عنوان مقاله:

Influence of Up-down-up Constitutive Equation Parameters on Yield Plateau Stage of Mild Steel Samples Subjected to Stretching

محل انتشار:

مجله مکانیک کاربردی و محاسباتی, دوره 8, شماره 4 (سال: 1401)

تعداد صفحات اصل مقاله: 9

نویسندگان:

Artyom O. Chirkov - *National Research Tomsk State University, ۳۶ Lenin Pr., Tomsk, ۶۳۴۰۵۰, Russian Federation*

Mikhail O. Eremin - *Institute of Strength Physics and Materials Science of the Siberian Branch of the Russian Academy of Sciences, ۲/۴ Akademicheskii Pr., Tomsk, ۶۳۴۰۵۵, Russian Federation*

خلاصه مقاله:

In this work, the computational study of Lüders phenomenon is addressed. The material for investigation is low-carbon steel demonstrating the yield point phenomenon when pulled in tension. Modeling of samples loading is carried out in the framework of three-dimensional finite-difference method. Judging by the literature review, there is a lack of papers thoroughly addressing the curves of dependences of Lüders elongation and front propagation velocity on parameters of up-down-up constitutive equation. This work fills this gap. It is shown that the difference between the true upper and lower yield stresses, and strain hardening factor have a strong impact on the duration of the yield plateau stage and ratio of front propagation velocity vf to loading velocity vl. The results of computational study complement the experimental data presented in available literature.

کلمات کلیدی:

Numerical modeling, Lüders bands, von Mises criterion, fronts, finite-difference analysis, up-down-up equation

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1478914