Abstracts

Design of Microwave Filters by Inverse Scattering

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A new design method for planar microwave filters based on the theory of inverse scattering is presented. The method results in filters with a continuously changing profile, for example a nonuniform microstrip line with continuously varying width. Filters designed by this method are shown to possess some distinct advantages in realization and performance over other common techniques. The design method is presented in detail, and efficient numerical algorithms to solve the design equations that arise are discussed. A wideband 4 pole Chebyshev bandpass filter was designed, constructed, and tested, to prove the design method. This is the first demonstration of a microwave filter designed using inverse scattering.

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