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Descrizione fisica	1 online resource (XI, 266 p. 150 illus., 112 illus. in color.)
Collana	Advances in Atom and Single Molecule Machines, , 2193-9691
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Nota di contenuto	Invention and Development of the Atomic Switch -- Pathway to Atomic-Switch Based Programmable Logic -- Atom-Switch FPGA: Application for IoT Sensing System in Space -- An Evaluation of Single Event Effects by Heavy Ion Irradiation on Atom Switch ROM / FPGA -- Nanoscale Electrochemical Studies: How can we Use the Atomic Switch -- Atomistic Simulations for Understanding Microscopic Mechanism of Resistive Switches -- Development of Three-terminal Atomic Switches and Related Topics -- Solid-Polymer-Electrolyte-Based Atomic Switches -- Nanoionic Devices for Physical Property Tuning and Enhancement -- Artificial Synapses Realized by Atomic Switch Technology -- Atomic Switch Networks for Neuroarchitectonics: Past, Present, Future -- A List of Papers Related to the Atomic Switch.
Sommario/riassunto	Written by the inventors and leading experts of this new field, the book results from the International Symposium on “Atomic Switch: Invention,

Practical use and Future Prospects” which took place in Tsukuba, Japan on March 27th - 28th, 2017. The book chapters cover the different trends from the science and technology of atomic switches to their applications like brain-type information processing, artificial intelligence (AI) and completely novel functional electronic nanodevices. The current practical uses of the atomic switch are also described. As compared with the conventional semiconductor transistor switch, the atomic switch is more compact (~1/10) with much lower power consumption (~1/10) and scarcely influenced by strong electromagnetic noise and radiation including cosmic rays in space (~1/100). As such, this book is of interest to researchers, scholars and students willing to explore new materials, to refine the nanofabrication methods and to explore new and efficient device architectures.