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**Dependence of the spin Hall effect in platinum / ferromagnet bilayers on the composition of the ferromagnet** WEIFENG ZHANG, Stanford Univ, WEI HAN, IBM Research - Almaden , XIN JIANG, Western Digital Corporation, STUART PARKIN, IBM Research - Almaden — The spin Hall effect (SHE) provides a mechanism by which charge current is converted to a pure spin current via spin–orbit interactions. These spin currents can be used to manipulate magnetization via diffusion of the spin current into neighboring magnetic layers, and, conversely, the change in the magnetization in the presence of such spin currents can be used to infer the magnitude and sign of the spin accumulation generated via the SHE. Recently, it has been recognized that large spin currents are generated in platinum layers via the SHE and that these strongly influence the current induced motion of domain walls in coupled magnetic layers. A variety of experimental techniques have been used to measure the SHE in Pt but these give inconsistent results. We have studied the SHE in Pt layers that are coupled to several different ferromagnetic layers, including, permalloy (Py), Ni, Co, and CoFeB alloys. The spin Hall angle is characterized using the spin torque ferromagnetic resonance technique. We find that there is a strong dependence of the spin Hall angle in Pt on the ferromagnetic layer to which it is coupled. The interface between the ferromagnetic layer and Pt plays a central role in determining the magnitude of the SHE which will be the focus of this talk.

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