Project 1

Project Name/Research Title	**Hybrid deterministic/stochastic failure models for AFP composites**
Project Description	There has been a tremendous growth of utilizing Automated Fibre Placement (AFP) to manufacture highly precise components and large structures like fuselage panels and wing skins for high-end applications in aircrafts and next generation of space vehicles. This additive manufacturing technology is gaining popularity due to its fast rate of material deposition, repeatability, ability to produce parts with complex geometry and reduction of material waste. The PhD candidate will perform cutting edge research in developing hybrid deterministic/stochastic failure models for AFP composites. This will involve conducting in-depth studies to determine the underlying deformation and failure mechanisms in AFP composites. Proposing and developing physically based constitutive/damage equations. Establish appropriate numerical schemes to solve the governing equations and implementing the scheme in commercially available finite element codes.
Academic Expectations	The Ideal candidate will have the following qualities: • you have a strong motivation for (and preferably a history of) conducting scientific research and working with complex questions; • you possess structured and creative problem-solving abilities; • you possess strong analytical and technical skills and take responsibility for the development of your work; • you can work independently as well as in team; • you have excellent English communication skills (written and presentation); • knowledge of fibre reinforced polymer composites is an advantage; • experience with computational mechanics is a prerequisite; • experience with programming in Python or Matlab is a clear advantage; • experience with experimental work is an advantage;