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

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| Reference No. | SFXJTU2526 |
| XJTLU School | School of Internet of Things |
| PhD Programme | PhD Computer Science and Software Engineering |
| Supervisors | XJTLU supervisor: Professor/Dr.Yue Liu &Conghua Wen<br>XJTU supervisor: Professor/Dr. Haijun Wu<br>UoL supervisor: Professor/Dr. Yu Chen |
| Project Title | Phtonics chips interface electronics microscopic enhancement<br>光子芯片界面的电子微观增强技术 |
| 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):**

The candidate's excellent programming skills and practical abilities are bonus points.

**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:**

This project seeks to establish a foundational, quantitative understanding of the causal relationship between heavy ion radiation and performance degradation in thin-film lithium niobate (TFLN) photonic chips, transitioning the field from observational failure reporting to predictive, physics-based radiation-hardened design. The research systematically integrates three core objectives: first, quantifying macroscopic device degradation—including insertion loss, modulation bandwidth, half-wave voltage, and single-event burnout susceptibility—as a function of ion species, fluence, electrical bias, and device architecture; second, characterizing the microscopic defect landscape by identifying the types, energy levels, and spatial locations (e.g., interfaces, sidewalls, bulk) of radiation-induced electrically active defects; and third, establishing a direct defect-performance correlation that maps these microscopic defects to specific macroscopic performance losses, thereby revealing the underlying physical mechanisms to enable the development of robust TFLN devices for extreme environment applications.

**Joint Supervisory Team:**

XJTLU supervisor: Professor/Dr.Yue Liu & Conghua Wen

XJTU supervisor: Professor/Dr.Hongye Yuan

UoL supervisor: Professor/Dr. Haijun Wu

**How to Apply:**

Interested applicants are advised to yue.liu@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