

EXCIMER LASER PRODUCTION OF FIBRE GRATINGS

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ABSTRACT

Fibre gratings are rapidly becoming an important component for use in fibre optic telecommunication and quasi-distributed fibre sensor systems. They can be used as filters, mirrors, wavelength-selective taps and sensing elements for strain, temperature and pressure. They are also used extensively as tuning and line-narrowing devices in rare-earth doped fibre lasers, eliminating the need for bulk, external cavity components. Recent advances in the use of KrF excimer lasers for fibre grating fabrication will be described, including the production of single pulse gratings with reflectivities approaching 100%, the development of gratings for use in harsh environments and the production of gratings 'on-the-fly' as the fibre is drawn.