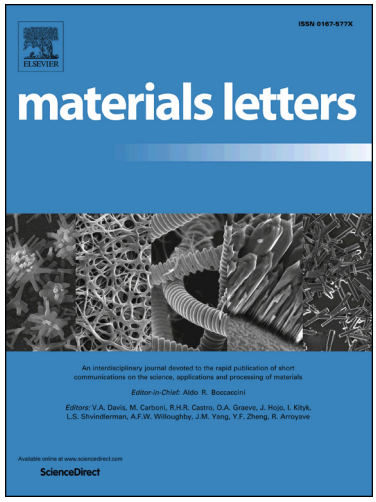

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Stanisław M. Dubiel, Jan Żukrowski

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Effect of 2 MeV Fe^{3+} irradiation on Fe atom population in a σ-phase Fe-Cr

Stanisław M. Dubiel[1] and Jan Żukrowski[1,2]*

[1]AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, [2]AGH University of Science and Technology, Academic Centre of Materials and Nanotechnology, al. A. Mickiewicza 30, PL-30-059 Kraków, Poland,

σ-$Fe_{54.5}Cr_{45.5}$ samples irradiated in vacuum with 2 MeV Fe^{3+} ions at 300, 400, 475 and 700°C to the maximum dose of 12.5 dpa were studied with the conversion electron Mössbauer spectroscopy (CEMS). The analysis of the room temperature CEMS spectra revealed an irradiation-induced redistribution of Fe atoms viz. their number on B and D sites decreased while on A, C and E sites increased. The degree of the redistribution was found to be proportional to the number of Fe atoms present on the lattice sites in the non-irradiated samples. The highest degree of the redistribution was revealed in the sample irradiated at 300°C. No change in the site occupancy was found in the sample irradiated at 700°C.

Key words: Intermetallic alloys and compounds; Radiation damage; Mossbauer; Sigma phase

*Corresponding author: Stanislaw.Dubiel@fis.agh.edu.pl