

Spintronics Based Nonvolatile CMOS Logic Circuits

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Abstract

Magnetic tunnel junction (MTJ) [1], a spintronics device, is a nonvolatile device capable of fast-read/write with high endurance and has a back-end-of-the-line CMOS compatibility. These features combined with the CMOS technology present not only a nonvolatile, high density, and fast random access memory, but also a possibility of constructing nonvolatile CMOS logic circuits having low power capability and compactness. Here, the development of MTJs, hybrid CMOS/MTJ circuit blocks fabricated to date [2, 3, 4] and prospects along with remaining challenges are discussed.

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