EDITORIAL

Electric and Hybrid Vehicles: A New Transactions

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Abstract

This is an editorial written for the newly established journal *ICCK Transactions on Electric and Hybrid Vehicles*. We encourage authors to focus on innovative contributions in the field of electric vehicles. By understanding the background of the journal's establishment and the scope of accepting manuscripts, authors can increase their chances of successful publication. We particularly encourage researchers to submit review papers, research papers and others in the field of electric vehicles.

Keywords: vehicles, new energy vehicles, electric vehicles, hybrid electric vehicles.

1 Introduction

The exhaust emissions of traditional internal combustion vehicles are one of the main causes of global climate change and air pollution. With energy depletion and increasingly severe environmental pollution, new energy vehicles (NEVs) are receiving increasing attention and becoming the main direction of future automotive development. At present, NEVs are becoming an important force in changing our mode of transportation. NEVs refer to vehicles that use non-traditional fuels as their power source, including: battery electric vehicles (BEVs), Plug in hybrid electric vehicles (PHEVs), fuel cell electric vehicles (FCEVs), extended range electric vehicles (EREVs), etc [1, 2]. Compared with traditional internal combustion vehicles, BEVs are energy-saving and environmentally friendly, but they have shortcomings in terms of driving range, charging time, and cycle life. PHEVs is a form of vehicle that falls between traditional internal combustion engine vehicles and BEVs, capable of reducing fuel consumption and emissions pollution. The technology of NEVs is undergoing major technological changes in three core areas: power electrification, vehicle intelligence, and structural lightweighting. The next few years will be an important strategic opportunity for the global automotive industry to restructure and transform.

The three core components of electric vehicles (EVs) are batteries, motors, and electronic control systems. These three systems collectively determine the vehicle's power performance, range, and level of intelligence. The specific explanation is as follows:

As the energy source of EVs, the mainstream technologies for battery systems include lithium iron phosphate batteries (high safety, long cycle life) and

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ternary lithium batteries (high energy density, long range). The performance of power batteries directly affects the range and charging efficiency, and current technology focuses on improving energy density and fast charging capability. The key technologies include battery modeling, battery state estimation, battery life prediction, battery fault diagnosis, battery optimized fast charging, etc. [3, 4].

The motor system is responsible for the conversion of electrical energy to mechanical energy. Common types include permanent magnet synchronous motors (high efficiency, high power density) and AC asynchronous motors (simple structure, low cost). The key indicators of the driving motor include maximum power (determining the maximum vehicle speed) and maximum torque (affecting acceleration performance), while optimizing the efficient operating range to reduce energy consumption. The key technologies include motor design, motor testing, motor inverter control, motor current prediction control, motor speed control, etc. [5, 6].

The electronic control system includes a battery management system (BMS), motor controller, and vehicle controller, responsible for coordinating the overall operation of the vehicle. For example, BMS monitors the battery status in real-time to ensure safety, and the energy recovery system can convert braking energy into electrical energy storage. The key technologies mainly include energy management strategies, vehicle control, road condition prediction, path planning, and optimized layout of charging stations [7–10].

2 Electric and Hybrid Vehicles: A New Transactions

I am honored to introduce to you a new journal *ICCK Transactions on Electric and Hybrid Vehicles*, which focuses on the latest scientific research achievements, technological innovation, and industry development in the field of EVs. This journal aims to provide a platform for scientists, engineers, decision-makers, and individuals interested in clean energy and future transportation to exchange ideas and the latest research findings.

The journal will cover various aspects of the electric vehicle field, including battery technology, drive systems, vehicle energy management, charging infrastructure, policy analysis, and market trends. We will pay special attention to innovative research that can promote the popularization of EVs and environmental sustainability. We are committed to publishing papers with high impact and practical value, whether it is basic scientific research in the laboratory or advanced engineering applications. At the same time, we encourage interdisciplinary collaboration and believe that by bringing together wisdom from different fields, we can better address the challenges we face and drive progress in the entire industry.

As the editor in chief, I promise to maintain the high academic standards and editorial quality of the journal, ensuring a fast, fair, and transparent peer review process. The journal will also support an open access model, allowing anyone interested in the development of EVs to access our content without barriers. In addition, we will regularly publish special issues to delve into hot topics within the industry, as well as emerging technologies and trends.

In the future, we expect the journal to become an authoritative publishing platform in this field, providing valuable reference resources for researchers, developers, and policy makers worldwide. We believe that through continuous efforts and contributions, EVs will continuously break through existing limitations and achieve a more efficient, environmentally friendly, and intelligent future transportation vision.

Thank you for your attention and support to the journal. We look forward to your voice, your research, and your passion.

3 Aims & Scope

The scope of the journal includes but is not limited to:

- **Electric vehicle**.
- **Hybrid electric vehicles**
- **Plug in hybrid electric vehicles**
- **Fuel cell electric vehicles**
- **Intelligent driving vehicles**
- **Autonomous vehicles**
- **Electric vehicle testing**
- **Power battery**
- **Battery management system**
- **Battery charging system**
- **Motor design**
- **Motor optimization control**

- **Artificial intelligence for electric vehicles**

Data Availability Statement

Not applicable.

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Conflicts of Interest

The authors declare no conflicts of interest.

Ethical Approval and Consent to Participate

Not applicable.

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