

Photorefractive Fiber and Crystal Devices:
Materials, Optical Properties, and Applications IX
Proc. SPIE., Volume 5206, Pages 118-124

Volume Holographic Storage Using Polarization Multiplexing

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Abstract

We propose a new holographic multiplexing technique in LiNbO₃ with 90° geometry. The advanced concept of polarization-multiplexed holographic memory is based on photorefractive effect and photovoltaic effect. The holographic gratings are constructed in the crystal using two writing beams with isotropic and anisotropic polarization recording. Even mutually orthogonal polarized waves can be used in holographic storage. The polarization multiplexing technique can be accompanied with other multiplexing method in the holographic storage, and we can increase the storage capacity doubly.