

# Abstracts

## Transmission-Line Theory Approach to Solution of State Equations for Linear-Lumped Circuits (Short Papers)

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*A.R. Djordjevic, B.D. Reljin, D.V. Tosic and T.K. Sarkar. "Transmission-Line Theory Approach to Solution of State Equations for Linear-Lumped Circuits (Short Papers)." 1996 Transactions on Microwave Theory and Techniques 44.3 (Mar. 1996 [T-MTT]): 479-482.*

Linear-lumped circuits containing capacitors and/or inductors are described by differential equations. In computer-aided circuit analysis, these equations are discretized in time, thus being reduced to approximate formulas involving samples of voltages and currents. It is shown that these relations can be interpreted as exact equations for networks containing transmission lines. Hence, some features of the approximate formulas gain a clear physical interpretation. In particular, convergence and energy balance properties of the formulas become obvious, confirming advantages of the trapezoidal rule over all other formulas.

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