PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Mathematical Sciences
Supervisors	Principal supervisor: Dr Pascal Grange (XJTLU, Department of Mathematical Sciences) Co-supervisors: Dr Jia Meng (XJTLU, Department of Biological Sciences), Dr Linglong Yuan (XJTLU, Department of Mathematical Sciences) Co-supervisor: Professor Takis Konstantopoulos (UoL, Department of Mathematics)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Condensation phenomena in out-of-equilibrium systems
Contact	Please email Pascal.Grange@xjtlu.edu.cn (XJTLU principal supervisor's email address) with a the PhD project title in the subject line

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in physics or mathematics. 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:

Living systems with many degrees of freedom (such as populations and social networks) are generating unprecedented masses of data, begging for a quantitative understanding. Systems with many constituents at thermal equilibrium have been understood in the 20th century. Equilibrium statistical physics provided a powerful theoretical framework. Practical applications include superconductivity, a low-temperature phenomenon allowing to conduct electricity without any loss (used in high-speed railway networks). However, **living systems exchange energy with their environment and cannot be described by equilibrium statistical physics**. This project studies the emergence of condensates in out-of-equilibrium systems (such as **large fractions of individuals at highest fitness in an evolving population**, acquisition of a **large share of links by a single individual in a growing social network**).

In this project, models of out-of-equilibrium systems will be constructed using a variety of techniques from statistical physics and stochastic process, as well as numerical simulations. Processes undergoing resetting, such as a random walk going back to the initial position at random times, will be a particularly important class of systems in the project.

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 Pascal.Grange@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 Pascal Grange (Pascal.Grange@xjtlu.edu.cn), whose personal profile is linked below, https://www.xjtlu.edu.cn/en/departments/academic-departments/mathematical-sciences/staff/pascal-grange