Photonic Slab with Axially Frozen Mode

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BACKGROUND

A unidirectional gyrotropic photonic crystal allows electromagnetic wave propagation in a certain direction at a certain frequency and at the same time, impedes electromagnetic wave propagation in the opposite direction. The electromagnetic wave with impeded propagation, called the "frozen mode", ideally has zero group velocity and does not transfer the electromagnetic energy. A unidirectional gyrotropic photonic crystal is a periodic composite, incorporating a component displaying Faraday rotation. The property of unidirectionality can be achieved in gyrotropic photonic crystals by proper choices of constituents and their space arrangement.

TECHNOLOGY DESCRIPTION

University researchers have invented a photonic slab design that can be used to enhance the capability and performance of microwave, millimeter wave, and submillimeter wave antennas, delay lines, nonlinear and nonreciprocal elements. It can also be used in integrated microwave circuitry.

APPLICATIONS

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	7,072,555	07/04/2006	2003-381

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OTHER INFORMATION

CATEGORIZED AS

» **Sensors & Instrumentation**
» Other

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