Abstracts

Space mapping optimization of waveguide filters using finite element and mode-matching electromagnetic simulators

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For the first time, we apply aggressive space mapping to automatically align electromagnetic models based on hybrid mode-matching/network theory simulations with models based on finite-element (FEM) simulations in design optimization of microwave circuits. The parameter extraction phase of space mapping is given special attention. A statistical approach to parameter extraction involving l/sub 1/ and penalty concepts facilitates a key requirement by space mapping for uniqueness and consistency. Electromagnetic optimization of an H-plane resonator filter with rounded corners illustrates the advantages as well as the challenges of our approach.

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