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Titolo	Non-volatile memories / / Pierre-Camille Lacaze, Jean-Christophe Lacroix
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Descrizione fisica	1 online resource (305 p.)
Collana	Electronics engineering series
Disciplina	621.39732
Soggetti	Flash memories (Computers) Computer storage devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
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Nota di contenuto	Cover; Title Page; Copyright; Contents; Acknowledgments; Preface; PART 1: Information Storage and the State of the Art of Electronic Memories; 1: General Issues Related to Data Storage and Analysis Classification of Memories and Related Perspectives; 1.1. Issues arising from the flow of digital information; 1.2. Current electronic memories and their classification; 1.3. Memories of the future; 2: State of the Art of DRAM, SRAM, Flash, HDD and MRAM Electronic Memories; 2.1. DRAM volatile memories; 2.1.1. The operating principle of a MOSFET (metal oxide semiconductor field effect transistor) 2.1.2. Operating characteristics of DRAM memories 2.2. SRAM memories; 2.3. Non-volatile memories related to CMOS technology; 2.3.1. Operational characteristics of a floating gate MOSFET; 2.3.1.1. How to charge and discharge the floating gate?; 2.3.1.2. Physical problems related to the storage of electrical charges and their impact on the operation of a floating gate memory; 2.3.1.2.1. Charge retention; 2.3.1.2.2. Problems related to writing and electron injection; 2.3.1.3. Multilevel cells 2.3.1.4. The quality of dielectrics: one of the reasons behind the limitation of floating gate memory performances 2.3.1.5. The "Achille's heel" of floating gate memories; 2.3.2. Flash memories; 2.3.2.1. NOR and NAND Flash memories; 2.3.2.2. General organization of NAND

Sommario/riassunto

Written for scientists, researchers, and engineers, <i>Non-volatile Memories</i> describes the recent research and implementations in relation to the design of a new generation of non-volatile electronic memories. The objective is to replace existing memories (DRAM, SRAM, EEPROM, Flash, etc.) with a universal memory model likely to reach better performances than the current types of memory: extremely high commutation speeds, high implantation densities and retention time of information of about ten years.

2. Record Nr. UNINA9910781525203321

Autore	Li Hai <1975, >
Titolo	Nonvolatile memory design : magnetic, resistive, and phase change / / Hai Li, Yiran Chen
Pubbl/distr/stampa	Boca Raton, Fla. : , : CRC Press, , 2012
ISBN	1-315-21830-5 1-351-83419-3 1-280-12159-9 9786613525451 1-4398-0746-9
Descrizione fisica	1 online resource (200 p.)
Altri autori (Persone)	ChenYiran <1976->
Disciplina	004.568 621.39732
Soggetti	Semiconductor storage devices Magnetic memory (Computers) Flash memories (Computers) Change of state (Physics) - Industrial applications
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1. Introduction to semiconductor memories -- 2. Phase change memory -- 3. Spin-transfer torque RAM -- 4. Resistive random access memory -- 5. Memristors -- 6. The future of nonvolatile memory.
Sommario/riassunto	The manufacture of flash memory, which is the dominant nonvolatile memory technology, is facing severe technical barriers. So much so, that some emerging technologies have been proposed as alternatives to flash memory in the nano-regime. Nonvolatile Memory Design: Magnetic, Resistive, and Phase Changing introduces three promising candidates: phase-change memory, magnetic random access memory, and resistive random access memory. The text illustrates the fundamental storage mechanism of these technologies and examines their differences from flash memory techniques. Based on the latest advances,