Abstracts

Electromagnetic interfacing of semiconductor devices and circuits

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This paper discusses the interactions between semiconductor devices and electromagnetic waves and the possible ways to interface modern devices and circuits in the mm-wave range. This topic is very important for advancing current MMIC designs and for developing futuristic devices and applications. The electromagnetic wave propagation through semiconductor devices is modeled by coupling a physical electron-transport model, or a circuit approach, with Maxwell's equations. The solution is developed in time-domain using Finite-Difference Time-Domain (FDTD) technique. Examples of device and circuit simulations are presented.

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