Abstracts

A general mapping technique for Fourier transform computation in nonlinear circuit analysis

A mapping technique that can handle any number of fundamental frequencies in multitone nonlinear circuit analysis is presented. In this technique, almost-periodic spectrum truncated using the box scheme is mapped onto an equivalent periodic spectrum which is dense with no missing harmonic. The Fourier transform (or its inverse) is then implemented by a single one-dimensional fast Fourier transform. Characteristics of the mapping technique are illustrated by some results. Due to its good combination of flexibility and speed, this mapping technique should be considered as an alternative to the multidimensional discrete Fourier transform in general-purpose harmonic-balance simulators.

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