

Bristol Composites Institute Doctoral Research Symposium

4 April 2023

Programme

9:00 Registration
Posters and tea / coffee

10:00 Presentations

- Introduction and welcome

Professor Stephen Hallett and Professor Ole Thomsen, Co-Directors of the Bristol Composites Institute

Professor Steve Eichhorn, Director of the CoSEM CDT

- Technical presentations on current PhD research

Materials theme:

- High-throughput computational chemistry for polymer discovery (Matt Bone)
- Low-temperature magnetic properties of porous carbon/sulfur composites under a hydrogen atmosphere (Charlie Brewster)
- A material selection journey for sustainable discontinuous fibre composites (Ali Kandemir)
- Designing, modelling and manufacturing composite hydrogels for biomedical applications (Joe Surmon)
- Investigation of the compressive behaviour of carbon/glass fibre hybrid composites with 4-point flexural test (Aree Tongloet)

Structures theme:

- Experimental testing of WrapToR truss stiffened skin panels (Chris Grace)
- Morphing fairing for folding wingtip joints (Nuhaadh Mahid)
- Elastic tailoring of composite structures by fibre steering (Calum McInnes)
- Towards multi-stage topology optimisation design of wind turbine blade structures (Alex Moss)
- Volume optimisation of origami bellows for deployable space habitats (Mengzhu Yang)

11:20 Tea / coffee break

11:40 **Presentations continue**

Manufacturing and design theme:

- Design process for 4D printed composite macroscopic bending hygromorphs (Charles de Kergariou)
- An investigation into the performance of Aligned Discontinuous Fibre Reinforced Composites (ADFRC) produced with HiPerDiF 3G (Chantal Lewis)
- Trusstrusion: Continuously extruded wrapped tow reinforced truss beams (Francescogiuseppe Morabito)
- The reflow of semi-cured material (Michael O'Leary)
- Inductive heating potential for energy efficient composites processing (James Uzzell)
- On-line consolidation of thermoset prepregs: Laminate quality analysis (Axel Wowogno)

12:30 **Two minute quickfire presentations**

Research represents all three themes of the BCI with wide scope. For example, development of new functional materials (mycelium-based composites, carbon fibre-reinforced concrete, nanocomposites designed for use in low Earth orbit), innovative design strategies (multi-scale modelling methods coupled with machine learning), and new manufacturing techniques (sustainable composites incorporating highly aligned reclaimed fibres, improved defect identification and tolerance to fatigue).

12:45-2:00 **Lunch and afternoon poster session**

A selection of sandwiches, sides, and dessert

Please be advised that photographs will be taken at this event, and that these photographs may be used on the University website, and in University publications, including matters relating to the University's marketing and editorial functions.



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