

عنوان مقاله:

Development of a Non-Iterative Macromodeling Technique by Data Integration and Least Square Method

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خلاصه مقاله:

In this paper, a new method is introduced to synthesize the original data obtained from simulation or measurement results in the form of a rational function. The integration of the available data is vital to the performance of the proposed method. The values of poles and residues of the rational model are determined by solving the system of linear equations using the conventional Least Square Method (LSM). To ensure the stability condition of the provided model, a controller coefficient is considered. Also, using this parameter, the designer can increase the stability margin of a system with poor stability conditions. The introduced method has the potential to be used for a wide range of practical applications since there is no specific restriction on the use of this method. The only requirement that should be considered is the Dirichlet condition for the original data, usually the case for physical systems. To verify the performances of the proposed method, several application test cases are investigated and the obtained results are compared with those gathered by the well-known vector fitting algorithm. Also, the examinations show that the method is efficient in the presence of noisy data.

کلمات کلیدی:

Rational Approximation, integration, Least Square Method (LSM), Macromodeling

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