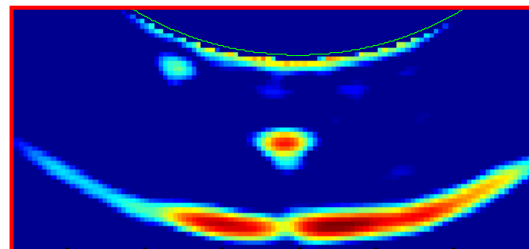
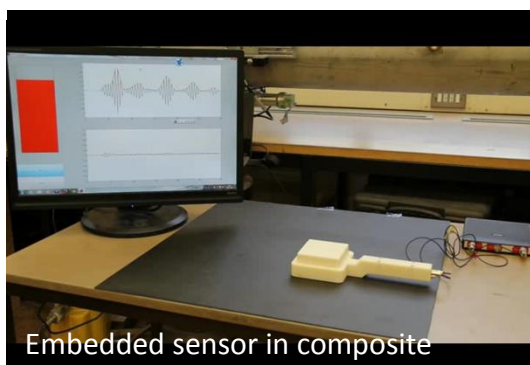
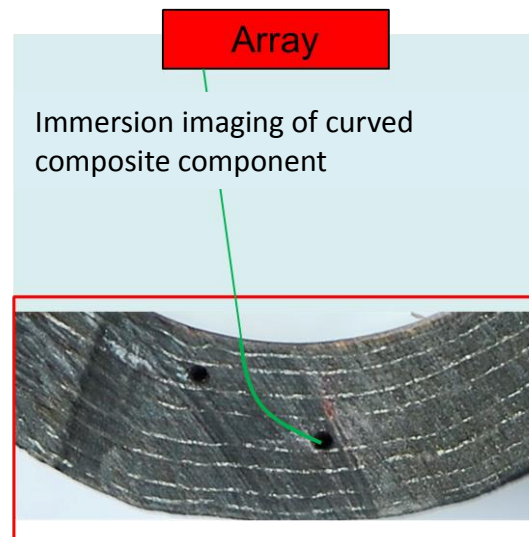


The Electrical Systems & Optics Research Division invites you to:
Applied Optics Group Lunchtime Seminar

Wireless ultrasonic sensors and array imaging of challenging materials

**Prof. Paul Wilcox
(University of Bristol)**



1.00pm Tuesday 11th Feb 2014
2nd Floor Lecture Theatre
Tower Building. All welcome

Applied Optics Group Lunchtime Seminar:

Wireless ultrasonic sensors and array imaging of challenging materials

This talk begins with an overview of the activities currently taking place in the Ultrasonics and NDT Group at the University of Bristol before addressing the topics of wireless ultrasonic sensors and array imaging of challenging materials in more depth.

Passive, wireless ultrasonic sensors can be integrated into a structure and used to perform ultrasonic measurements when activated by an external, inductively-coupled wand. This provides a new inspection modality that falls somewhere between classical NDT (using a measurement system external to the component under test) and SHM (where the measurement system is integrated into the component). The design and possible usage scenarios of such a system are discussed.

Ultrasonic arrays and digital array controller systems that are capable of Full Matrix Capture (FMC) of raw data from an array in near real-time are increasingly ubiquitous in industry. High resolution imaging algorithms that exploit the full matrix of data such as the total focusing method are now starting to gain acceptance but these only scratch the surface of what can potentially be done with FMC data. Examples of utilising FMC data to perform enhanced inspections of non-planar-surfaced components including composites will be discussed.

Professor Paul Wilcox is School Research Director and Professor of Dynamics in the Department of Mechanical Engineering at the University of Bristol where he has worked since his appointment as a Lecturer in 2002. His research is mainly focused on the use of ultrasonic and acoustic waves to non-destructive applications. He has worked on guided waves, wave propagation, scattering, and ultrasonic signal processing, particularly for imaging and defect characterisation using ultrasonic array transducers.