

# Photopolymer materials for sensing, light shaping and security applications

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The aim of the lecture is to introduce photopolymers as materials for holography and the main challenges in utilising them in three research areas developed at the Centre of Industrial and Engineering Optics, TU Dublin – holographic sensors, holographic optical elements for light shaping and redirection and individualised security holograms.

Photopolymers are key materials in holography because they are characterised by high photosensitivity, high dynamic range, long shelf life, mechanical stability, can be functionalised to fabricate sensors, they are mass producible at relatively low cost. The principle of holographic recording in photopolymers will be briefly introduced in view of optimisation of the materials to achieve better performance. The lecture will also introduce the basic principles involved in the operation in each of the three covered applications and will then present experimental results of fabrication of specific devices.

