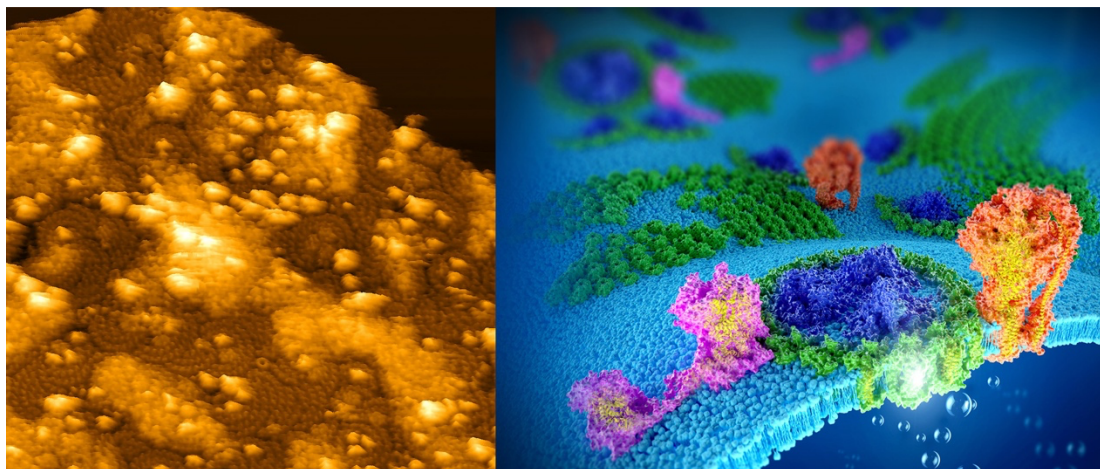


## Postdoctoral Research Associate Open Position

### Visualising the Assembly and Landscape of Photosynthetic Machinery



A postdoctoral position is now open in the lab of Prof. Luning Liu ([www.luningliu.org](http://www.luningliu.org)) at the Department of Biochemistry and Systems Biology, University of Liverpool, United Kingdom.

#### Project Description

Cyanobacteria are photosynthetic bacteria that play a crucial role in the ecology of the planet, and are also promising vehicles for solar-powered biotechnology. Cyanobacteria use an intricate internal membrane system called the thylakoid membranes to accommodate protein complexes involved in photosynthesis and respiration (1, 2). This project will use state-of-the-art atomic force microscopy (AFM) to unravel the large-scale thylakoid membrane architecture as well as the molecular basis underlying the local organisation, assembly, and remodelling of functional domains in cyanobacterial thylakoid membranes. It builds on our recent progress to study the structure, biogenesis, and regulation of thylakoid membranes from different model cyanobacterial species (3-6). Advanced knowledge will inform the bio-inspired design and engineering of novel organelles and nanoreactors. The study will lead to not only advanced knowledge of photosynthetic and respiratory electron transport mechanisms but also new strategies for "precision engineering" of photosynthetic membranes and cyanobacteria to empower sustainable biotechnology and biofuel production.

#### Qualifications

Qualified candidate should have a PhD in Biophysics/Nanotechnology or equivalent, and should have strong experience in atomic force microscopy imaging on biological samples. Knowledge in membrane/protein biochemistry would be an advantage.

The candidate should have demonstrated:

- excellent scientific productivity, evidenced by high-quality research publications
- enthusiasm, motivation, flexibility and confidence
- be able to conduct independent and creative research
- an analytical aptitude for devising innovative scientific or technical solutions
- good inter-personal and communication skills, both oral and written

#### Employment and Personal Development

The position is intended to start on **1<sup>st</sup> February 2023** (the start date is negotiable) for one year with possibility of extension. The annual salary is within the range of £36,386-£38,592. The postdoc researcher will work in a multidisciplinary research team across biology, physics and chemistry, supported by state-of-the-art infrastructure of the University (Bio-Imaging, Protein Production, Synthetic Biology, Structural Biology), and will work with collaborators in the UK, Europe, US, and Asia, which is a great opportunity for career development.

### Application procedure

Please submit your application or make enquiries to Prof. Luning Liu (Email: [luning.liu@liverpool.ac.uk](mailto:luning.liu@liverpool.ac.uk), website: [www.luningliu.org](http://www.luningliu.org)).

Your application should include the following documents:

- Curriculum vitae, incl. educational qualifications, experience, skills and a list of publications
- Motivation letter, incl. a brief summary of past and current research accomplishments
- Names and contact details for 2-3 referees

### References

1. C. W. Mullineaux, L. N. Liu, Membrane dynamics in phototrophic bacteria. *Annual Review of Microbiology* 74, 633-654 (2020).
2. L. N. Liu, Distribution and dynamics of electron transport complexes in cyanobacterial thylakoid membranes. *Biochim Biophys Acta - Bioenergetics* 1857, 256-265 (2016).
3. L. S. Zhao *et al.*, Structural variability, coordination, and adaptation of a native photosynthetic machinery. *Nature Plants* 6, 869-882 (2020).
4. M. Mahbub *et al.*, mRNA localisation, reaction centre biogenesis and thylakoid membrane targeting in cyanobacteria. *Nature Plants* 6, 1179-1191 (2020).
5. T. Huokko *et al.*, Probing the biogenesis pathway and dynamics of thylakoid membranes. *Nature Communications* 12, 3475 (2021).
6. L.-S. Zhao *et al.*, Native architecture and acclimation of photosynthetic membranes in a fast-growing cyanobacterium. *Plant Physiology* 190, 1883-1895 (2022).