

## عنوان مقاله:

Grain refinement in the different zones of Cyclic Contraction Expansion Extrusion (CCEE) method

## محل انتشار:

بیست و نهمین همایش سالانه بین المللی انجمن مهندسان مکانیک ایران و هشتمین همایش صنعت نیروگاه های حرارتی (سال: 1400)

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## نویسندگان:

Kiarash Mashoufi - Sharif University of technology, Tehran, Iran

Ahmad Assempour - Sharif University of technology, Tehran, Iran

## خلاصه مقاله:

Cyclic Contraction Expansion Extrusion (CCEE) is a new Severe Plastic Deformation (SPD) method used to refine the microstructure and improve mechanical properties of Magnesium AZ91 alloy. In this study, different CCEE process zones are investigated via optical microscopy to understand this process better. The average grain size in the contraction zone decreased to ۸.۵ microns from an initial value of ۱۰۶ microns. In the expansion zone, the average grain size was equal to ۴.۸ microns. Microhardness tests were conducted to study the improvements in mechanical properties. Microhardness of the sample increased from the initial value of ۶۶ HV to ۷۴.۴ HV in the contraction zone and ۸۸ HV in expansion zone. For more detailed investigation FE-SEM was used to observe grain boundaries

## کلمات کلیدی:

cyclic contraction expansion extrusion, severe plastic deformation, Magnesium, AZ91, grain refinement

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1238370>

