Abstracts

The Application of Hypercomplex Matrix Analysis to Variable Parameter Networks

S. Krongelb, J.J. McNichol and N. Kroll. "The Application of Hypercomplex Matrix Analysis to Variable Parameter Networks." 1962 Transactions on Microwave Theory and Techniques 10.4 (Jul. 1962 [T-MTT]): 236-251.

The hypercomplex matrix methods developed to treat variable parameter elements are reviewed. The application of these techniques to the linear analysis of networks of variable parameter elements is demonstrated by considering a specific problem. A network containing two resonated variable capacitors separated by one-eighth wavelength of transmission line is first considered by the phase dependent admittance method. A partial treatment of the subharmonic case is given by this method to provide a physically plausible understanding of the network behavior. The complete problem is treated by the hypercomplex matrix methods. The discussion of the results illustrates how the network properties are determined from the mathematical formalism. Calculated characteristics of the two-capacitor network are given for several values of circuit parameters.

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