Plastic deformation energy storage

Tolerance in bending into a certain curvature is the major mechanical deformation characteristic of flexible energy storage devices. Thus far, several bending characterization parameters and ...

The irrecoverable mechanical energy Wir expended on plastic deformation, the dissipation energy Q, and finally the stored energy Es were estimated. ... The theoretical background used for the determination of the ...

We postulate that some fraction of energy delivered to the plastically deformed material is responsible for readjustments of deformation pathways making the plastic flow a ...

where ({U}_{i}^{c}) is the plastic deformation energy density generated at the i-th cycle, and it should be noted that the plastic deformation energy density i-cycle starting ...

The energy storing process has been examined in detail by many scientists, such as Bever, Holt and Titchener, but in fact these studies lead to a very general conclusion, i.e. ...

According to definition, the thermodynamic conjugates are related to the corresponding internal variables by: By substituting Eq. (12) back into Eq. (11), the plastic free energy can be ...

3 ???· According to the literature 39, the Nishihara model explains that rock transforms into two creep deformation stages of elastic potential energy and plastic potential energy under the ...

During elastic-plastic deformation, the equation for the energy balance can be defined as (1) E e x t = E p l + E e l + E k where E ext is the total work done by external forces ...

Temperature plays an important impact on rock mechanical properties. In this paper, the mechanical properties, fracture mechanism and constitutive model of marble under ...

A. Kostina et alii, Frattura ed Integrità Strutturale, 27 (2014) 28-37; DOI: 10.3221/IGF-ESIS.27.04 Focussed on: Infrared Thermographic Analysis of Materials Energy dissipation and storage in ...

In the present work, we revisited the classical topic of elastic energy storage during strain hardening of metals from a perspective of the analytically tractable thermodynamic modelling ...

A. Kostina et alii, Frattura ed Integrità Strutturale, 27 (2014) 28-37; DOI: 10.3221/IGF-ESIS.27.04 28 Focussed on: Infrared Thermographic Analysis of Materials Energy dissipation and storage ...

The sluggish kinetics are a momentous hurdle for the application of Mg-based hydrogen storage alloys. To

improve the kinetics, Mg-xMn-0.5Al alloys (x = 0, 0.5, 1, 2) were fabricated by ...

Stored energy plays a crucial role in dynamic recovery, recrystallization, and formation of adiabatic shear bands in metals and alloys. Here, we systematically investigate the energy ...

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