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Technology Computer Aided Design (TCAD) for Silicon and Post Silicon Technologies

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This book bridges the skill gap for Electrical Engineering students between academia and the semiconductor industry. It prepares them for R&D roles using TCAD tools to understand and develop semiconductor devices. It has become impossible to imagine our lives without semiconductors, and as various technologies such as cloud computing, AI, autonomous vehicles, IoT, etc., evolve, the need for semiconductors and research and development is expected to explode in the next few years.

This need for research and development in the semiconductor industry will also lead to a skill gap in the new Engineers that are graduating and the needs of the semiconductor industry. Our book is focused towards bridging this gap and timely introducing Engineering students to academic and industry research using TCAD tools. TCAD tools provide a versatile conduit towards not only understanding and exploring semiconductor devices but also towards being industry ready in terms of development of process, device, characterization and troubleshooting.

This book introduces readers to :

- Brief history of semiconductor technology and need for TCAD.
- TCAD for process and device simulations for semiconductor devices.
- Use of TCAD in circuits, RF, modeling and Memories.
- TCAD for advanced silicon based and emerging novel material based devices

Troubleshooting TCAD and common issues faced during simulations
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