

## Space Domain Mode-matching Method (SDM<sup>3</sup>) -- An Efficient Technique for Complex Microwave Integrated Circuits

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A novel approach named "Space-Domain Mode-Matching Method (SDM<sup>3</sup>)" is proposed to analyze complex microwave integrated circuits. This technique is based on the method of lines with vertical space discretization and conceptual Discrete Fourier Transforms (DFT) in multisubregions. This feature is exploited to improve the simulation related to the edge singularities on planar conductors. This novel approach is able to accurately model various bilaterally unbounded microwave circuits including composite, finite-width substrates and segmented topology. Numerical results are shown for both quasi-static and hybrid-mode analysis.

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