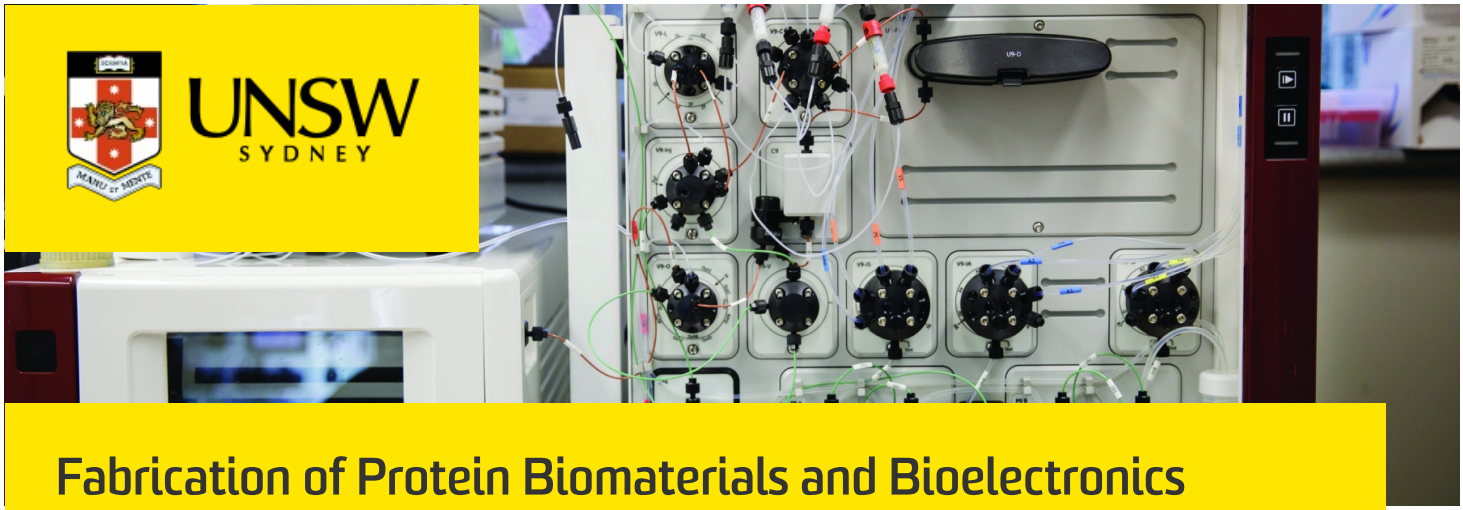

Fabrication of Protein Biomaterials and Bioelectronics

Protein scaffolds are promising templates for nanomaterials because of their inherent molecular recognition and self-assembly capabilities. Transfer of electrons through protein complexes is also central to cellular respiration. Exploiting this mechanism of charge transport in a controlled fashion has the potential to revolutionise the integration of biological and electronic systems.

Competitive advantage

- Expertise in fabrication and assembly of ultra-stable proteins into geometrically-defined templates of controllable size and symmetry
- Production of highly conductive metallic and semi-conductive nanowires on protein templates of specific dimensions
- Assembly of functional molecules into ordered arrays including multiple enzymes for substrate channelling and catalysis
- Engineering and fabrication of molecular chaperones for stabilisation and protection of biological systems in extreme environments

Impact

- New generation of bioelectronic devices

Successful applications

- Application investigation, AFOSR
- Nanowire material prototyping, AFRL

More Information

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