Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Highly efficient domain wall motion in ferrimagnetic trilayers SEE-HUN YANG, IBM Almaden Research Center, CHIRAG GARG, STUART PARKIN, Max Planck Institute, Halle, IBM-MPI SPINTRONICS TEAM — The current-induced domain wall motion arising from chiral spin torque forms the basis of a number of technologies such as the racetrack memory and 3-terminal based MRAM devices. One of the main impediments towards this implementation is the high current density usually needed to move domain walls reliably. Here, we show that in ferrimagnetic trilayers, we can reduce the critical current required to move domain walls by 2-5 times compared to a ferromagnetic trilayer while dramatically increasing the velocity for the same current densities. This in part, is effected by the use of a Pt underlayer which is grown as a mixture of (111) and (100) phase, resulting in a ˜50% greater Slonczewski-like SOT compared to (111) Pt, as measured by harmonic Hall voltage measurements of current-induced effective fields.

See-Hun Yang
IBM Almaden Research Center

Date submitted: 06 Jan 2017 Electronic form version 1.4