

PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	<p><i>Please list all the names in the supervisory team. It should be consistent with the information on your approved PGRS proposal.</i></p> <p>Principal supervisor: Dr.Yingli.Shi (XJTLU) Co-supervisor: Dr.Chun Zhao (XJTLU) Co-supervisor: Dr. Ian Sandall (UoL) External supervisor: Dr. Xuedong Wang (Soochow University)</p>
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Charge-transfer organic cocrystal for UV-to-NIR large range responsive photodetectors
Contact	<p>Please email: Yingli.Shi@xjtlu.edu.cn (XJTLU principal supervisor's email address) with a subject line of the PhD project title.</p> <p>The principal supervisor's profile is linked here: https://scholar.xjtlu.edu.cn/en/persons/YingliShi https://scholar.google.com.hk/citations?user=bXIZUDMAAAAJ&hl=zh-CN&oi=ao</p>

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in Materials Science, Semiconductor Physics, Chemistry, and other related fields.

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:

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 99,000 per annum). It also provides up to RMB 16,500 to allow participation at international conferences during the period of the award. The scholarship holder is expected to carry out the major part of his or her

research at XJTLU in Suzhou, China. However, he or she is eligible for a research study visit to the University of Liverpool up to six months, if this is required by the project.

Project Description:

Photodetectors play a vital role in fields such as communications, imaging, and security. Conventional photodetectors typically utilize inorganic semiconductor materials like silicon and InGaAs, which are costly, and fragile, limiting the application in bio-detection and flexible wearable technologies. While advancements have been made in photodetectors for ultraviolet and visible wavelengths, research in the near-infrared (NIR) range beyond 1000 nm remains underdeveloped. Focused on organic molecules due to their customizable structures, offering a promising alternative for flexible devices. Specifically, in this project, we propose to explore co-crystal engineering, employing organic donor-acceptor mixtures to narrow the bandgap through CT interactions, extending the absorption spectrum into the NIR region. This study highlights the potential of scalable, low-cost organic materials to reduce dependence on rare inorganic semiconductors, thus expanding the practical applications of organic photodetectors in areas such as environmental monitoring, biomedical imaging, and flexible optoelectronics.

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

<https://www.xjtlu.edu.cn/en/admissions/global/entry-requirements/>

<https://www.xjtlu.edu.cn/en/admissions/global/fees-and-scholarship>

How to Apply:

Interested applicants are advised to email Yingli.Shi@xjtlu.edu.cn (XJTLU principal supervisor's email address) the following documents for initial review and assessment (please put the project title in the subject line).

- CV
- Two formal reference letters
- Personal statement outlining your interest in the position
- Certificates of English language qualifications (IELTS or equivalent)
- Full academic 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