***VLSI Design* Special Issue on Semiconductor Device Modeling**

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(Received 1 May 2001; Revised 1 April 2002)

INTRODUCTION

This issue of *VLSI Design* is devoted to modeling and simulation of ultra-small scale classical and quantum effects in state-of-the-art semiconductor devices. The articles gathered here present simulations of a wide variety of contemporary semiconductor devices using both classical and quantum transport models; mathematical

analysis of charge transport; and numerical methods that span the spectrum from modern hyperbolic finite difference methods for the hydrodynamic model to Monte Carlo methods for the Boltzmann transport equation. Semiconductor device modeling—as these articles demonstrate—continues to involve a broad range of interdisciplinary approaches combining electrical engineering, applied mathematics, numerical analysis, and device physics.

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