

XJTLU-XJTU-UoL Joint Doctoral Supervision Project (Full-time)

Reference No.	SFXJTU2521
XJTLU School	School of CHIPS
PhD Programme	Electrical and Electronic Engineering
Supervisors	XJTLU supervisor: Dr. Qifeng Lu XJTU supervisor: Prof. Liang Tian XJTLU co-supervisor: Dr. Yinchao Zhao UoL supervisor: Dr. Francesco Giorgi
Project Title	Development of metallized electrode conductive paste for flexible crystalline silicon solar cells 用于柔性多晶硅太阳能电池的金属化导电涂料研究
Application Deadline	Open until the position is filled

Requirements:

A UK first-class or upper second-class honours Bachelor's degree and a UK Master's degree with Merit (or their equivalent) are required for PhD admissions. Exceptional candidates holding only a Bachelor's degree may be considered on an individual basis.

Evidence of good spoken and written English is essential. The candidate should have an IELTS (or equivalent) score of 6.5 or above, if the first language is not English.

For more information about entry requirements and admission procedures of PhD programme at XJTLU, please visit:

[Entry Requirement - Xi'an Jiaotong-Liverpool University](#)

[How to Apply - Xi'an Jiaotong-Liverpool University](#)

Other Requirements (if any):

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Programme Structure:

Doctoral students in the joint programme are registered with both XJTLU and the UoL. Upon successful completion of the programme, the students will be awarded a PhD degree from University of Liverpool.

During their doctoral studies at XJTLU, students are expected to conduct research at XJTU as visiting students. Additionally, students have the opportunity to apply for a three to six-month research visit to UoL.

Project Description:

Solar energy is crucial for achieving carbon goals, global green energy transition, and sustainable economic development. Flexible solar cells, with advantages like lightness and bendability, can be applied where rigid cells cannot. However, current conductive pastes for metallization electrodes for flexible solar cells face issues such as high cost, low conductivity and poor adhesion. Thus, developing novel conductive pastes with high mechanical and electrical properties is vital for their practical application. This study will involve: formulating highly stable copper-core-silver-shell nanoparticle/graphene composite pastes; studying microstructural evolution during low-temperature co-sintering; and methods to enhance bending fatigue resistance. The successful completion of the project will bring significant cost savings and performance enhancement (e.g. improving energy efficiency) in the conductive pastes and lead to the commercialization of flexible solar cell technology.

Joint Supervisory Team:

XJTLU supervisor: Dr. Qifeng Lu

XJTU supervisor: Prof. Liang Tian

XJTLU co-supervisor: Dr. Yinchao Zhao

UoL supervisor: Dr. Francesco Giorgi

How to Apply:

Interested applicants are advised to email Qifeng.Lu@xjtlu.edu.cn the following documents for initial review and assessment (Please include 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