



UNIVERSITY OF  
**GEORGIA**  
College of Engineering

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**Lecture  
Series**



**Lawrie Virgin**

Pratt School of Engineering  
Duke University

## *Exploiting 3D-Printing in teaching and research in structural mechanics*

### **ABSTRACT**

This talk will describe how 3D printing, or additive manufacturing, can provide an additional perspective to both teaching and research in engineering mechanics. Sufficiently slender, and hence flexible, structures can be used to provide a practical hands-on component to the understanding of structural behavior for students. The ability to produce high-fidelity models may also facilitate experimental studies for complicated structural geometries in the research realm. Given the rapid advances in 3D printing, in terms of print size, spatial resolution, and choice of different materials, the ideas presented here are likely to gain a more prominent position in teaching and research.

### **BIOGRAPHY**

Lawrie Virgin is Professor of Mechanical Engineering and Materials Science at Duke University in North Carolina. He is a former Chair of the Department of Civil and Environmental Engineering and has been a faculty member at Duke since 1988. Prior to that he received his education in the United Kingdom culminating in a PhD from the University of London (UCL). His research interests are centered on nonlinear mechanics especially buckling, nonlinear vibration and their interaction. Applications of his research include ship capsizing, aeroelasticity, marine risers, rocking blocks, control, sonic fatigue, solar sails and the dynamics of very slender structures. He is the subject editor for Nonlinear Dynamics for Journal of Sound and Vibration. He has written over one hundred and forty journal papers and two books: "Introduction to Experimental Nonlinear Dynamics" (2000) and "Vibration of Axially Loaded Structures" (2007) both published by Cambridge University Press.

**FRIDAY  
SEPTEMBER 22, 2017**

**NOON - 1:30 P.M.**

**COVERDELL CENTER  
AUDITORIUM  
(Room 175)**