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بيانــات عـن البحـث الثالث المقـدم للترقيــة

رقم البحث فى القائمة المعتمدة	٣
عنوان البحث باللغة الانجليزية	On the constitutive modeling of a powder metallurgy nanoquasicrystalline $Al_{93}Fe_3Cr_2Ti_2$ alloy at elevated temperatures
أسماء المؤلفين المشاركين بالترتيب	بحث فردى

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هل البحث مشتق من رسالة علمية؟	لا البحث غير مشتق من رسالة علمية

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ملخص البحث باللغة الإنجليزية:

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The flow behavior of nanoquasicrystalline $Al_{93}Fe_3Cr_2Ti_2$ alloy at different strain rates and elevated temperatures was represented by the Johnson–Cook model, a modified Johnson–Cook model, a newly modified Johnson–Cook model, and a modified Zerilli–Armstrong model. A comparative study on the capability of the four models to accurately predict the flow stress of the alloy at hot deformations is made using standard statistical parameters correlation coefficient (R) and average absolute relative error (AARE). The results show that the newly modified Johnson–Cook model provides predicted stresses that agree very well with the experimental stresses at the tested domain of strain rates and temperatures, with R = 0.979 and AARE = 7.78%. The modified Zerilli–Armstrong model might predict the flow stress of the alloy but at some of the tested domain of strain rates and temperatures, with R = 0.951 and AARE = 9.13%. The Johnson–Cook model and the modified Johnson–Cook model are found to be inadequate to predict the flow stress of the alloy with R of 0.924 and 0.935 and AARE of 12.72% and 10.73%, respectively.