

## Defects in thin layers of high entropy alloy HfNbTaTiZr

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High entropy alloys exhibit various combinations of interesting physical properties due to the formation of solid solution stabilized by high configurational entropy. High entropy alloy HfNbTaTiZr exhibit one phase solid solution with BCC symmetry when prepared by arc melting [1]. It was found that this alloy exhibits relatively high absorption capacity of hydrogen and fast kinetics of hydrogen absorption and desorption. Hydrogen diffusion may be enhanced by suitable open volume microstructure. Therefore, pulsed DC magnetron sputtering at room temperature was performed to obtain amorphous layer consisting of homogeneously distributed elements. Very fine microstructure of nanoscale grains was observed by SEM and AFM methods. Therefore, very high concentration of defects is expected to be present in sputtered films of HfNbTaTiZr. Slow positron beam was used to examine the nature of defects associated with layer growth.

[1] O.N. Senkov, J.M. Scott, S.V. Senkova, D.B. Miracle, C.F. Woodward: *Journal of Alloys and Compounds* 509 (2011) 6043-6048