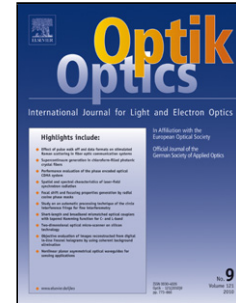


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Spin-coating technique to investigate structural and optical properties of nano and micro cubic-like photonic LiNbO₃ under annealing temperature effect

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Abstract

Lithium Niobate (LiNbO₃) nano and micro structures are deposited on glass substrates by sol-gel method. The nanostructures are deposited at 3000 RPM for 30 sec, and annealed at different temperatures, 400, 500 and 600 °C. These samples are characterized and analyzed by Scanning Electron Microscope (SEM), Atomic Force Microscopy (AFM), X-ray diffraction (XRD) and Ultra-Violet visible (UV-vis) spectrophotometer, respectively. The results show an importance of increasing the annealing temperatures, which indicate that the structure will be enhanced and more crystallize to become more regular. The measured lattice constants, energy gaps and refractive index give good accordance with the experimental results.

Keywords: Lithium Niobate; Nanophotonic device; Optical waveguide; Structural; Annealing Temperature.

PACS: 82.47.Aa; 42.55.Tv; 42.82.Et; 46.50.+a; 61.80.Ba.

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