

Possibility of Magnetocapacitor for Multilayered Thin Films

Jong Soo Hong, Sung Wook Yoon, Chul Sung Kim, and In-Bo Shim*

Department of Nano and Electronic Physics, Kookmin University, Seoul 136-702, Korea

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CoNiFe(CNF)/BaTiO₃(BTO)/CoNiFe(CNF) multilayered thin films were deposited on Pt/Ti/SiO₂/Si substrates by using pulsed laser deposition (PLD) system. We fabricated three different thin films of BTO, BTO/CNF and CNF/BTO/CNF for magneto-capacitor and studied their crystalline structure, surface and interface morphology, and magnetic and electrical properties. When three different structures of multilayered thin film were compared, magnetization of CNF/BTO/CNF thin films was decreased by magnetic and dielectric interaction. Also we confirmed that capacitance of CNF/BTO/CNF multilayered thin film was enhanced as being near tetragonal structure with increasing of *c/a* ratio because of atomic bonding at interface between BTO dielectric and CNF magnetic materials. Finally, we studied the change of the capacitance of CNF/BTO/CNF multilayered thin film with magnetic field for emergence of magnetocapacitance and suggested a possibility of enhanced capacitance.

Keywords : magnetocapacitance, multilayer thin film, pulsed laser deposition, interface effect