Abstracts

Dispersive Modes in the Time Domain: Analysis and Time-Frequency Representation

L. Carin, L.B. Felsen, D. Kralj, S.U. Pillai and W.C. Lee. "Dispersive Modes in the Time Domain: Analysis and Time-Frequency Representation." 1994 Microwave and Guided Wave Letters 4.1 (Jan. 1994 [MGWL]): 23-25.

Four algorithms for time-frequency (TF) distributions are considered for the processing and interpretation of dispersive time-domain (TD) data: The short-time Fourier transform, frequency and time-domain wavelets, and a new ARMA-based representation. The TF resolutions of the various distributions are discussed and compared with reference to results for the scattered fields from a chirped finite grating excited by a pulsed plane wave. The processing in the TF phase space extracts TD phenomenology, in particular the instantaneous dispersion relation--with its associated time-dependent frequencies-descriptive of the local TD Floquet modes on the chirped truncated grating.

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