Abstracts

Arbitrary Pulse Shape Synthesis via Nonuniform Transmission Lines (Short Papers)

S.C. Burkhart and R.B. Wilcox. "Arbitrary Pulse Shape Synthesis via Nonuniform Transmission Lines (Short Papers)." 1990 Transactions on Microwave Theory and Techniques 38.10 (Oct. 1990 [T-MTT]): 1514-1518.

A discrete inverse scattering techniqne is used to define the impedance profile for a nonuniform transmission line which reflects an arbitrary waveform. Initially charged nonuniform lines, switched out into a general load, can also be synthesized by this method and are discussed. The direct or "layer peeling" algorithm is applied to generate profiles which were subsequently analyzed rising the one-dimensional finite difference method and fabricated in stripline. Excitation for the nonuniform line was done using a charged line connected to a photoconductive silicon switch triggered by a mode locked YLF laser. Several lines were fabricated relevant to amplitude modulation of the master oscillator laser pulse for fusion experiments.

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