KIST Spintronics 발표 2

Giant tunnel-magnetoresistance in rf-sputter deposited CoFeB/MgO/CoFeB magnetic tunnel junctions

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Recent progress in rf-sputter deposited CoFeB/MgO/CoFeB magnetic tunnel junctions (MTJs) is reviewed. As-deposited CoFeB is amorphous, whereas MgO deposited on amorphous CoFeB shows a highly (001)-oriented texture. The amorphous-CoFeB layers above and below the MgO layer crystallize into highly oriented bcc (001) structure upon post-growth annealing, where MgO acts as a template, and exhibit high tunnel-magnetoresistance (TMR) ratio. This talk will focus on our recent experimental findings that include annealing behavior of exchange-biased MTJs [1, 2], high TMR ratio of 472 % at room temperature and over 800 % at 5 K observed in psudo-spin valve MTJs [3], and current-induced magnetization switching at low current density [4] and with synthetic ferrimagnetic free-layer for high thermal stability [5].

References

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