

PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Science
Supervisors	Principal supervisor: Dr Graham Dawson (XJTLU) Co-supervisor: Dr Eric Amigues (XJTLU) Co-supervisor: Dr Xingda An (Suzhou University) Co-supervisor: Professor Gita Sedghi (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Modulation of Charge Transfer Dynamics in 2D Plasmonic Hetero-structures Towards Enhanced Photoelectrochemical Catalysis
Contact	Please email graham.dawson@xjtlu.edu.cn with a subject line of the PhD project title. The principal supervisor's profile is linked here: https://scholar.xjtlu.edu.cn/en/persons/GrahamDawson

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in Chemistry or equivalent. 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:

Two-Dimensional (2D) nanomaterials possess great potentials in photoelectrochemical (PEC) catalysis due to their favorable electrical and optical properties. However, their distinct anisotropy in- and out-of-plane hinders the transfer of charge carriers, mass, and heat in practical applications. Herein, we propose to modulate the charge transfer dynamics in a 2D van der Waals heterostructure by localized surface plasmons. The transverse plasmon resonance mode of Ti₃C₂ MXene will be harvested for resonant enhancement of charge separation and transport in the vertical direction, as well as for reactant polarization. This study is likely to provide generalized design principles for 2D nanocatalysts, and to further enhance the solar-to-chemical conversion efficiencies.

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 graham.dawson@xjtlu.edu.cn 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