Abstracts

A symmetry device to speed up circuit simulation and stability tests

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A new simulation device is introduced that employs symmetry considerations in order to speed up network analysis of circuits with parallel branches. Such parallel branches are found e.g. in amplifiers with corporate combiners and push-pull oscillators. The device may be switched between two states, a symmetry and an antisymmetry state. The former is used in normal or even-mode operation and reduces the paralleled branches to a single branch, thus scaling down the time needed for the circuit set-up as much as the simulation time. The other state allows for rigorous odd-mode stability analysis when combined with a circulator stability test port. The device is easily implemented in standard circuit simulation programs.

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