



**UNSW**  
SYDNEY



## Design and Reverse-Engineering of Soft Solids and Microstructured Fluids

**Expertise in design, manufacture, and testing of hierarchically structured complex fluids with targeted mechanical response, surface coating, and chemical delivery.**

### Competitive advantage

- Broad experience designing complex fluid microstructures, their large-scale manufacture, and their performance on biological and synthetic targets.
- Versatile adaptation of existing technology and additives to create
- new-to-the-world functions like:
  - Biomimetic particle shape-change and response in passive and active modes
  - Delivery and adhesion to complex surfaces under extreme conditions
  - Rapid technology functional adaption from rare compounds to approved additives

### Successful applications

- First artificial vernix for prevention of premature infant skin infections
- Responsive materials for biological tissue targeting in respiratory therapy and hair follicle fungus

### Capabilities and facilities

- Microrheological measures for tiny volumes, small samples, and miniscule mechanical properties
- Microfluidic production of prototype materials and their performance testing
- High speed studies of droplet impacts and flow

### More Information

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