東京大学グローバルCOEプログラム　機械システム・イノベーション国際拠点

東京大学 THE UNIVERSITY OF TOKYO

GMSI Global Center of Excellence for Mechanical Systems Innovation

第56回　GMSI公開セミナー

A multifunctional spintronic material $(Fe,Co)_x$-C_{1-x} /Si

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日時：2010年6月7日（月）　10:30–11:30

会場：東京大学工学部4号館　1階　205セミナー室

要旨

We have made the C and Si hybrid material $(Fe,Co)_x$-C_{1-x}/Si which have positive MR of a few tens percentages at magnetic field of 5T and room temperature. The MR observed in these materials is mainly attributed to n-Si substrate. However, the p-n junction at C/Si interface also plays an important role. We also found that Fe_x-C_{1-x}/Si sample shows a linear magnetic field dependent MR and the MR is not saturate up to 40T. The positive and negative MR was observed in the Fe_x-C_{1-x}/Si sample and the sign of MR is dependent on the orientation of magnetic field and bias voltage applied. The $(Fe,Co)_x$-C_{1-x}/Si have also some other novel physical properties, such as current or bias dependent MR, giant electroresistance, switch effect, photoconductivity, photovoltaic effect, pressure sensitivity and gas sensitivity. Study on this carbon base spintronic material may shed a light on developing a new kind of spintronic materials.

主催：　東京大学グローバルCOEプログラム「機械システム・イノベーション国際拠点」

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