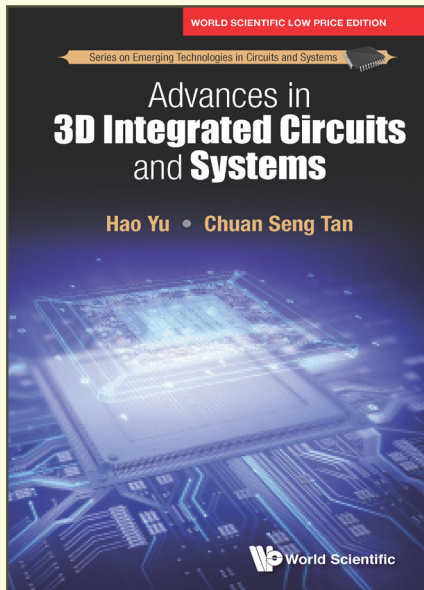


# Advances in 3D Integrated Circuits and Systems



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## ABOUT THE BOOK

3D integration is an emerging technology for the design of many-core microprocessors and memory integration. This book, *Advances in 3D Integrated Circuits and Systems*, is written to help readers understand 3D integrated circuits in three stages: device basics, system level management, and real designs.

Contents presented in this book include fabrication techniques for 3D TSV and 2.5D TSI; device modeling; physical designs; thermal, power and I/O management; and 3D designs of sensors, I/Os, multi-core processors, and memory.

Advanced undergraduates, graduate students, researchers and engineers may find this text useful for understanding the many challenges faced in the development and building of 3D integrated circuits and systems.

## READERSHIP

Advanced undergraduates, graduate students, researchers and professionals dealing with 3D Integrated Circuits and Systems.

## CONTENTS

- Introduction
- **Device Modeling:**
  - Fabrication
  - Device Model
- **Physical Design:**
  - Macromodel

- TSV Allocation
- Testing
- **Thermal Management:**
- Power and Thermal System Model
- Microfluidic Based Cooling
- **I/O Management:**
- Power I/O Management
- Signal I/O Management
- Sensor
- I/O
- Microprocessor
- Non-volatile Memory

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