

Special Issue

Sustainable Innovations in Electric Vehicle Technology

Message from the Guest Editors

Carbon neutrality—a global goal for climate change response—has led to a rapid shift in the automotive industry from internal combustion engines to electric vehicles (EVs). This process has exposed new challenges across power systems, battery manufacturing processes, charging infrastructures, and urban transportation systems. The expansion of EVs has led to massive electricity demand, while the environmental burden of battery raw material mining and disposal has created cracks in the existing mobility and energy structure. To mitigate these complex challenges, multifaceted innovations are essential, including advanced battery chemistry, lightweight modules, battery life extension technologies, reuse and recycling systems for used batteries, and bidirectional charging technology for flexible charging loads. This issue focuses on these innovative EV technologies for achieving sustainability.

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