



Advances in OptoElectronics

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Research Article

Domain-Reversed Lithium Niobate Single-Crystal Fibers are Potentially for Efficient Terahertz Wave Generation

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Abstract

Nonlinear frequency conversion remains one of the dominant approaches to efficiently generate THz waves. Significant material absorption in the THz range is the main factor impeding the progress towards this direction. In this research, a new multicladding nonlinear fiber design was proposed to solve this problem, and as the major experimental effort, periodic domain structure was introduced into lithium niobate single-crystal fibers by electrical poling. The introduced periodic domain structures were nondestructively revealed using a cross-polarized optical microscope and a confocal scanning optical microscope for quality assurance.

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