

## Recursive causal convolution [passive distributed circuits]

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*M. AbuShaaban, T.J. Brazil and J.O. Scanlan. "Recursive causal convolution [passive distributed circuits]." 1997 MTT-S International Microwave Symposium Digest 2. (1997 Vol. II [MWSYM]): 631-634.*

A new method is presented for implementing discrete numerical convolution in passive circuit simulation which achieves high efficiency by using a recursive formulation. The technique starts with an FIR response obtained by a conventional convolution method and obtains an IIR filter using Pade approximants in the z-domain. The resulting IIR filter is tested for stability using the Lehmer-Schur algorithm and for accuracy by comparing its impulse response to that of the original FIR filter.

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