

PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	<i>Please list all the names in the supervisory team. It should be consistent with the information on your approved PGRS proposal.</i> Principal supervisor: Professor/Dr Wen.Liu (XJTLU) Co-supervisor: Professor/Dr Jie Zhang(XJTLU) Co-supervisor: Professor/Dr Ang Li(XJTLU) Co-supervisor: Professor/Dr Ivona Mitrovic(UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Ohmic Contact on dry etching interface of GaN p-FET
Contact	Please email Wen.Liu@xjtlu.edu.cn (XJTLU principal supervisor's email address) with a subject line of the PhD project title. The principal supervisor's profile is linked here: http://www.xjtlu.edu.cn/en/faculty/.....

Requirements:

A Master's degree with Merit and a Bachelor's degree with first-class or upper second-class honors are required for PhD admissions. Exceptional candidates holding only a Bachelor's degree may be considered on an individual basis in certain disciplines.

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. 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 holders are expected to conduct the majority of their

research at XJTLU in Suzhou, China. However, they may apply for a short-term research visit to the University of Liverpool if the project requires it.

Project Description:

The development of low-power computing sectors requires compact, power-efficient and high-performance integrated circuits. Hybrid technology that combines n-type metal oxide thin-film transistors and p-type organic thin-film transistors offers a potential solution. Dry etching is an indispensable fabrication step for GaN p-type field-effect transistors (p-FETs), yet etching-induced surface damage and interface defects severely degrade the performance of p-type ohmic contacts. This work investigates the characteristics of ohmic contacts formed on dry-etched GaN interfaces for p-FET applications. The evolution of surface morphology, defect states and band bending after plasma dry etching are analysed, and the correlation between etching conditions, post-etch treatment and contact resistivity is elaborated. Suitable surface repairing techniques are explored to suppress interface trap density and reduce contact resistance. The mechanism of carrier transport across the etched interface is clarified. The findings provide effective strategies to realise low-resistance p-type ohmic contacts, facilitating the development of high-performance GaN p-FET devices.

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/doctoral/entry-requirement-phd>

<https://www.xjtlu.edu.cn/en/admissions/doctoral/postgraduate-research-scholarships>

How to Apply:

Interested applicants are advised to email.....@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