Abstracts

Creating accurate multivariate rational interpolation models of microwave circuits by using efficient adaptive sampling to minimize the number of computational electromagnetic analyses

A fast and efficient adaptive sampling algorithm for multivariate rational interpolation models based on convergents of Thiele-type branched continued fractions (BCFs) is presented in this paper. We propose a variation of the standard BCF that uses approximation to establish a nonrectangular grid of support points. Starting with a low-order interpolant, the technique systematically increases the order by optimally choosing new support points in the areas of highest error until the required accuracy is achieved. In this way, accurate surrogate models are established by a small number of support points without any a priori knowledge of the data. The technique is evaluated on several passive microwave structures.

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