Abstracts

A Method to Generate Conservation Laws for Coupled Transmission Systems (Short Papers)

O. Schwelb. "A Method to Generate Conservation Laws for Coupled Transmission Systems (Short Papers)." 1982 Transactions on Microwave Theory and Techniques 30.11 (Nov. 1982 [T-MTT]): 2023-2026.

A systematic method is presented for generating a set of conservation laws for spatially distributed coupled linear systems. In contrast with previous practice, where energy balance equations were obtained by manipulating the fundamental equations of the interaction (the Maxwell equations or the equations of mechanics), or by determining the invariant quadratic forms of the motion, here the coupled systems equations are used as the point of departure. The results apply to lossy as well as to lossless devices. Illustrative examples examine the acoustic power flow in the surface acoustic-wave grating reflector and TE-TM-mode coupling in anisotropic dielectric waveguides.

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