



# IBS Center for Multidimensional Carbon Materials



## Prof. Stephen C. Hawkins

School of Mechanical and Aerospace Engineering

Queen's University Belfast, UK

### Applications of 'directly spinnable Carbon Nanotubes', and advanced fibre composites research at Queen's University Belfast

March 26 | Bldg. 101  
Tuesday, 2 PM | Seminar Room on the 1<sup>st</sup> floor

#### Abstract

Directly Spinnable Carbon Nanotubes (dsCNT) are a uniquely useful form of this revolutionary material that can be drawn as a continuous web of highly aligned fibres from the silicon wafer growth substrate. The web, which has an optical transmission of around 80% and a densified thickness of only around 50 nm, has a variety of uses. This presentation will survey some of many applications we have studied, as well as our current work in CNT - enhanced aerospace composites and the modelling of composite properties and failure modes.

#### Brief Biography

Professor Stephen C. Hawkins has a strong record of research achievement at the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia's premier multidisciplinary national research agency, where he was awarded the prestigious CSIRO Medal for Research Achievement and the Nanotechnology Victoria Prize for Innovation in 2006. In September 2013 Professor Hawkins was appointed as Professor at Queen's University Belfast, UK, and holds an adjunct Professorship at Monash University, Australia. Professor Hawkins is directly responsible for the design and construction of the reactors and the processes used by CSIRO to produce the uniquely useful 'directly spinnable CNTs'. This skill was brought to QUB where, in September 2014, the capability to grow directly spinnable CNTs was established and demonstrated there for the first time. Establishment of a facility to synthesise very high specification carbon nanotubes within an aerospace engineering school brings together the skills to make this revolutionary material and to apply it to the further development of CFRP composites with enhanced properties and functionalities. This is of critical interest to the nationally important UK Aerospace Industry and is a unique capability in Europe. Prof Hawkins has a very broad experience in CNT related topics, including synthesis, process development, and operation of CNTs for different applications.

Tuesday Colloquium



You are cordially invited to attend!