Computer-Aided Numerical Inversion of Laplace Transform

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This paper explores the technique for the computer aided numerical inversion of Laplace transform. The inversion technique is based on the properties of a family of three parameter exponential probability density functions. The only limitation in the technique is the word length of the computer being used. The Laplace transform has been used extensively in the frequency domain solution of linear, lumped time invariant networks but its application to the time domain has been limited, mainly because of the difficulty in finding the necessary poles and residues. The numerical inversion technique mentioned above does away with the poles and residues but uses precomputed numbers to find the time response. This technique is applicable to the solution of partially differentiable equations and certain classes of linear systems with time varying components.

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