**From fundamental research to its practical application: The Atomic Switch**

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**Abstract:**

The “atomic switch”, which was invented in 2001 and has been investigated at MANA/NIMS for about 10 years with the support of JST and MEXT and in collaboration with NEC Corp., has come into practical use as the “NEC AtomSW-FPGA”, which will soon be used in robots and space satellites for example. This is because the atomic switch is not only compact and has low power-consumption, but also because it is scarcely influenced by electromagnetic noise and radiation (including cosmic rays). I would like to review this process from fundamental research to its practical application. Also, I present information about how the atomic switch has begun to be used for brain-type information processing and for completely novel functional nanodevices.