

SPECIAL ISSUE

ELECTRIC AND HYBRID VEHICLES

Edited by M. Ehsani and C. C. Mi

967 State of the Art and Trends in Electric and Hybrid Electric Vehicles

By M. Ehsani, K. V. Singh, H. O. Bansal, and R. T. Mehrjardi

| INVITED PAPER | This article provides insight into the current challenges and breakthroughs in the field of electric vehicles (EVs) and hybrid electric vehicles (HEVs).

985 Revolution of Electric Vehicle Charging Technologies Accelerated by Wide Bandgap Devices

By S. Li, S. Lu, and C. C. Mi

| INVITED PAPER | This article reviews wide bandgap devices (WBGs) and their impact on the development of electric vehicle charging equipment.

1004 A Critical Review of Advanced Electric Machines and Control Strategies for Electric Vehicles

By C. Liu, K. T. Chau, C. H. T. Lee, and Z. Song

| INVITED PAPER | This article reviews advanced electric machines and their corresponding control strategies, particularly for electric vehicle (EV) applications.

1029 Status and Gap in Rechargeable Lithium Battery Supply Chain: Importance of Quantitative Failure Analysis

By Y. Zhang, R. T. Nguyen, and B. Liaw

| INVITED PAPER | This article provides a critical review of current rechargeable lithium battery design, development, manufacturing, and deployment in the supply chain.

1039 Electric Drive Technology Trends, Challenges, and Opportunities for Future Electric Vehicles

By I. Husain, B. Ozpineci, Md S. Islam, E. Gurpinar, G.-J. Su, W. Yu, S. Chowdhury, L. Xue, D. Rahman, and R. Sahu

| INVITED PAPER | This article covers the state of the art and emerging concepts in electric drivetrain technologies used to facilitate the transition to electric road transport technologies.

1060 Reliability of Power Electronic Systems for EV/HEV Applications

By F. Blaabjerg, H. Wang, I. Vernica, B. Liu, and P. Davari

| INVITED PAPER | This article focuses on the power electronic systems reliability in electric vehicles (EVs) and hybrid EVs (HEVs) where both their reliability requirements and challenges are highlighted for the used power electronics technology.

DEPARTMENTS

955 POINT OF VIEW

Why Engineers Are Right to Avoid the Quantum Reality Offered by the Orthodox Theory?
By X. Oriols and D. K. Ferry

962 SCANNING THE ISSUE

Electric and Hybrid Vehicles
By M. Ehsani and C. C. Mi

1145 FUTURE SPECIAL ISSUE/SPECIAL SECTIONS

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SPECIAL ISSUE
Electric and Hybrid Vehicles
Point of View: Why Engineers Are Right to Avoid the Quantum Reality Offered by the Orthodox Theory?



On the Cover:
The cover image aptly captures the topic of this month's special issue by highlighting an electric car at a charging station.

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1077 Hybrid and Electric Vehicle (HEV/EV) Technologies for Off-Road Applications

By M. A. Masrur

| INVITED PAPER | This article presents the current status of hybrid and electric vehicle (HEV/EV) technology, with an emphasis on the issue related to decision making process before the HEV/EV technology is introduced for any particular situation.

1094 Toward Holistic Energy Management Strategies for Fuel Cell Hybrid Electric Vehicles in Heavy-Duty Applications

By T. Rudolf, T. Schürmann, S. Schwab, and S. Hohmann

| INVITED PAPER | This article provides a thorough review of energy management strategies (EMSs) and related methodologies for heavy-duty fuel cell hybrid electric vehicles (FCHEVs).

1115 Electric/Hybrid-Electric Aircraft Propulsion Systems

By P. Wheeler, T. S. Sirimanna, S. Bozhko, and K. S. Haran

| INVITED PAPER | This article discusses electric/hybrid-electric aircraft propulsion systems, their technological requirements, and the ongoing research and development in motors and drives necessary to make this technological change a feasible option for the future of passenger flight.

1128 Electric Vehicles for Smart Buildings: A Survey on Applications, Energy Management Methods, and Battery Degradation

By S. Nazari, F. Borrelli, and A. Stefanopoulou

| INVITED PAPER | This article focuses on different vehicle-to-building (V2B) application ideas and reviews energy management methods in smart buildings with V2B integration.

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