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Perpendicular Magnetization Switching via Current induced Spin-Orbit Torques on Flexible Substrate OUKJAE LEE, LONG YOU, JAE-WON JANG, VIVEK SUBRAMANIAN, SAYEEF SALAHUDDIN, UC Berkeley, UC BERKELEY TEAM — Implementation of perpendicularly magnetized thin films and of electrically functional devices on flexible substrates may offer new degree of freedom such as strain effect on the ultrathin magnetic films with a strong spin orbit coupling. Moreover the flexibility has advantages in applications with bendable, stretchable and/or mobile environment. In this talk we present the magnetic characteristics of ultrathin multilayers with a sufficient PMA that were grown on a flexible plastic substrate by dc/rf magnetron sputtering. In addition we fabricate cross-Hall bar devices and demonstrate fully deterministic magnetic reversal of perpendicularly magnetized square dots via in-plane dc and/or pulsed currents. We believe that integration of two emerging technologies promises new spintronic devices that can be utilized in arbitrary surface geometries and be worked in ultra small dimensions.

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