Contactless superconducting energy storage

Keywords - Alternative energy, superconducting energy storage, HTS-technologies, contactless suspension, local electric networks (LEN), optimization of energy flows I. INTRODUCTION

Superconducting energy storage containers represent an advanced technology capable of efficiently storing and releasing renewable energy. 1. They utilize superconducting ...

The physical principles of contactless suspension and its application in the superconducting energy storage and other promising devices and appliances are examined. The perspective of ...

This article presents a novel control technique of Jaya-based super-sliding controller that is applied on superconducting magnetic energy storage system ...

Xu, Analysis of the loss and thermal characteristics of a SMES (Superconducting Magnetic Energy Storage) magnet with three practical operating conditions, Energy, No 143, ?. 372

The application of high-temperature superconducting (HTS) equipment faces challenges that thick current leads connecting superconducting devices with external power sources will generate ...

This paper provides a clear and concise review on the use of superconducting magnetic energy storage (SMES) systems for renewable energy applications ...

We have been developing superconducting magnetic bearing for flywheel energy storage system to be applied to the railway system. The bearing consists of a ...

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The flywheel energy storage using superconducting bearings is the mechanical rotating energy storage system with the help of superconducting contactless bearing coupled ...

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Abstract High speed and vacuum environment are the operating characteristics of rotating energy storage systems. Thus for the suspension of flywheels contactless acting bearings are ...

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The levitation technology applying this phenomenon removes friction between parts. SAMLTAC utilizes this technology to develop superconductor magnets, semiconductor ...

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Experimental results have verified the theoretical analysis. The proposed mechanically operated HTS energy converter is easily controllable, making it promising in ...

We have been developing superconducting magnetic bearing for flywheel energy storage system to be applied to the railway system. The bearing consists of a superconducting coil as a stator ...

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are given. The inflexibility of the superconducting contactless suspension of rotor-flywheel of the energy storage unit is calculated. The results of computer simulation of suspension stability ...

The proposed mechanically operated HTS energy converter is easily controllable, making it promising in various of applications, including superconducting magnetic ...

Experimental results have verified the theoretical analysis. The proposed mechanically operated HTS energy converter is easily controllable, making it promising in various of applications, ...

In this article the importance of using superconducting technologies in power industry together with SMART GRID, based on the analysis of program documents and scientific works, has ...

2. Superconducting electrokinetic storage Superconducting contactless suspension is characterized by large lifting force, which depends on the magnitude of the ...

Abstract Superconducting magnetic energy storage (SMES) systems can store energy in a magnetic field created by a continuous current flowing through a superconducting ...

This integrated wireless charging energy storage device is easily attached to the exterior of the car without complex fixing accessories, indicating good environmental ...

Abstract We consider magnetic braking and energy loss appearing in contactless bearings based on high-temperature superconducting tapes. We analyze model ...

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