

Liquid Crystal Elastomers for Reflective displays and novel devices.

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Summary: Invent and demonstrate novel elastomer designs to control the orientation of elastomers on surfaces and as bulk structures

Liquid Crystal Elastomers are an exciting new type of material that has potential applications in micro-actuators, micro-robotics and artificial muscles. The ability of the materials to flex and change shape under external stimuli such as change in temperature, incident light and applied electric fields leads to potential uses in optical and micro-electro mechanical systems (MEMS).

For example, reflective displays that operate through the electric field induced flexing of a surface coated with elastomeric fibres is envisaged. The effect of elastomeric surfaces and structures on the properties of contacting liquid crystals and other fluids will be investigated.

This project will explore the potential materials and fabrication techniques suitable for these materials. The successful candidate will be expected to be inventive and innovative, being able to conduct experiments carefully and design and construct new devices.