PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	Science
Supervisors	Principal supervisor: Professor/**Dr** Yi Lin…. (XJTLU) Co-supervisor: **Professor**/Dr Chang-Qi Ma……...(JITRI) Co-supervisor: Professor/Dr ……...(XJTLU) Co-supervisor: **Professor**/Dr…Alessandro Troisi…...(UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project
Project Title	High-efficiency organic photovoltaics based on nano structure
Contact	Please email yi.lin@xjtlu.edu.cn (XJTLU principal supervisor's email address) or Chang-Qi Ma <cqma2011@sinano.ac.cn> 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 Chemsitry, Materials, or relevant areas.

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.

Please note that the joint PhD project is industry-based and the candidate is expected to undertake part of the research at the partner organization in China.

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) JITRI Institute of Nano-Tech and Nano-Bionics The student will be registered as an XJLTU PhD student but is expected to carry out the major

part of his or her research at the Institute in XJTLU and JITRI Institute of Nano-Tech and Nano-Bionics.

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). In addition, during the period of undertaking main research at institute in Suzhou, the PhD candidate will be provided with monthly living allowance at a standard 4500-5000 per month by JITRI Institute of Nano-Tech and Nano-Bionics.

Project Description:

The power conversion efficiency (PCE) of organic photovoltaics (OPV) is approaching 20%. Limited by the low charge carrier mobility of organic semiconductors, layer thickness of the organic photoactive layer is usually around 100 nm, leading to insufficient solar light harvesting efficiency and difficulties in further PCE improvement. By introducing nano-structures into the photoactive layer would adjust the light and electron transportation pathways and consequently eliminate the above mentioned limitation. Aiming to improving the PCE of OPVs, the current project will focus on the preparation and characterization of organic functional thin films with various micro-nano structures prepared by nanoimprint technology; and will develop method for surface molecular doping on the organic photoactive layer to tune the interfacial band structure of the cells. With these, organic solar cells with various nano-structures will be fabricated and fully characterized. The project will systematically investigat the relationship between the nanostructures and molecular doping processes on the photovoltaic performance of the cells, and a general structure-property-performance relationship will be created. The current project will create a nano-fabrication and molecular doping methods for organic electronics. This type of thin-film photovoltaics is expected to break the PCE limitation of OPVs, which is of great innovative.

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/feesscholarships.html

Supervisor Profile:

Principal Supervisor:

https://www.xjtlu.edu.cn/en/departments/academic-departments/chemistry/staff/yi-lin

JITRI co-supervisor:

Dr. Chang-Qi Ma has been working on organic/perovskite thin-film photovoltaic cells for many years. His research group has developed flexible transparent electrode with high conductivity and light transparency by gravure printing, achieved high power conversion efficiency of over 18% for 1 cm2 cells, revealed the degradation mechanism of organic/perovskite solar cells and improved the stability of the cells. In the last five years, he has published more than 70 research articles. He has been filed for more than 20 invention patents (including 3 PCT patents), 20 authorized patents, including: 1 US patent, 1 EU patent and 1 Japan patent.

How to Apply:

Interested applicants are advised to email yi.lin@xjtlu.edu.cn (XJTLU principal supervisor's email address) or cqma2011@sinano.ac.cn 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