

PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Advanced Technology
Supervisors	Principal supervisor: Dr. Pengfei Song (XJTLU) Co-supervisor: Dr. Kai Hoettges (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	SERS-based lateral flow assays for human embryo quality assessment 基于拉曼光谱的胚胎细胞质量检测试纸条研究与开发
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 various engineering disciplines such as mechanical engineering, electrical and electronic engineering, material science and engineering, and biomedical engineering.

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>) in Suzhou and JITRI (Jiangsu Industrial Technology Research Institute) Micro-Nano Automation Institute in Suzhou. The student will be registered as an XJTLU PhD student but is expected to carry out his or her research at XJTLU and the institute.

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). In addition, during the period of undertaking main research

at institute in Suzhou, the PhD candidate will be provided with monthly living allowance at a standard RMB 3000 by Micro-Nano Automation Institute.

Project Description:

In the past decades, in-vitro fertilization (IVF) has been widely used for infertility treatment. However, multiple pregnancies/twin gestation remains an issue because of the implantation of multiple fertilized eggs (embryos) in one IVF cycle for enhancing the pregnancy success rate. Finding and being able to test for a biological indicator of embryo quality would help with this problem immensely, as it would allow for the single best embryo to be identified cost-effectively for implantation. The project aims to develop high-sensitivity lateral flow tests (LFTs) with novel detection mechanisms for testing potential protein markers indicating embryo quality during IVF treatment. The specific research objectives include: i) to design a novel paper-based LFT platform for simultaneously testing three protein markers in uterine fluid extractions; ii) to integrate a novel surface Raman-enhanced spectroscopy (SERS)-based signal detection mechanism on the LFT platform and optimize the assay protocol for enhancing the device sensitivity; and iii) to perform patient sample testing of the LFT platform.

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>

Supervisor Profile: <https://www.xjtlu.edu.cn/en/departments/academic-departments/mechatronics-and-robotics/staff/pengfei-song>

Principal and co-Supervisor:

Publication: Dr. Pengfei Song (XJTLU) and Dr. Kai Hoettges (UoL) are well-recognized by publishing papers on PNAS, Nature Communications, Biosensors and Bioelectronics, Microsystems & Nanoengineering (a Nature Partner Journal).

Real-world impact and awards: Dr. Kai's work on microfluidic chip has been sent to international space station for practical use. Pengfei also received several awards, to name a few: the Best Paper Award in Microfluidics Symposium at ASME 2014 International Mechanical Engineering Congress & Exposition, the Best Conference Paper Award Finalist and the Best Automation Paper Award Finalist at IEEE 2015 International Conference on Robotics and Automation (ICRA' 2015), and the Editor's Pick Article Award and the Best Paper Award Finalist from AIP's Biomicrofluidics.

Research communities' recognition: Pengfei holds several editorial board seats in multiple well-recognized journals: the Associate Editor of IEEE Robotics and Automation Letters, the Young Editor of a Science/AAAS partner journal, Cyborg and Bionic Systems and the program committee member of IEEE International Conference on Manipulation, Automation and Robotics at Small Scales (IEEE-MARSS, a flagship forum in automation and robotics at micro/nano scale).

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