

Supplementary information

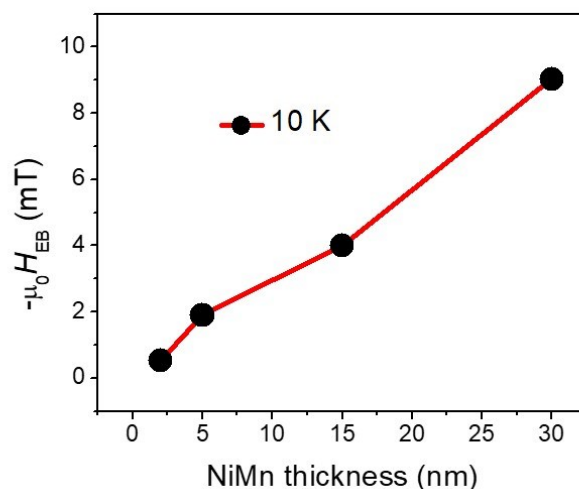


Figure RS1: The plot exchange bias field H_{EB} vs the thickness of NiMn (t_{NiMn}) in bilayer samples of NiMn (t_{NiMn})/CoFeB (5 nm) measured at 10 K.

We field cooled the samples from 400 to 10 K in presence of 200 mT field and measured the M vs H hysteresis loops. From the M vs H loops, the exchange bias field H_{EB} is calculated and plotted against the thickness of NiMn. Figure RS1 shows the NiMn thickness dependence of exchange bias field H_{EB} . Therefore, based on previous reports on several other thin film systems and figure RS1, it is apparent that ‘bulk’ spins of NiMn are likely contributing to the observed exchange bias [28, 29, 30].