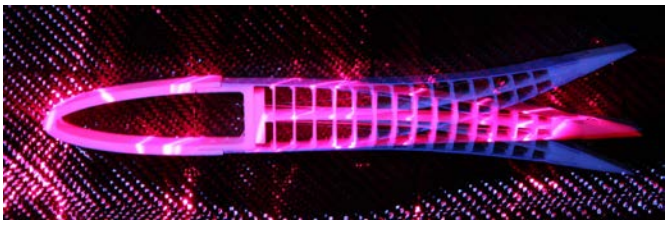
University of Colorado at Boulder

AEROSPACE ENGINEERING SCIENCES

Seminar



Benjamin Woods
Senior Research Officer
Swansea University
United Kingdom

Compliant Morphing Aerostructures for Future Aircraft

This seminar provides an overview of on-going research into shape adaptive morphing aerospace structures employing material and structural compliance. These concepts seek to increase the operating efficiency, and therefore reduce the emissions, of fixed and rotary wing aircraft by allowing for continuous optimization of the wing geometry under changing flight conditions. Smooth and continuous changes in wing shape can be achieved through the use of compliance, leading to significant drag reductions over existing technologies. The development, analysis, and experimental testing of several new concepts will be discussed, with a particular focus on the Fish Bone Active Camber (FishBAC) morphing airfoil. Potential applications to airplanes, helicopters, and wind turbines will also be discussed.

Wednesday, April 8, 2015
12:00 noon
DLC Collaboratory

Biography:

Benjamin Woods earned his PhD in Aerospace Engineering from the University of Maryland, specializing in structures and rotorcraft. His dissertation pioneered the use of powerful and lightweight Pneumatic Artificial Muscle actuators for primary control and vibration reduction of helicopter rotors. While at Maryland he was also Chief Design Engineer on the Gamera Human Powered Helicopter project, which broke a number of FAI world records. He has since been working as a senior research officer at Swansea University in the United Kingdom, where he is developing a number of novel morphing and ultra-lightweight structural concepts. He currently holds five US Patents and has three others pending.