

Semantic Scholar extracted view of "Energy storage and dissipation of elastic-plastic deformation under shock compression: Simulation and Analysis" by Q. Xiong et al.

Through the above numerical method considering the tension-compression anisotropy for long-term mechanical response analysis of compressed air energy storage (CAES) underground ...

Energy is stored in a deformed material through the work done to deform it. When a material is deformed, work is done on it, which results in the storage of energy within the material. This ...

These relationships were then used to obtain the elastic energy and dissipated energy at the peak point of the marble rock. In addition, the concepts of an energy storage ...

The development of energy storage devices that can endure large and complex deformations is central to emerging wearable electronics. Hydrogels made from conducting ...

For this purpose, we first acquire the mechanical properties and energy storage capability of an individual nanothread under four different deformation modes that are occurring ...

Under the same volume fraction, this approach significantly influences the deformation mechanisms and energy absorption capacity of the cellular structures. Therefore, ...

Increasing deformation temperature, strain or holding time can result in the effective release of residual deformation stored energy, promoting the PDRX course. The ...

The key reason is that the deformation time increases with decreasing ($\dot{\epsilon}$), indicating that the cross slip and climb of the dislocation are more sufficient; the ...

The stored energy of plastic deformation has been estimated from transmission electron microscope measurements of dislocation boundary spacings and misorientation angles using ...

Introduction Storage of green gases (eg. hydrogen) in salt caverns offers a promising large-scale energy storage option for combating intermittent supply ...

The deformation of the reservoir during energy storage results from the combined effects of poroelasticity and thermal expansion (Li et al., 2023). As discussed in ...

Grain boundary mediated plasticity (e.g., grain rotation and grain boundary sliding) plays a critical role in

Deformation storage energy

determining the deformation behavior of polycrystals, which is ...

During the formation of recrystallized grains, the internal energy, deformation energy storage and dislocation density of the alloy provide energy for the transformation of ...

During the cold rolling deformation process, dislocations adjust their position and energy state through cross slip and climb under thermal activation. This recovery process ...

The energetic aspect of energy storage and dissipation is important for all materials subjected to deformation, and a similar approach can be applied to any solid ...

The measure of energy conversion at each instant of the deformation process is the rate of energy storage de/dw . This macroscopic quantity is influenced by micro-scale mechanisms.

In compressed air energy storage (CAES) underground caverns, accurately predicting the time-dependent behavior of surrounding rock is crucial for supp...

The concept is tested for steel 304L, where we reproduce experimentally obtained stress-strain responses, we construct the Frost-Ashby deformation map and predict ...

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 ...

For cold-deformed structures in medium to high stacking-fault-energy metals, the stored energy of deformation can be estimated from the misorientation angles and spacings of ...

The subject of this paper is an attempt to obtain information about the energy stored during plastic deformation from experimentally measured stress-s...

The use of abandoned coal mine tunnels as underground compressed air energy storage (CAES) facilities has garnered significant attention given that it effectively repurposes unused ...

Abstract Flexible energy storage devices with excellent mechanical deformation performance are highly required to improve the integration degree of flexible ...

Executive Summary Current commercial concentrating solar power (CSP) plants distinguish themselves from ordinary photovoltaic (PV) power plants by storing enough ...

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Deformation storage energy

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