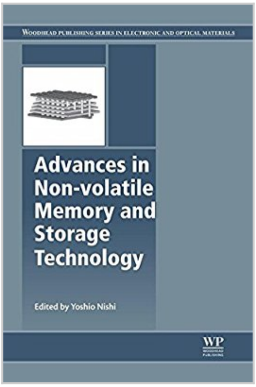

Advances in Non-volatile Memory and Storage Technology (Woodhead Publishing Series in Electronic and Optical Materials)

From Woodhead Publishing

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New solutions are needed for future scaling down of nonvolatile memory. Advances *in Non-volatile Memory and Storage Technology* provides an overview of developing technologies and explores their strengths and weaknesses.

After an overview of the current market, part one introduces improvements in flash technologies, including developments in 3D NAND flash technologies and flash memory for ultra-high density storage devices. Part two looks at the advantages of designing phase change memory and resistive random access memory technologies. It looks in particular at the fabrication, properties, and performance of nanowire phase change memory technologies. Later chapters also consider modeling of both metal oxide and resistive random access memory switching mechanisms, as well as conductive bridge random access memory technologies. Finally, part three looks to the future of alternative technologies. The areas covered include molecular, polymer, and hybrid organic memory devices, and a variety of random access memory devices such as nano-electromechanical, ferroelectric, and spin-transfer-torque magnetoresistive devices.

Advances in Non-volatile Memory and Storage Technology is a key resource for postgraduate students and academic researchers in physics, materials science, and electrical engineering. It is a valuable tool for research and development managers concerned with electronics, semiconductors, nanotechnology, solid-state memories, magnetic materials, organic materials, and portable electronic devices.

- Provides an overview of developing nonvolatile memory and storage technologies and explores their strengths and weaknesses
- Examines improvements to flash technology, charge trapping, and resistive random access memory
- Discusses emerging devices such as those based on polymer and molecular

electronics, and nanoelectromechanical random access memory (RAM)

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Editorial Review

From the Back Cover

Non-volatile memory retains its data when the power supply is removed and is thus invaluable for data storage. However, new solutions are needed for future development because solid-state non-volatile memory (flash), while useful, is limited. This book presents a systematic overview of the emerging technologies designed to address this issue.

After an overview of the current market, Part I introduces improvements in flash technologies including developments in 3D NAND flash technologies and flash memory for ultra high density storage devices. Part II looks at the advantages of designing phase change memory and resistive random access memory technologies. In particular, the fabrication, properties and performance of nanowire phase change memory technologies are explained. Later chapters also consider modelling of both metal oxide and resistive random access memory switching mechanisms as well as conductive bridge random access memory technologies. Finally, Part III looks to the future of alternative technologies. The areas covered include molecular, polymer and hybrid organic memory devices and a variety of random access memory devices such as nano-electromechanical, ferroelectric and spin-transfer-torque magnetoresistive devices.

Advances in non-volatile memory and storage technology is a key resource for postgraduate students and academic researchers in physics, materials science and electrical engineering. It is a valuable tool for research and development managers concerned with electronics, semiconductors, nanotechnology, solid-state memories, magnetic materials, organic materials and portable electronic devices.

Professor Yoshio Nishi is a professor in the Department of Electrical Engineering and by courtesy in the Department of Material Science and Engineering. He was director of the Stanford Nanofabrication Facility of National Nanotechnology Infrastructure Network and is now Director of Research of Stanford Center for Integrated Systems at Stanford University, USA.

About the Author
Professor Yoshio Nishi is a Professor in the Department of Electrical Engineering and by courtesy in the Department of Material Science and Engineering. He was Director of the Stanford Nanofabrication Facility of National Nanotechnology Infrastructure Network and is now Director of Research of Stanford Center for Integrated Systems at Stanford University, USA

Users Review

From reader reviews:

Robin Martz:

Book is to be different per grade. Book for children right up until adult are different content. As we know that book is very important usually. The book Advances in Non-volatile Memory and Storage Technology (Woodhead Publishing Series in Electronic and Optical Materials) was making you to know about other understanding and of course you can take more information. It is quite advantages for you. The e-book

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Nicholas Riley:

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