



2024-2028 University of Liverpool-Chinese Scholarship Council (CSC) PhD studentships

## Assembly and engineering of biological machines for biocatalytic and biomedical applications

Biological machines have captured increasing imagination of scientists and public alike, due to their remarkable functions in cells and substantial potential to sustainably transform and improve human life. Our world-leading research laboratory at the University of Liverpool aims to address the fundamental questions in the molecular mechanisms that govern the native architectures, self-assembly, *in vivo* dynamics and physiological regulation of protein supercomplexes and organelles that play important roles in light-driven photosynthesis, carbon fixation, biocatalysis, and human diseases. In addition, we harness the knowledge learnt in nature to engineer and reprogramme synthetic proteins and organelles to improve metabolism, bioenergy production, crop production, drug delivery and molecular therapeutics. We use a combination of multidisciplinary techniques, including molecular biology, biochemistry, synthetic biology, biophysics, structural biology, proteomics and metabolomics, as well as bioinformatics and computational simulations.

We have several Liverpool-CSC PhD studentships open for application. Highly motivated Chinese applicants with a master degree in molecular biology, biochemistry, microbiology, biomedicine, or equivalent are encouraged to apply. The applicants should have a valid English qualification (IELTS6.5). PhD students will be trained in all essential techniques and will have access to state-of-the-art infrastructure in Liverpool and with collaborators in the UK, EU, US, China, Japan, Singapore and Australia, which are excellent opportunities for career development.

Please contact Professor Luning Liu ([luning.liu@liverpool.ac.uk](mailto:luning.liu@liverpool.ac.uk), [www.luningliu.org](http://www.luningliu.org)) for project and studentship details, and send a CV and a cover letter as soon as possible. The deadline for full application is 20 January 2024.

### Selected publications of the Liu group:

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| <i>Nature Communications</i> , 2023, 14: 2118.        | <i>PNAS</i> , 2021, 118: e2101632118.               |
| <i>Nature Communications</i> , 2023, 14: 5512.        | <i>Nature Plants</i> , 2020, 6: 869-882.            |
| <i>Plant Cell</i> 2023, 35(7): 2449-2463              | <i>Nature Plants</i> , 2020, 6: 1179-1191.          |
| <i>Plant Cell</i> 2023, 35(2): 795-807                | <i>Annual Review Microbiol</i> , 2020, 74: 633-654. |
| <i>Nature Communications</i> , 2022, 13: 4299.        | <i>Nature Communications</i> , 2020, 11, 5448.      |
| <i>Nature Communications</i> , 2022, 13: 2920.        | <i>Nature Communications</i> , 2020, 11: 1976.      |
| <i>Nature Communications</i> , 2022, 13: 1977.        | <i>PNAS</i> , 2020, 117: 17418-17428.               |
| <i>Trends in Microbiology</i> , 2022, 30(6): 567-580. | <i>Nature Plants</i> , 2019, 5: 1184-1193.          |
| <i>mBio</i> , 2022, 13(2): e03629-21.                 | <i>Plant Cell</i> , 2019, 31: 1648-1664             |
| <i>Science Advances</i> , 2021, 7: eabf8864.          | <i>Molecular Plant</i> , 2019, 12: 1176-1178.       |
| <i>Nature Communications</i> , 2021, 12: 3475.        | <i>Molecular Plant</i> , 2017, 10: 1434-1448.       |
| <i>Curr Opin Microbiol</i> , 2021, 63: 133-141.       | <i>Nano Letters</i> , 2016, 16: 1590-1595.          |