BURGER, Liesl (Physics)

Novel implementation of the phase-only spatial light modulator in laser beam shaping

Novel laser beams were created using digital holograms written to a spatial light modulator – a miniature LCD display. A laser was demonstrated with such a device as the back mirror, creating a holographic mirror for laser beams on demand. Following this, laser beams were realised experimentally with the ability to self-heal after an obstruction. Firstly, a new means for the self-healing was discovered based on the angular momentum of light. Secondly, a new class of laser beam was produced that self-heals over distances extending to infinity. The outcome has advanced our understanding of laser beams and resonators.

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