

## عنوان مقاله:

KINETICS OF -Fe NANOCRYSTALLIZATION IN Fe<sub>55</sub>Cr<sub>18</sub>Mo<sub>7</sub>B<sub>16</sub>C<sub>4</sub> BULK AMORPHOUS ALLOY

## محل انتشار:

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## خلاصه مقاله:

Abstract: In this research work, crystallization kinetics of Fe<sub>55</sub>Cr<sub>18</sub>Mo<sub>7</sub>B<sub>16</sub>C<sub>4</sub> alloy was evaluated by X-ray diffraction, TEM observations and differential scanning calorimetric tests. In practice, crystallization and growth mechanisms were investigated using DSC tests in four different heating rates. Results showed that a two -step crystallization process occurred in the alloy in which - Fe phase was crystallized in the first step after annealing treatments. Activation energy for the first step of crystallization i.e. - Fe was measured to be ۲۷۶ (kj/mol) according to Kissinger model. Further, avrami exponent calculated from DSC curves was ۲ and a three -dimensional diffusion controlled mechanism with decreasing nucleation rate was observed in the alloy. It is also known from the TEM observations that crystalline á – Fe phase nucleated in the structure of the alloy in an average size of ۱۰ nm and completely mottled morphology

## کلمات کلیدی:

Keywords: Bulk Metallic Glasses (BMGs); Structural amorphous steels (SASs); Avrami exponent; Kinetic models

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1723306>

