Abstracts

Computer-Aided Design and Analysis of Lightwave/Microwave Systems

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This paper describes algorithms and techniques for the computer-aided design and analysis of optoelectronic circuits for microwave applications. Linear and non-linear analysis methods for hierarchically structured multiport microwave circuits with arbitrary topology have been extended to include optoelectronic device models. Ideal control sources are often used in modelling optoelectronic and optical components, and sometimes introduce problems to nodal analysis and harmonic balance methods. The paper will show how these difficulties can be overcome and how lightwave/microwave circuits can be efficiently analyzed. As an example, a novel lightwave/microwave transceiver module has been analyzed and optimized for large-signal operation at microwave frequencies.

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