

Fabrication of ordered patterns by holographic lithography

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Photonic crystal (henceforth, PC) is an ordered structure whose refractive index is periodically modulated on a scale with the wavelengths of visible and infrared light. Recently, holographic lithography has been suggested to fabricate defect-free 2D or 3D PCs. The holographic lithography is an elegant and versatile synthetic route and uses the interference pattern of multiple coherent laser beams instead of using a mask to form a pattern in conventional lithography processes. Here, we demonstrate the holographic lithography to create 2D and 3D patterns. Since the interference pattern can be easily controlled by changing beam properties such as amplitude, wave vector and polarization, it offers a highly versatile design.