

Large Pulse Compression Ratio Obtained with Nonlinear Interaction of Bulk Acoustic Waves in LiNbO₃

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We report here on increased bandwidth in bulk wave parametric convolvers, and demonstrate a new approach to cancellation of the inherent signal distortion in time inverters. A 6 ns compressed pulse has been generated in the convolver by autoconvolution of a 7 μ s V-FM chirp signal (center frequency of 1.2 GHz), using the nonlinear interaction of longitudinal waves in LiNbO₃. Time inversion of microwave signals has been demonstrated with uniform output for signal lengths up to 5 μ s, by compensating for the signal distortion resulting from delay line attenuation.

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