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Spin-torque switching in large size nano-magnet with perpendicular magnetic fields.[1] LINQIANG LUO, MEHDI KABIR, STU WOLF, MIRCEA STAN, JIWEI LU, Univ of Virginia — DC current induced magnetization reversal and magnetization oscillation was observed in 500 nm large size Co90Fe10/Cu/Ni80Fe20 pillars. A perpendicular external field enhanced the coercive field separation between the reference layer (Co90Fe10) and free layer (Ni80Fe20) in the pseudo spin valve, allowing a large window of external magnetic field for exploring the free-layer reversal. The magnetization precession was manifested in terms of the multiple peaks on the differential resistance curves. Depending on the bias current and applied field, the regions of magnetic switching and magnetization precession on a dynamical stability diagram has been discussed in details. The ability to manipulate spin-dynamics on large size devices could prove useful for increasing the output power of the spin-transfer nano-oscillators (STNO).

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