



The  
University  
Of  
Sheffield.

Department of Mechanical  
Engineering

## **Mechanical Engineering Departmental Seminar**

**Friday 19<sup>th</sup> September 2008**

**1.00 pm – 2.00 pm, St Georges Lecture Theatre 15  
Sir Frederick Mappin Building**

**“Implementing Smart Structures Technology in High  
Consequence Applications ”**

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### **Abstract**

This talk will begin by citing examples of smart structure technology developed at Los Alamos National Laboratory (LANL) over the last 15 years that have made the transition from research to practice and the barriers faced with such implementation on *in situ* structures. The examples cited have the common theme of very high consequences applications because of their defense nature, the hazardous material they are applied to, and the very high costs associated with these structures.

The presentation will then identify general issues that pose challenges when trying to implement new smart structures technology on real world systems. These issues include fundamental difficulties with funding new technology proof-of-principle demonstrations, the need for multidisciplinary technology development, and the need to perform studies in real world environments so that sources of variability can be assessed and quantified.

The talk will conclude by raising questions regarding the ability of our current education paradigm to adequately train the next generation of engineers with the skill set necessary to transition smart structures technology from research to practice. Education programs that LANL is developing with the University of California – San Diego will be highlighted as an attempt to address some of the current shortcomings with tradition education models.