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Abstract for an Invited Paper
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Nanoscale Magnetic Tunnel Junction¹

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I review state-of-the-art magnetic tunnel junction technology, which is now passing the 20 nm device dimension; the smallest and well characterized reported so far reaching 11 nm [1]. The physics involved in realizing high performance nanoscale magnetic tunnel junction in terms of tunnel magnetoresistance ratio, threshold current for spin-transfer switching, and thermal stability as well as the materials science involved in the technology will be addressed. To simultaneously meet multiple requirements for applications further control and design of materials at the nanometer scale are required. I will discuss about the challenges and future prospects.

[1] H. Sato et al. IEDM 2013.

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