Abstracts

Infrared Parametric Amplification Using a Quasi-Microwave Approach to Phase-Matching

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Current nonlinear optical experiments employ birefringence to compensate for the refractive index dispersion to increase the constructive interaction length. Most of the semiconductors have large nonlinear susceptibility coefficients; however, lack the necessary birefringence. Their use has been inhibited by the lack of means to satisfy the phase-match condition for efficient nonlinear interactions. A quasi-microwave approach for the optical region is reported as a means to fulfill the phase-match condition. This approach employs a nonlinear dielectric transmission line with dimenaions comparable to tie wavelength wherein control of the polarization, kind and order of mode is exercised.

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