

THE POROUS SILICON MORPHOLOGY EFFECT ON THE GROWTH OF ELECTRODEPOSITED FENI ALLOY

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Abstract:

In this work, we report on cathodic deposition of FeNi thin films into Porous Silicon (PS) formed on n-type Si. The PS layers were fabricated at different potential or current density. Then macroporous and mesoporous Silicon layer were formed. The electrodeposited thin films were characterized by energy dispersive spectroscopy (EDS), X-ray diffraction (XRD). The magnetic properties of the FeNi layers were investigated by magneto-optic Kerr effect (MoKE) measurements. The results show that the FeNi is predetermined by the pore Si morphology and follows the pore silicon cylindrical-like, tubular form has been obtained. In addition, it has been observed that FeNi grains decorate inter of the pore. The composition of the FeNi films obtained is close to permalloy. Finally, the XRD Spectra of the deposited films show the presence of the FeNi (111) and FeNi (220) peaks. The presence of the FeNi (111) has been shown for all ionization potential, in agreement with results reported in the literature.