Correlation Between Magnetothermoelectric Power and GMR Effect in Layered NiFe/Co/Cu/Co Structures

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We show the results of the magnetothermoelectric power (MTEP) and giant magnetoresistance (GMR) measurements of NiFe/Co/Cu/Co layered structures with different Co, Cu and NiFe thicknesses. The main purpose of the measurements was to examine the correlation between these two magnetic effects. Experimental data showed that the magnetic field (H) dependences of MTEP(H) and GMR(H) correlates quite strickingly. It has been shown that amplitudes of MTEP as well as GMR oscilates with both Cu and NiFe thicknesses. It was also shown that the magnetic field dependences of MTEP is inversly proportional to the GMR(H) dependence which is in agreement with theoretical model based on the spin dependent density of states at the Fermi level.