

**Department of Structural Engineering
University of California, San Diego
SE 290 Seminar**



Dr. Kara Peters

Program Director

Mechanics of Materials and Structures (MoMS) Program
Civil, Mechanical, and Manufacturing Innovation (CMMI) Division
National Science Foundation

"Overview of the MOMS Program at NSF"

Wednesday, April 5, 2017

1:00 pm - 1:50 pm, Pepper Canyon Hall, Room 122

<http://structures.ucsd.edu/node/2126>

Abstract

This presentation will present an overview of the Mechanics of Materials and Structures (MoMS) program within the Civil, Mechanical, and Manufacturing Innovation Division at the National Science Foundation. The Mechanics of Materials and Structures program supports fundamental research in mechanics as related to the behavior of deformable solid materials and structures under internal and external actions. The program supports a diverse spectrum of research with emphasis on transformative advances in experimental, theoretical, and computational methods. Proposals related to material and structural response are welcome, including, but not limited to, advances in fundamental understanding of deformation, fracture, fatigue, nonlinear deformation, instability and collapse, and wave propagation. Proposals addressing mechanics at the intersection of materials and structures, such as, but not limited to, meta-materials, hierarchical, micro-architected and low-dimensional materials are also encouraged. Proposals incorporating reduced-order modeling, data-driven techniques, and/or stochastic methods with a strong emphasis on validation are encouraged. Similarly, proposals that explore new experimental techniques to capture deformation and failure information for

extreme ranges of loading or material behavior are also welcome. Finally, experimental and computational methods that address information across multiple length and time scales, potentially involving multiphysics considerations are also welcome.

Biography

Dr. Kara Peters is a Professor in the Department of Mechanical and Aerospace Engineering at North Carolina State University and currently on a rotator appointment as the Program Director for the Mechanics of Materials and Structures at NSF. She received her PhD in Aerospace Engineering from the University of Michigan in 1996. Following her PhD, Dr. Peters worked as Post-Doctoral Researcher in the Laboratory of Applied Mechanics at the Ecole Polytechnique Fédérale de Lausanne (Swiss Institute of Technology at Lausanne). She then joined North Carolina State University in 2000. Dr. Peters is a member of the ASME Adaptive Structures and Material Systems Technical Committee and was the chair of the SPIE Smart Structures and Materials Symposium in 2010 and 2011. Dr. Peters' research focus on the development, modeling and integration of optical sensors for structural health monitoring of composite structures and other in-situ measurement techniques. Specifically, she has focused on multi-scale deformation measurements with a single optical sensor network for damage identification. More recently, her research group has also developed large deformation polymer optical fiber interferometric sensors for monitoring of compliant structures. The efforts have been funded by NSF, AFOSR, ONR and NASA and DARPA. She is an Associate Editor of the journal Smart Materials and Structures and on the editorial board of Measurement Science and Technology.

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Sponsored by Professor Ken Loh

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