Abstracts

Fast subgrid FD-TD matrix pencil technique for the rigorous analysis of resonant 3D microwave structures

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An improved FD-TD technique is described for the rigorous analysis of highly resonant 3D microwave structures, such as dielectric resonator filters. The method is based on a recursive subgrid procedure, utilizes a robust orthogonalization technique, and employs the matrix pencil algorithm for the frequency-transformation. The S-parameters are extracted from least-square-solutions of over-determined systems of equations for each port. The efficiency and accuracy of the presented FD-TD technique is demonstrated by the example of LANGER's dielectric resonator reference filter. The analysis of modified filters with up to four dielectric resonators illustrates the flexibility of the method.

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