

Recipe for the Generation of Magnetic Skyrmion

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Magnetic skyrmions have recently been drawn lots of attention, due to its distinct topological characteristics, as a novel information carrier in spintronics. The electrical creation/deletion of a magnetic skyrmion is essential in realizing skyrmion-based spintronics devices. Therefore, various experimental demonstrations of skyrmion creation/deletion have been reported using diverse methods. However, most of them have been created near a randomly created defect site, disturbing the skyrmion motion after the creation. We introduced several new methods for electrical creating, deleting, and shifting magnetic skyrmions from the systematic consideration of the formation of stripe magnetic domain pattern. We will show lots of skyrmionic device including skyrmion racetrack memory, skyrmion transistor, and neurotrophic device with skyrmion.

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