

This article proposes a rolling optimization strategy (ROS) based on wavelet neural network prediction and dynamic programming (DP) for tram equipped with on-board battery-supercapacitor hybrid energy storage system, and proves the rationality of using RB strategy to replace ROS strategy entirely or partially in some scenarios. This article focuses on ...

SWITZERLAND: Genève tram operator TPG is testing a prototype supercapacitor energy storage unit which allows braking energy to be recovered, and enables a tram to run for short distances without an external power supply. The 1 tonne supercapacitor unit has been installed on the roof of one of a ...

Supercapacitor technology has a number of advantages over regular batteries, with a 30 second recharging time and long lifetimes. This means, that Huai'an's trams can run all day every day for up to ten years, recharging at each stop on the line. The trams also use energy recovery technology to salvage 85% of the energy generated from braking.

This article focuses on the optimization of energy management strategy (EMS) for the tram equipped with on-board battery-supercapacitor hybrid energy storage system. The purposes of the optimization are to prolong the battery life, improve the system efficiency, and realize real-time control. Therefore, based on the analysis of a large number of historical operation data, this ...

Supercapacitors (SCs) are an emerging energy storage technology with the ability to deliver sudden bursts of energy, leading to their growing adoption in various fields. This paper conducts a comprehensive review of SCs, focusing on their classification, energy storage mechanism, and distinctions from traditional capacitors to assess their suitability for different ...

This paper presents an in-depth study and analysis of the AC drive control simulation of a supercapacitor tram using a high-order neural network pattern discrimination algorithm. Firstly, the line conditions and shunting locomotive operation conditions of a freight coal loading station are analyzed, the capacity of the onboard supercapacitor energy storage ...

The supercapacitor tram in China is one example where the proposed cap-ACL-Tram system could be implemented. Download: Download high-res image (372KB) ... Real-time nonlinear model predictive control of a battery-supercapacitor hybrid energy storage system in electric vehicles. IEEE Trans. Veh. Technol., 66 (11) (2017), pp. 9678-9688.

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