

Mode Theory of Lossless Periodically Distributed Parametric Amplifiers

K. Kurokawa and J. Hamasaki. "Mode Theory of Lossless Periodically Distributed Parametric Amplifiers." 1959 Transactions on Microwave Theory and Techniques 7.3 (Jul. 1959 [T-MTT]): 360-365.

In this paper, an operator T_0 is introduced for the analysis of the periodically distributed parametric amplifier. The operator is the product of a diagonal matrix expressing the pumping phase relation and the T matrix of the basic section of the amplifier. The eigenvectors of T_0 are called the "modes" of the amplifier. The orthogonality properties of the modes are proved in a similar way as for the conventional mode theory. Finally, an expression is derived for the power gain of the amplifier as an application of the theory.

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