Fe(Co)-Sn-B Metallic Glasses Investigated by Mössbauer Spectrometry

Daniel George Grey[1, a)], Marcel Miglierini[1,2], Július Dekan[1] and Peter Švec Sr.[3]

[1)] *Institute of Nuclear and Physical Engineering, Faculty of Electrical Engineering and Information Technology, Slovak University of Technology, Ilkovičova 3, 812 19 Bratislava , Slovakia*
[2)] *Department of Nuclear Reactors, Faculty of Nuclear Science and Physical Engineering, Czech Technical University in Prague, V Holešovičkách 2, 180 00 Prague, Czech Republic*
[3)] *Institute of Physics, Slovak Academy of Science, Dúbravská cesta 9, 845 11 Bratislava*

[a)] *Corresponding author: daniel.grey@stuba.sk*

Abstract. Mössbauer spectrometry was used to investigate several Fe-Sn-B-type metallic glasses. $Fe_{78}B_{15}Sn_7$, $Fe_{81}B_{12}Sn_7$ and $Fe_{83}B_{12}Sn_5$ were prepared through the method of planar-flow casting. They were studied in the as-quenched state and also after annealing at 400 °C. The latter procedure has led to formation of nanocrystalline grains. The effect of slight alteration of boron and tin content on the resulting microstructure was investigated. In addition, 25 at. % of iron was replaced by cobalt thus producing another type of metallic glass. The results show advantageous soft-magnetic properties which have wide practical applications.