35 years later and we're still creeping along
9:40 – 10:00	Mike Mills, Ohio State University	Phase transformation strengthening
10:00– 10:30	Break	
AM2: Chair Yong Huang		
10:30 – 10:50	Kevin Hemker, Johns Hopkins University	Twins are everywhere, but there is only one Bill Nix
10:50 – 11:10	Joost Vlassak, Harvard University	Nanocalorimetry - another way of probing materials at small scales
11:10 – 11:30	Huajian Gao, Brown University	History-independent cyclic response of nanotwinned metals governed by correlated necklace dislocations
11:30 – 11:50	Mike Uchic, Air Force Research Laboratory	3D microstructure quantification
11:50 – 1:00	Lunch	Marcus Atrium: all attendees invited
PM1: Chair David Matlock		
1:00 - 1:20	Erica Lilleodden, Helmholtz Geesthacht	Structure matters: insights into size effects on strength
1:20 – 1:40	Norbert Huber, Helmholtz Geesthacht	New insights in nanoporous gold: Understanding deformation mechanisms by simplifying complexity
1:40 – 2:00	Julia Greer, Cal Tech	The importance of staying between the lines: from nanopillars to nano-architectures, keeping it small
2:00 – 2:20	Gang Feng, Villanova University	Tuning the mechanical properties of nanoparticle assemblies
2:20 – 2:40	Seok-Woo Lee, Univ. of Connecticut	Superelasticity and cryogenic linear shape memory effects of CaFe ₂ As ₂
2:40 – 3:00	Ill Ryu, University of Texas at Dallas	Dislocation dynamics study on latent softening in FCC micropillars subjected to combined loadings
3:00 – 3:30	Break	
PM2: Chair Warren Oliver		
3:30 – 3:50	Matt McDowell, Georgia Tech	In situ investigation of chemomechanical phenomena in energy storage materials
3:50 – 4:10	Tobias Beirau, Martin Luther University	Mechanical properties of radiation damaged geomaterials
4:10 – 4:20	Paul A. Kohl	Monie A. Ferst Award Presentation
4:20 - 5:00	Bill Nix	Award Acceptance

