PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Electrical and Electronic Engineering
Supervisors	Principle supervisor: Dr. Pengfei Song (XJTLU, Department of EEE) Co-supervisor: Prof. Cezhou Zhao (XJTLU, Department of EEE) Co-supervisor: Dr. Ivona Mitrovic (UoL, Department of EEE)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	An ultrasensitive rolled-up microtube optofluidic biosensor integrated with molybdenum disulfide nanolayer
Contact	Please email Pengfei.song@xjtlu.edu.cn (XJTLU principal supervisor's email address) 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 Engineering related areas (including but not limited to Mechanical, Electrical and Electronic, Material). 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:

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 80,000 per annum) and provides a monthly stipend of 5,000 RMB as a contribution to living expenses. It also provides up to RMB 16,500 to allow participation at international conferences during the period of the award. It is a condition of the award that holders of XJTLU PhD scholarships carry out 300-500 hours of teaching assistance work per year. The scholarship holder is expected to carry out the major part of his or her research at XJTLU in Suzhou, China. However, he or she is eligible for a research study visit to the University of Liverpool of up to three months, if this is required by the project.

Project Description:

Molybdenum disulfide (MoS_2), as one of the most promising next-generation two-dimensional (2D) nanomaterials, has showed great potential for developing ultrasensitive biosensors. Though research advances have been made, whispering-gallery-mode (WGM) biosensing, which is one of most sensitive optical biosensing mechanisms, has not been realized on 2D MoS_2, despite its superior optoelectronic properties. This is largely due to the difficulty of fabricating MoS_2 optical rings. To tackle this challenge, we propose, to integrate the rolled-up nanotechnology with 2D MoS_2 nanolayer, for developing the first MoS_2-based rolled-up optofluidic ring resonator (MRU-OFRR) biosensor. Thanks to the MoS_2's high quantum efficiency, high-refractive index, and atomically-thin structures, the developed MRU-OFRR can provide a much higher quality factor (*Q*-factor) than those of existing passive rolled-up microtube ring resonators and therefore allows ultrahigh sensitivity of diseases biomarker detection.

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

How to Apply:

Interested applicants are advised to email pengfei.song@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 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

Informal enquiries may be addressed to Dr. Pengfei Song (pengfei.song @xjtlu.edu.cn), whose personal profile is linked below,

https://www.xjtlu.edu.cn/en/departments/academic-departments/electrical-and-electronic-engineering/staff/pengfei-song