Influence of Cu Ion Implantation on Nanocrystalline Alloy of NANOMET

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Abstract. Amorphous precursors of $(Fe_{64}Co_{21}B_{10}Si_5)_{97}P_3$ alloy was used. Cu ions of dose 10^{16}at/cm^2 were implanted into the amorphous $(Fe_{64}Co_{21}B_{10}Si_5)_{97}P_3$. According to simulated program we estimated that Cu ions created surface layer with a thickness of a few micrometers. Samples were studied by Mössbauer spectroscopy. Changes in bulk structure were not observed at parameters of Mössbauer spectra after Cu implantation in amorphous precursor. After the heat treatment differences in nanocrystalline samples were found. Implantation of Cu had an influence on the volumetric fraction of the constituent phases and on their magnetic microstructure. After the heat treatment nanocrystalline sample prepared from implanted precursor contained less crystalline phase than the nanocrystalline alloy without Cu. This technology of production of nanocrystalline alloys indicate at the imprortance of Cu concentration at the final structure and properties of nanocrystalline alloy of NANOMET type.