

Muons are the most abundant particles at sea-level. They have been known to cause soft errors in SRAMs. This is the first work to show Muon sensitivity of MLC NAND Flash memories— the 16nm cells in the highest Vt level (L3) show more muon-induced soft errors and more Vt loss than the cells in L2 while there is almost no upset for cells in L1.

Fig. A. The schematic illustration of an MLC NAND, which has cells programmed into 4 different Vt levels (L3~L0).

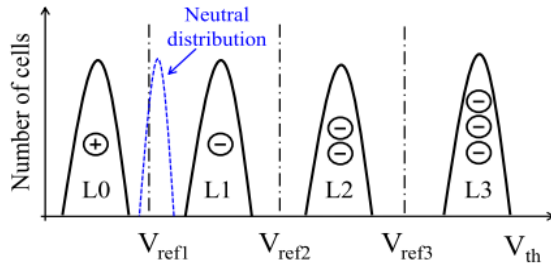


Fig. B. NAND cells in high Vt levels are more sensitive to muon particles. Higher Vt cells end up more muon-induced soft errors with more Vt loss.

