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

More Information

Associate Professor Patrick Spicer

School of Chemical Engineering

T: +61 (0) 9385 5744
E: p.spicer@unsw.edu.au

UNSW Knowledge Exchange

knowledge.exchange@unsw.edu.au

www.capabilities.unsw.edu.au

+61 (2) 9385 5008

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