Title: Novel Hierarchical Composites for Improved Compressive Performance

Type of award  PhD Research Studentship

Department  Aerospace, Bristol Composites Institute

Duration  3.5 yrs

Scholarship Details  Minimum £15,609 p.a. rising to 2022/23 rate when published

Eligibility  Home (UK) and EU citizens who have confirmation of UK settlement or pre-settlement status under the EU Settlement Scheme

Start Date  Available now

PhD Topic Background/Description
The NextCOMP programme takes a fundamentally new approach to advanced composites, using a hierarchical structure inspired by natural materials with the aim of dramatically improving the performance of advanced composites under compression. This programme is a £6m collaboration between Imperial College London and the University of Bristol, carried out by an interdisciplinary team including world leading academics, with the guidance and support of numerous industrial partners, international advisors, and collaborators.

These novel, hierarchical composites will optimise the microstructure at a variety of length scales, to control failure and improve compressive performance. We are developing novel matrices and fibres, each with structure designed to improve compressive performance; working on new architectures for lay-up of components with larger scale structure; developing new mechanical testing methods; and using modelling to better understand compressive failure.

We are looking for a talented, enthusiastic researcher to join our diverse team and carry out research into manufacturing these hierarchical, hybridised composites. The new approach to composites challenges existing thinking in manufacturing, requiring the development of novel methods and integration of novel materials. This may include recycled or natural materials and addressing important sustainability concerns such as energy efficiency in manufacturing.

The successful candidate will have the opportunity to work collaboratively with our team across both institutions and with other partners. Their work will be disseminated nationally and internationally.

The successful candidate (s) will be based at Bristol Composites Institute a world-leading research centre at the heart of the UK Government Composites Strategy. The institute has over 150 researchers and works closely with the £60M National Composites Centre, which is engaged with industry to fully exploit and develop composites technology for now and for the future. The researcher will have access to state-of-the-art equipment and the chance to work with leaders in the field.

Please note: This opportunity is not open to students applying to our CDT programmes.
**Candidate Requirements**

Applicants must hold/achieve a minimum of a master’s degree (or international equivalent) in a mathematics, physics, or engineering discipline. Applicants without a master’s qualification may be considered on an exceptional basis, provided they hold a first-class undergraduate degree. Please note, acceptance will also depend on evidence of readiness to pursue a research degree.

We particularly encourage candidates who identify with groups which are under-represented in UK Engineering to apply. We are committed to equality, diversity, and inclusion, with multiple NextCOMP staff members on the EDI committee and actively participating in programmes to make our facilities and research practices ever more inclusive. If you would like to know more about this, please talk to us.

If English is not your first language, you need to meet this profile level:

**Profile E**

Further information about [English language requirements and profile levels](#).

**Basic skills and knowledge required**

The ideal candidate will be a highly creative engineer/scientist with an interest in seeing their research contribute to solving real world problems. They will have a good understanding of fibre-reinforced composite materials and be comfortable carrying out practical work in a laboratory setting. Experience with manufacturing would be an advantage. They will contribute their own ideas, communicate their research to others and be enthusiastic about creating something new, interesting, and useful in their work.

**Scholarship Details**

Stipend at the UKRI minimum stipend level will also cover tuition fees at the UK student rate. Funding is subject to eligibility status and confirmation of award.

To be treated as a home student, candidates must meet one of these criteria:
- be a UK national (meeting residency requirements)
- have settled status
- have pre-settled status (meeting residency requirements)
- have indefinite leave to remain or enter.

**Application Details**

If you are interested in applying, we would be happy to address any initial informal enquiries you may have or if you are not sure whether you are ready to apply, please contact us to discuss.

Dr Laura Rhian Pickard [laura.pickard@bristol.ac.uk](mailto:laura.pickard@bristol.ac.uk)

Professor Richard Trask [r.s.trask@bristol.ac.uk](mailto:r.s.trask@bristol.ac.uk)

Mrs Jo Gildersleve [jo.gildersleve@bristol.ac.uk](mailto:jo.gildersleve@bristol.ac.uk)

For general enquiries, please email [came-pgr-admissions@bristol.ac.uk](mailto:came-pgr-admissions@bristol.ac.uk)

To apply for this studentship, submit a PhD application using our [online application system](http://www.bristol.ac.uk/pg-howtoapply)

We welcome applications from all members of our community and are particularly encouraging those who identify with groups which are under-represented in UK Engineering to apply.