

## PhD studentship (Full-time)



Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Civil Engineering
Supervisors	Principle supervisor: <b>Dr. Konstantinos Papadikis</b> (Xi'an Jiaotong-Liverpool University) Co-supervisor: <b>Dr. Stephen James Shaw</b> (Xi'an Jiaotong-Liverpool University) Co-supervisor: <b>Dr. Ming Li</b> (University of Liverpool, UK);
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Lattice-Boltzmann studies on the effect of the morphological properties of porous media in immiscible displacements. 多孔介质的形态特性对不可混溶位移影响的格子 Boltzmann 研究。
Contact	Please email <a href="mailto:Konstantinos.Papadikis@xjtlu.edu.cn">Konstantinos.Papadikis@xjtlu.edu.cn</a> and copy <a href="mailto:doctoralstudies@xjtlu.edu.cn">doctoralstudies@xjtlu.edu.cn</a> 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 either Civil/Mechanical/Chemical Engineering or Applied Mathematics. Previous experience in Computational Fluid Dynamics modelling is an advantage. Evidence of good spoken and written English is essential. The candidate should have an IELTS score of 6.5 or above, or an equivalent qualification, 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 3500 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:**

The understanding of immiscible two-phase flows in porous media is of critical importance in numerous industrial operations such as, enhanced oil recovery, geologic CO<sub>2</sub> sequestration, groundwater supply and remediation, catalytic processing in fixed bed reactors etc. The physical properties of the displaced immiscible fluid phases, such as density and viscosity ratios, fluid phase wettability, as well as flow conditions, such as driving forces, initial phase saturations etc., are only some of the factors that affect the relative fluid flow within porous media. However, it has been demonstrated that morphologically different porous media will result in different flow patterns during immiscible displacements, such as drainage and imbibition. The proposed study aims to investigate the impact of the morphological properties of 2-dimensional and 3-dimensional porous structures, characterized by Minkowski functionals, in immiscible displacements, through the application of a high density ratio multi-relaxation time lattice-Boltzmann model.

For more information about doctoral scholarship and PhD programme at Xi'an Jiaotong-Liverpool University (XJTLU): Please visit

<http://www.xjtlu.edu.cn/en/admissions/phd/entry-requirements.html>

<http://www.xjtlu.edu.cn/en/admissions/phd/feescholarships.html>

### **How to Apply:**

Interested applicants are advised to email [Konstantinos.Papadikis@xjtlu.edu.cn](mailto:Konstantinos.Papadikis@xjtlu.edu.cn) the following documents and copy [doctoralstudies@xjtlu.edu.cn](mailto:doctoralstudies@xjtlu.edu.cn) (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 above 6.5 or equivalent is required)
- 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)

**Informal enquiries** may be addressed to Dr. Konstantinos Papadikis ([Konstantinos.Papadikis@xjtlu.edu.cn](mailto:Konstantinos.Papadikis@xjtlu.edu.cn)), whose personal profile is linked below,

<http://www.xjtlu.edu.cn/en/departments/academic-departments/civil-engineering/staff/konstantinos-papadikis>