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MÖSSBAUER SPECTROMETRY IN THE STUDY OF METALLIC GLASSES

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Metallic glasses are still attracting the interest of researchers namely for their very good soft magnetic properties. With the aim to enhance their practical applications, new compositions are continuously scrutinized. Here, we present Mössbauer spectrometry study of a novel Fe 51 Co 12 Si 16 B 8 Mo 5 P 8 metallic glass prepared in a form of ribbons by conventional method of planar flow casting. Samples in as-quenched state as well as after annealing at selected temperatures were investigated.

Mössbauer spectrometry is one of few analytical tools that can describe disordered amorphous systems. This can be done via hyperfine interactions between nuclei and electron shells which sensitively probe local short-range order arrangement. Experiments performed in a broad range of temperatures provide information on the evolution of microstructure. This is reflected by continuous modification of the hyperfine interactions from magnetic dipole towards electric quadrupole ones. Eventually, the Curie temperature of the investigated metallic glass can be established.

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