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Spin transfer effects in non-local spin valves with sustained d.c. currents HAN ZOU, YI JI, University of Delaware — We utilized pure spin current in a nonlocal spin valve (NLSV) for spin-transfer. The submicron lateral device consists of a Py spin injector (80 nm wide), a Py spin detector (60 nm wide), and a Cu nonmagnetic channel (100 nm wide). The thickness of the spin detector is 3.5 nm, and a nanoscale magnetic domain (60 nm by 100 nm) in the detector underneath the Cu channel can be switched by spin-transfer. We explore reversible spin-transfer switching over a wide temperature range and using both d.c. current pulses and sustained dc currents. Since a d.c. current changes the baseline of the nonlocal resistance, spin-transfer in NLSV has only been explored by d.c. current pulses. In this work, we achieved NLSV spin-transfer with sustained d.c. currents. The hysteresis of nonlocal resistance as a function of the sustained current is clearly observed, despite the baseline variations. High field and polarity-dependent features in the nonlocal MR curves indicate evidence of spin-transfer induced magnetization dynamics. Work supported by US DOE grant No. DE-FG02-07ER46374.

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