

### PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of advanced technology
Supervisors	Principal supervisor: Professor/Dr Chen Xuan (XJTLU) Co-supervisor: Professor/Dr Shiyao Huang (JITRI) Co-supervisor: Professor/Dr Jason Zhang (JITRI) Co-supervisor: Professor/Dr Daniel Colquitt (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project
Project Title	On the data-driven microstructure tuning method of high-performance recycled aluminum alloy
Contact	Please email <a href="mailto:chenxuan@liverpool.ac.uk">chenxuan@liverpool.ac.uk</a> (XJTLU principal supervisor's email address) or <a href="mailto:huangsy@mat-jitri.cn">huangsy@mat-jitri.cn</a> , <a href="mailto:qc Zhang@163.com">qc Zhang@163.com</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 mechanics or relative fields.

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.

Please note that the joint PhD project is industry-based and the candidate is expected to undertake part of the research at the partner organization in China.

#### 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) Alcha Group and Advanced Materials Research Institute, Yangtze Delta. The student will be registered as an XJTLU PhD student but is expected to carry out the major part of his or her research at the Institute in Alcha Group.

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). 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 5000RMB per month by Alcha Group and Advanced Materials Research Institute, Yangtze Delta.

#### Project Description:

The ultimate objective of this project is to develop a data-driven microstructure tuning method to guide high-performance recycled aluminum alloy production. To achieve this grand goal, the following questions need to be addressed:

1. Investigate the influences of melt purification process on microstructure.  
Due to complicated sources of aluminum scraps, recycled aluminum alloys contain impurity elements, which could be harmful to materials properties. It is necessary to study effects of purification process on microstructures.
2. Predict the evolution of key microstructures during manufacturing process.  
Microstructures changes significantly during casting, rolling, and heat treatment process. As microstructures have direct influences on materials properties, it is necessary to identify key microstructures and develop prediction methodology accordingly.
3. Develop through-process optimization methodology.  
As chemical compositions, melt purification process and manufacturing process affects microstructures and materials properties collectively, a through-process optimization methodology could provide guidance to tune microstructure, which is the foundation of high-performance recycled aluminum alloys.

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:**

**Principal Supervisor:**

<https://www.xjtlu.edu.cn/zh/study/departments/academic-departments/foundational-mathematics/departments-staff/academic-staff/staff/chen-xuan>

**JITRI co-supervisor:**

Dr. Jason Zhang

Dr.Zhang is currently a technical leader at Alcha Group. He is leading research and development of multiple layers of aluminum composites, aluminum foil, and aluminum plates for power battery of new energy vehicles. His previous research experiences covered high strength automotive steel, Cu/Al composite material, high-temperature superconducting material, Nickel-based material, lubrication/friction material and sealing material. Dr.Zhang occupied extensive experiences on smelting, casting, hot forming, cold forming, especially on controlling materials properties with designed microstructure.

Dr.Shiyao Huang

Dr. Shiyao Huang is a Senior Research Manager at Advanced Materials Research Institute, Yangtze Delta. He has worked in the automotive industry and household appliance industry for over ten years. He has launched/supported about 20 university collaboration projects. His current research focus on building up relationship between materials processing, microstructure and properties of lightweight materials.

**How to Apply:**

Interested applicants are advised to email [chenxuan@liverpool.ac.uk](mailto:chenxuan@liverpool.ac.uk) (XJTLU principal supervisor's email address) or [huangsy@mat-jitri.cn](mailto:huangsy@mat-jitri.cn), [qc Zhang@163.com](mailto:qc Zhang@163.com) the following documents for initial review and assessment (please put the project title in the subject line).

- CV
- Previous projects related to this advert
- 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