

Time Domain Simulation of Three Dimensional Microwave Structures by the Method of Characteristics

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A new technique based on the method of characteristics for the time domain simulation of general three dimensional microwave structures is presented. The method results in a system of characteristic partial differential equations which relate the field components on a family of characteristic hypersurfaces. The characteristic equations are discretized along the characteristic surfaces and solved in a time-stepping manner. The technique is efficient with maximum possible time step and is readily adaptable to the implementation of absorbing and other general boundary conditions.

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