University of BRISTOL

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ADVANCED COMPOSITES CENTRE FOR INNOVATION & SCIENCE

Imperial College London

The Composites Centre
for research, modelling, testing and training in advanced composites

HiPerDuCT Industry Event

When & Where

Tuesday 20th June 10-3pm, Johnson Lecture Room, The National Composites Centre, Bristol BS16 7FS

Purpose

A key limitation of current composites is their brittleness. Failures tend to be sudden and catastrophic, without the yielding or other warning of overloading seen in metals. The HiPerDuCT programme is a £6M, six-year collaboration between the University of Bristol and Imperial College, London. **We are researching ways to overcome this limitation by creating high performance composites that fail more gradually.** Pseudo-ductile metallic like "yielding" has successfully been achieved by hybridisation and fibre reorientation in tension, and other types of loading are under investigation. Novel architectures have been devised to produce more gradual failure, and progress made towards fully ductile high performance fibres.

Agenda

10:00 Arrival, registration & coffee

10:30-10:45 Overview of Programme – Prof Michael Wisnom

10:45-12:15 Presentations covering selected aspects of the programme:

- Multi-directional pseudo-ductile hybrid composites – Dr Meisam Jalalvand
- Sensors for visual detection of overloading – Tamas Rev
- Pseudo-ductile angle-ply composites – Dr Jonathan Fuller
- High Performance Discontinuous Fibre Composites: A Sustainable Route to the Next Generation of Composites – Dr HaNa Yu
- Designing the microstructure of ductile composites – James Finley
- Isolating fibre fractures with a bio-inspired fibre-matrix interphase – François de Luca

12:15-12:45 Industrial perspectives:

- Dr Rob Backhouse, Rolls-Royce
- Dr David Tilbrook, Hexcel
- Dr Dan Thompson, NCC

12:45-13:45 Lunch and poster display/networking with HiPerDuCT team

13:45-14:45 Parallel workshop sessions to discuss potential applications and requirements

- Session A:
  - Pseudo-ductile hybrid and angle ply composites
  - Overload sensors
- Session B:
  - Fibre-matrix interphase developments
  - Discontinuous fibre composites

14:45 Close & Optional tour of National Composites Centre

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