

SLOWING DOWN THE LIGHT PULSES USING DYNAMIC REFRACTIVE INDEX GRATINGS

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S u m m a r y

Capabilities to decelerate and accelerate light pulses by means of the self-diffraction from dynamic refractive index gratings with coherent pump and signal waves have been considered. Various implementations of the nonlinear four-wave mixing that ensure a stationary or transient gain of the signal wave intensity and can be used for manipulations with light pulses (two-, three- or four-beam coupling, recording of transmission and reflection dynamic gratings, scalar or vector interaction) have been analyzed. The propagation of light pulses much shorter than the grating build-up time has been demonstrated to occur similarly to that of optical forerunners.