

## PhD studentship (Full-time)



Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Electrical and Electronic Engineering
Supervisors	Principal supervisor: Prof. Ce Zhou Zhao (XJTLU) Co-supervisor: Dr. Chun Zhao (XJTLU) Co-supervisor: Dr. Munira Raja (UoL) Co-supervisor: Prof. Liangsheng Liao (JITRI, Institute of Organic Optoelectronics) Co-supervisor: Dr. Xiaobo Shi (JITRI, Institute of Organic Optoelectronics)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Reliability of High Performance Silicon-based OLED Microdisplay Devices (高性能硅基 OLED 微显示器件的可靠性研究)
Contact	Please email <a href="mailto:Cezhou.zhao@xjtlu.edu.cn">Cezhou.zhao@xjtlu.edu.cn</a> 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 Electrical and Electronic Engineering, Materials Science, Chemistry, or 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**

This PhD project is a collaborative research project between XJTLU (<http://www.xjtlu.edu.cn>) and JITRI (Jiangsu Industrial Technology Research Institute) Institute of Organic Optoelectronics (<http://www.jitriiio.com/>), both of which locate at Suzhou, China. The student will be registered as an XJTLU PhD student but is expected to carry out the major part of his or her research at the Institute. Tripartite agreement will be signed among student, XJTLU and institute.

The PhD scholarship 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) and provides an annually stipend at a standard around 50,000 RMB as a contribution to living , meal and accommodation allowance.

### **Project Description**

Silicon-based OLED micro-display technology is an important branch in the field of display technology. The purpose of its research is to develop high brightness and low power silicon-based OLED micro-display chips through innovative design of OLED materials and devices,

and to provide high-quality display technology solutions for near-eye display applications.

Silicon-based OLED micro-display devices are different from conventional AMOLED devices using amorphous silicon, microcrystalline silicon or low temperature polycrystalline silicon thin film transistors as backplanes. They are based on monocrystalline silicon chips and have a pixel size of 1/10 of that of traditional display devices, and their fineness is much higher than that of traditional devices. Monocrystalline silicon chips adopt mature integrated circuit CMOS technology, which not only realizes active addressing matrix of display screen pixels, but also implements drive and control circuits with functions such as SRAM memory, T-CON on silicon chips, which greatly reduces the external wiring of devices, increases reliability and realizes lightweight.

The purpose of this project is to realize independent innovation, solve the high technical threshold, simplify the traditional complex process and improve the product rate, so as to make silicon-based AMOLED micro-display realize large-scale industrialized production and business model application and promotion in a real sense. This project belongs to the research of interdisciplinary fields, covering the cross-integration of microelectronics industry, optoelectronics industry, information processing and system application, and belongs to the innovative application research and development of industry-oriented technology. The reliability and lifetime of the devices with the prepared metal nitrides with high work function will be analyzed and estimated.

### **How to Apply**

Informal enquiries may be addressed to Prof. Cezhou Zhao ([Cezhou.zhao@xjtlu.edu.cn](mailto:Cezhou.zhao@xjtlu.edu.cn)), please find Prof. Zhao's personal profile [here](#).

Applicants are required to prepare the following documents to upload onto the [online application system](#) to submit formal application.

- [Research proposal](#)
- Full academic transcripts of university studies and grading system (both bachelor and master)
- University degree certificate or enrollment statement (both bachelor and master)
- Verification report of degree certificate (Chinese students only, both bachelor and master)
- A copy of Master dissertation (or an equivalent writing sample) and examiners reports if applicable
- Certificates of English language qualifications
- Personal statement
- Two formal reference letters
- A copy of your passport (for international students only)

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

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