

# **FENI ALLOYS ELECTROPLATED INTO POROUS (N-TYPE) SILICON**

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## **Abstract:**

FeNi alloys have a variety of high technology applications (such as magnetic storage devices and sensors) due to their wide spectrum of physical properties. A simple and inexpensive production technique of magnetic thin films is electrodeposition. It has been used successfully in the case of FeNi alloys for a wide range of concentrations of both elements.

We report here the study about the electrodeposition of FeNi alloys into porous silicon (PS) made in n-type Si (1-10 S2cm).

The electrodeposited thin films were characterized by scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS), X-ray diffraction (XRD) and secondary ion mass spectrometry (SIMS).

The results show that the morphology, composition and structure of the deposited FeNi alloys are strongly dependent on the deposition conditions. A tubular structure of the FeNi alloys has been obtained with a chemical composition of (80%) Ni (20%) Fe.

Finally, SEM and SIMS characterization show that the FeNi alloy deeply penetrates into PS.

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