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Magnetoresistance Measurements on Electrodeposited Co_x Cu_{1-x} Alloy Films

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Abstract: Co_x Cu_{1-x} alloy films were prepared by using electrodeposition technique. The variations of Co and Cu contents of the films were investigated as functions of bath pH and Co content. The compositions of the alloy films were determined using an atomic absorption spectrophotometer. The crystal structures of the alloy films were analyzed using a Cu (K α)-X-ray diffractometer. The diffraction lines observed were only those of copper component in the alloy films. All three films showed negative magnetoresistance and a giant magnetoresistance effect on the order of 1% in $Co_{0.26}$ $Cu_{0.74}$ and 1.7% in $Co_{0.19}$ $Cu_{0.81}$ alloy films at 100K. It was also detected that the magnetoresistance effect at first increased, then decreased with increasing Co content.

Key Words: Giant magnetoresistance; Electrodeposited alloy

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