Optimal design of energy storage flywheel rotor

Analysis and optimization of a novel energy storage flywheel for improved energy capacity. Kinetic/Flywheel energy storage systems (FESS) have re-emerged as a vital technology in many ...

Flywheel energy storage systems (FESS) are widely favored in fields such as power systems, new energy, rail transit, UPS power supplies, etc. due to their high

In what follows, two design optimization case studies will be presented: (1) The optimization of the discrete fiber angles for a multi-rim hybrid composite rotor and (2) the investigation of the influence of ...

In this thesis, an open-source optimization framework with shape and topology optimization capabilities was developed for the design of optimal FESS rotors. A suite of 1D, 2D axisymmetric and 3D linear ...

In this study, the shape optimization of the rotor Flywheel Energy Storage System (FESS) is presented. The initial dimensions of the rotor are determined from MATLAB and SolidWorks models are ...

ABSTRACT The importance of environmentally-friendly energy production has been growing globally, and studies on energy storage technologies are underway, to supply produced energy to consumers. ...

Therefore, the selection of appropriate rotor materials and the design of rotor structure are the key to reducing the cost of flywheel energy storage, which is crucial for the promotion of ...

This paper makes efforts to find the optimal shape of energy storage flywheel rotor for two typical types of configuration flywheels. We first establish a 2-D parametric geometry model and use ...

In an effort to understand and improve flywheel rotor performance and safe operating limits, analytical models have been developed that consider material selection, rotor construction, and operating ...

Web: https://upstreamjhb.co.za