SYSTEM FIDELITY FACTOR IN ANALYSIS OF INVERTER-INTERCONNECT-INVERTER VLSI SYSTEMS

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MOTIVATION

- Frequently exists necessity to investigate the influence of system parameters on the shape of the output signal with reference to input signal.
- In the case of large number of parameters, which can take large range of levels comparison is time consuming
- The main goal of this paper is to propose such a tool in form of System Fidelity Factor (SFF) defined as a cross-correlation coefficient of input and output signals.

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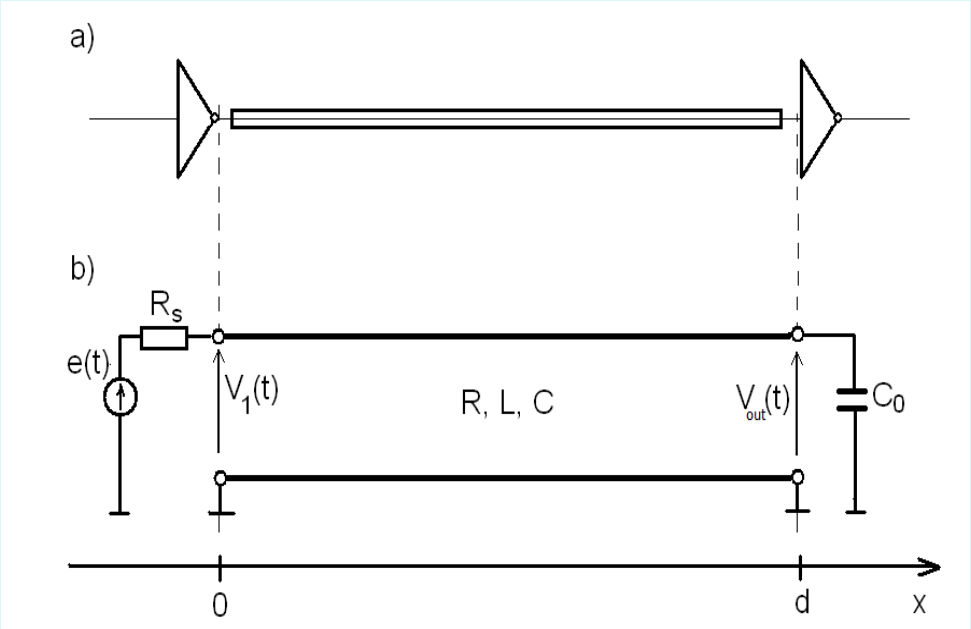
MAIN RESULTS

- SFF has been applied to analysis the influence of model parameters such as RLC-per unit of length parameters and gate parameters such as R_s and C_0 on shape of the clock signal in inverter-interconnect-inverter system



MAIN RESULTS

$$SFF = \max_{n} \left[\rho_{x,y}^{N}(t_n) \right], \quad t_0\, t_1, \ldots . t_n \in T_o .$$

$$SFF\ (K) = \max_{n} \left[\frac{\sum_{k=-K}^{K} |X_k|^2 H_k e^{jk\omega_0 t}}{\sqrt{\sum_{k=-K}^{K} |X_k|^2} \sqrt{\sum_{k=-K}^{K} |X_k|^2 |H_k|^2}} \right].$$

- Threshold value of SFF is 0.98
- Obtained results compared with exact results show that proposed tool is good enough