Abstracts

Duality transformation for nonreciprocal and nonsymmetric transmission lines

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Duality transformation is introduced to the theory of generalized (nonreciprocal and nonsymmetric) transmission lines making it possible to find solutions to problems in terms of solutions to dual problems without having to go through the solution process. The generalized transmission lines have emerged when more general media have been introduced to classical waveguide geometries, for example, microstrip lines on chiral substrates. It is seen that there actually exist two duality transformations and the self-dual voltage and current solutions are propagating waves in the transmission line. The transformation can be, e.g., applied to transform a nonsymmetric transmission line to a symmetric one.

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