

PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	Design School
Supervisors	Principal supervisor: Dr Charles Loo (XJTLU) Co-supervisor: Dr Dianlong Tan (JITRI) Co-supervisor: Professor Yuyuan Zhao (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Fully Funded PhD project (world-wide students)
Project Title	Manufacturing Simulation and Application of Carbon Fiber Reinforced Composite Cable
Contact	Please email charles.loo@xjtlu.edu.cn (XJTLU principal supervisor's email address) or (JITRI supervisor's email: tandianlong@cfct-jitri.com) with a subject line of the PhD project title

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification) in Mechanical Engineering, Manufacturing Engineering, Materials Engineering, Applied Mechanics or related fields.

Knowledge of finite element modelling is required.

Evidence of good spoken and written English is essential. The candidate should have an IELTS score of 6.5 or above, if the first language is not English. This position is open to all qualified candidates irrespective of nationality.

Degree:

The student will be awarded a PhD degree from the University of Liverpool (UK) upon successful completion of the program.

Funding:

This PhD project is a collaborative research project between XJTLU (<http://www.xjtlu.edu.cn>) in Suzhou and JITRI (Jiangsu Industrial Technology Research Institute) Jiangsu Jitri Carbon Fiber & Composite Application Technology Research Institute in Changzhou. The student will be registered as an XJTLU PhD student but is expected to carry out part of his or her research at the Institute in Changzhou.

The PhD studentship is available for three years subject to satisfactory progress by the student. The award covers tuition fees for three years (currently equivalent to RMB 80,000 per annum). In addition, during the period of undertaking main research at institute in Changzhou, the PhD candidate will be provided with monthly living allowance around RMB 4000 by Jiangsu Jitri Carbon Fiber & Composite Application Technology Research Institute.

Project Description:

During the past decades, there has been significant interest in the application potential of carbon fiber composites as it offers many advantages over other materials and composites. This particular project will investigate the properties and capabilities of a new multi-purpose high-strength carbon fiber reinforced composite cable (carbon cable hereafter). The carbon cable differs from the existing carbon cable both in the manufacturing process and properties. In addition, it will study the connection of the carbon cable with other components. Potential applications include bridge cables, building reinforcement, engineering machinery, sailboat, and large stadium. It is one of the best substitutes for steel cable in many fields because of its excellent properties such as high strength, high corrosion resistance, lightweight, and low expansion coefficient.

The project aims to carry out a new process based on the studies in recent 20 years, along with the cooperation with well-known carbon fiber cable R & D institutes at home and abroad to develop a new generation of carbon fiber cable, accelerating the application of carbon fiber composites in China and drive the development of the whole carbon fiber industry chain.

Keywords: New materials, CFRP composite cable, Digital twin, Manufacturing simulation

For more information about doctoral scholarship and PhD programme at Xi'an Jiaotong-Liverpool University (XJTLU): Please visit

<http://www.xjtlu.edu.cn/en/study-with-us/admissions/entry-requirements>

<http://www.xjtlu.edu.cn/en/admissions/phd/feescholarships.html>

Supervisor Profile:

Principal Supervisor:

Dr. Charles Loo is an Assistant Professor in Structural and Materials Engineering in the department of Civil Engineering at Xi'an Jiaotong-Liverpool University (XJTLU). He holds a BEng. (1st Class Hons) in Civil Engineering, and a MEng. in Structural and Foundation

Engineering and a PhD in Structural Engineering from the University of Sydney. Prior to joining XJTU, he was a Senior Lecturer at Curtin University. Dr. Loo also worked in the consulting industry for a number of years, designing complex structural facilities. He is a Chartered Professional Engineer with Engineers Australia with the Civil and Structural Engineering colleges (MIEAust CPEng NER APEC Engineer IntPE Aus). His research interests include multi-physical computational modelling, inverse analysis and optimisation, metamaterials, structural engineering, composites and smart sensors.

JITRI co-supervisor:

Dr. Tan, graduated from Harbin University of technology with a master's degree in 1987 and Beijing University of science and technology with a doctor's degree in 1996. He studied on microalloying as a postdoctoral at McMaster University, Canada. He is also an industrial co-supervisor of North-east University and XJTU-JITRI. He has been working on Bridge cables over 20 years, gaining more than 70 granted patents, drafting an ISO international standard "galvanized and zinc aluminum alloy coated steel wire for bridge cable" in 2018, and he's working on carbon fiber cables and ropes now.

How to Apply:

Interested applicants are advised to email charles.loo@xjtu.edu.cn (XJTU principal supervisor's email address) or (JITRI supervisor's email: tandianlong@cfct-jitri.com) the following documents for initial review and assessment (please put the project title in the subject line).

- CV
- Two reference letters with company/university letterhead
- Personal statement outlining your interest in the position
- Proof of English language proficiency (an IELTS score of 6.5 or above)
- Verified school transcripts in both Chinese and English (for international students, only the English version is required)
- Verified certificates of education qualifications in both Chinese and English (for international students, only the English version is required)
- PDF copy of Master Degree dissertation (or an equivalent writing sample) and examiners reports available if applicable