Special Issue

Magnetic and Spin Devices

Message from the Guest Editors

As scaling of electronic semiconductor devices displays signs of saturation, the main focus of research in microelectronics shifts towards finding new computing paradigms. The electron spin offers additional functionality to digital charge-based devices. Several fundamental problems including spin injection to a semiconductor, spin propagation and relaxation, as well as spin manipulation by the gate voltage have successfully been resolved to open a path towards spin-based reprogrammable electron switches. Devices employing the electron spin are non-volatile; they are able to preserve the stored information without external power. Emerging nonvolatile devices are electrically addressable, possess a simple structure, and offer endurance and speed superior to flash memory. This Special Issue focuses on all topics related to spintronic devices such as spin-based switches, magnetoresistive memories, energy harvesting devices, and sensors which can be employed in in-memory computing concepts and in the Artificial Intelligence of Things paradigm.

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