# Abstracts

## Full-wave design of canonical waveguide filters by optimization

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Full-wave design of canonical waveguide filters by optimization is presented. For full-wave modeling, the filter structure is decomposed into the cascade connection of waveguide step discontinuities, waveguide T-junction discontinuities with branch waveguide cascaded with waveguide step or bifurcation discontinuities. Generalized scattering matrices of each discontinuity are obtained using the mode matching method, from which the filter response can be obtained using the cascading procedure. Interpolation tables of each discontinuity are used to speed up the optimization process. Full-wave synthesis of coupling iris dimensions is also described. A four-cavity filter design example is presented to demonstrate the feasibility of the approach.

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