Photovoltaic effect and battery dual drive

Does a solar-powered electric drive-train integrate a bidirectional DC/vehicle-to- vehicle (V2V?
Abstract: The article proposes a solar-powered electric drive-train which integratesa bidirectional DC/vehicle-to-vehicle (V2V) fast charger incorporating switched reluctance motor (SRM) drive. The traction converter and phase windings are re-leveraged to charge the battery,thus eliminating the additional hardware required during charging.

Can photovoltaic technology improve the performance of a four-wheel-hybrid electric vehicle?
Photovoltaic method confirms that the sustainable with greater efficiency and reliability to access electrical power for charging of electric vehicles. The performances of a four-wheel- hybrid electric vehicles can be improvedusing multiple power sources .

How does photovoltaic powertrain configuration affect the range of a car?
The results showed that the range increasedwith reduced energy consumption and charging frequency with onboard Photovoltaics for battery powertrain configuration. The range improved by 30-50% for Microcar and 30-100% for the 5-seater vehicle with the private driving profile.

Can photovoltaic be integrated into EV?
But the short driving range has been an inconvenience to the electric vehicle (EV) users. This paper evaluates the potential of Photovoltaic integrated into EV in real-world conditions to assess energy consumption, range and EV's charging frequency for battery and fuel cell powertrain configurations.

Does recharging a PV system affect battery power?
Similarly,the PV will contribute 100% of its energy in the recharging phase and cover the shortfall through the use of the FC system. Thus,the battery power will be harmfulas it receives energy from the recharging tool,as shown in Figure 9 c.

Is Photovoltaics integrated into EV profitable?
Finally,the economic analysis revealed that Photovoltaics integrated into EV is profitable,reaching the break-even point on the additional photovoltaics expense before the half-life of the vehicle,which makes the total ownership cost lower than a standard EV for its lifetime. 1. Introduction

The photoelectro-magnetic (PEM) effect, which is also called the photomagneto-electric (PME) or the magneto-photovoltaic (MPV) effect, was originally discovered in cuprous oxide by Kikoin and Noskov in 1934 213 and later studied by many investigators. 91, 214, 215 The PEM effect is illustrated schematically in Figure 3-58(b). When a slab of photoconductor is illuminated ...

The Dual Drive Hybrid Electric Vehicle (DDHEV) system composed of Photovoltaic (PV) system/plug-in, dual drive system and power management algorithm ...

This paper proposes an algorithm for the multimode operation of a Brushless DC motor drive fed using a combination of Photovoltaic System and battery-based energy storage. Based on the solar irradiation and the state of charge of the battery, the proposed algorithm identifies a control scheme wherein the entire system operates in Four different ...

Designed and optimized a hybrid solar, hydro, and battery energy system in MATLAB/SIMULINK. Integrated EV charging modules with the grid and defined a novel DBFO-PI for optimization. Validated system performance against existing models in terms of harmonic distortion, power loss, and accuracy.

A dual effect multi-level isotope battery based on ? radioisotope source was proposed. Two types of energy conversion mechanisms, namely, radio-voltaic (RV) and radio-photovoltaic (RPV) effects, was combined to convert the radiation energy of ? ray to electricity. The theoretical performance limit for the dual effect multi-level isotope battery irradiated by 60Co radioisotope ...

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The main objective of this work is to find the optimal condition for controlling a hybrid recharging system by regrouping the photovoltaic cells and fuel cells. The photovoltaic and fuel cell systems were connected in parallel via two converters to feed either a lithium battery bank or the main traction motor. This combination of energy sources ...

In the nineteenth century, during 1839 Edmond Becquerel discovered the photovoltaic effect and it came to be known as the Becquerel effect. He is known as the Father of Photovoltaics. Nearly 35 years after the discovery of the photovoltaic effect, Adams and Day made a selenium photovoltaic cell and published it in the year 1877. In the year 1883, Fritts C ...

It was projected by the U.S. Energy Information Administration (EIA) that world energy feeding will raise by approximately 50% between 2018 and 2050 as shown in Fig. 4.1 (EIA 2019).The main energy consumption growth originates from nations that are not in the Organization for Economic Cooperation and Development (OECD).This growth is seen in the ...

This paper shows very reliable, extended range power supply for electric vehicle with PV panel with battery to overcome the battery oriented vehicle issues like rapid charging and discharging of battery rapidly. Better acceleration performance, controlled regenerative ...

The Dual Drive Hybrid Electric Vehicle (DDHEV) system composed of Photovoltaic (PV) system/plug-in, dual drive system and power management algorithm improves the fuel efficiency of the DDHEV. The DDHEV system designed with the PV system needs efficient and simple DC-DC converter to export the

power generated by the PV system to ...

section, the battery type and battery pack size are chosen. In this study, the Valence U1 -12XP (LiFeMgPO4) Lithium- ion battery [14] is chose n and

This paper presents the design and implementation of a dual battery controller for a solar-based electric vehicle. The proposed controller manages two batteries: a primary battery that powers ...

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Assessment of PVEV in real-world driving for battery and fuel cell powertrain configurations. Simulation model developed to estimate energy production through onboard ...

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