138. Title: A Compact, Semi-empirical Model of Carbon Nanotube Field Effect Transistors Oriented to Simulation Software

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Abstract: We present a compact, semi-empirical model of Carbon Nanotube Field Effect Transistors (CNTFETs) directly and easily implementable in simulation software.

A new procedure, based on a best-fitting between the measured and simulated values of output device characteristics, is proposed in order to extract the optimal values of the CNTFET equivalent circuit elements.

To verify the versatility of the proposed model, we use it in circuit simulators to design some electronic circuits. In particular we investigate about the effects of the CNT quantum resistances and inductances, then demonstrating their role for both analog and digital applications at frequencies over about ten THz.