

## PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	Principal supervisor: Prof. Mark Leach (XJTLU) Co-supervisor: Dr. Zhenzhen Jiang (XJTLU) Co-supervisor: Dr. Rui Pei (XJTLU) Co-supervisor: Prof. Yi Huang (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Controllable Wireless Power Transfer for Wireless Personal and Body Area Network Devices
Contact	Please email <a href="mailto:Zhenzhen.jiang02@xjtlu.edu.cn">Zhenzhen.jiang02@xjtlu.edu.cn</a> with a subject line of the PhD project title.  The supervisors' profiles are linked here: <a href="#">Mark Leach - Xi'an Jiaotong-Liverpool University</a> <a href="#">Zhenzhen Jiang - Xi'an Jiaotong-Liverpool University</a> <a href="#">Rui Pei - Xi'an Jiaotong-Liverpool University</a> <a href="#">Professor Yi Huang   Our people   University of Liverpool</a>

### **Requirements:**

The candidate should have a first-class or upper second-class honours degree (or equivalent qualification), in Engineering, computer science, and similar. A Master's degree or practical working experience in relevant areas may be advantageous.

Experience with CST, ADS, and MATLAB is highly desirable.

Evidence of good spoken and written English is essential. The candidate should have an IELTS score of 6.5 or above (speaking/writing score of 7 or above), if the first language is not English.

This position is open to all qualified candidates irrespective of nationality. Students from China, UK, and all overseas countries are all eligible to apply.

### **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 holder is expected to carry out the major part of his or her research at XJTLU in Suzhou, China. However, student is eligible for a research study visit to the University of Liverpool up to six months, if this is required by the project.

### **Project Description:**

The use of wireless wearable or body centric devices, especially those for health monitoring, has rapidly increased in the past decade due to convenience and functionality. Powering these devices is one of the bottlenecks to mainstream usage. Various solutions have been proposed involving wireless power transfer (WPT), these have their own drawbacks in particular regarding the WPT locality and adherence to safety requirements. The commonly carried power bank could offer a portable wireless power charging facility. In addition, its relative size allows for a planar beam steerable array to be mounted, controllable via device feedback obtained through the wireless body area network server, typically a mobile phone to optimally direct the WPT to the device. The device receiver would need to be Simultaneous Wireless Information and Power Transfer (SWIPT) enabled. System design must address the impact of the human body on performance and meet safety standards limiting capacity.

This project investigates the provision of SWIPT functionality to wireless wearable device receivers via a server-controlled power bank designed with a beam steerable array antenna. The hypothesis being that by using dedicated power and information transmitter together with a SWIPT receiver, wireless wearable devices can have their power needs serviced whilst providing continual communication without significantly increasing system complexity or cost.

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/global/entry-requirements/>

<https://www.xjtlu.edu.cn/en/admissions/global/fees-and-scholarship>

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**How to Apply:**

Interested applicants are advised to email **Zhenzhen.jiang02@xjtlu.edu.cn** the following documents for initial review and assessment (Project: Controllable Wireless Power Transfer for Wireless Personal and Body Area Network Devices).

- 1) CV
- 2) Two formal reference letters
- 3) Personal statement outlining your interest in the position
- 4) Certificates of English language qualifications (IELTS or equivalent)
- 5) Full academic transcripts in both Chinese and English (for international students, only the English version is required)
- 6) Verified certificates of education qualifications in both Chinese and English (for international students, only the English version is required)
- 7) PDF copy of Master Degree dissertation (or an equivalent writing sample) and examiners reports available