

**5<sup>th</sup> International Conference on Energy, Power and Environment,  
ICEPE 2023  
Special Sessions  
on**

**“Electric and Hybrid Vehicle Technology”**

Aims & Scope of the Session (100-200 words):

Electric vehicles (EVs) are a promising technology for achieving a sustainable transport sector in the future, due to their very low to zero carbon emissions, low noise, high efficiency, and flexibility in grid operation and integration. This special session is planned to provide a platform to the researchers for discussing an overview of electric vehicle technologies as well as associated energy storage systems and charging mechanisms, different types of electric-drive vehicles. These include batteries and battery pack design for electric vehicles, plug-in hybrid electric vehicles, hybrid electric vehicles and fuel cell electric vehicles. The topologies for each category and the enabling technologies are also included. Various power train configurations, new battery technologies, and different charger converter topologies are introduced. Electrifying transportation not only facilitates a clean energy transition, but also enables the diversification of transportation's sector fuel mix and addresses energy security concerns. In addition, this can be also seen as a viable solution, in order to alleviate issues associated with climate change. Furthermore, charging standards and mechanisms and relative impacts to the grid from charging vehicles are also included.

Topics of interest include, but are not limited to:


- Selection of E-motors for electric vehicles-BLDC/PMSM/Induction/Synchronous motors
- Motor control technology for Hybrid and electric vehicles
- EV system architecture, concepts for passengers, service and utility vehicle
- Innovations in EV component design, EV motor drives and controllers, EV high voltage wiring, Heating and cooling systems for EV's, Innovations in EV energy storage solutions (e.g. battery chemistry, ultra-capacitor, fuel cell, battery management system).
- Lithium batteries and battery pack design for Hybrid and electric vehicles application
- Lithium-ion battery management system
- EV systems modelling, simulation and testing.
- Powertrain sizing calculation procedure and practice problems.
- AC and DC conductive charging, wireless charging, smart charging, fast charging, Power grid and renewable energy resource interfacing for EV mass deployment.
- Design for manufacturing for EV mass production.
- Safety, testing, regulations and standards of electric and hybrid vehicle's

Special Session Organizers (names and contact emails):

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Special Session Organizers (short bios with photo):

<p>Madhu Singh graduated in Electrical Engineering from NIT, Patna in the year 1990, post-graduated from NIT, Jamshedpur, in Power Electronics and Drives in 2007. She has completed her Ph.D. in power electronics from NIT Rourkela in 2014. At present she is working as Associate Professor in the Department of Electrical and Engg. in NIT Jamshedpur, India. She has authored many research papers in the areas of Power Electronics and Drives, Renewable Energy Source, Fuzzy Logic Controller and Nonlinear controllers. Mrs. Singh is a member of IEEE, fellow of IETE. She has supervised 5 PhD research scholars.</p>	
<p>Sushree Diptimayee Swain received his BE in Electrical Engineering from Utkal University, Odisha in 2006. He received his M. Tech in Power System from SRM University, Chennai, Tamilnadu, India, in 2011 and completed his PhD in Electrical Engineering from National Institute of Technology, Rourkela, Odisha, India in 2017. He is working as an Assistant Professor with the Department of Electrical Engineering at O. P. Jindal University, Raigarh, Chhattisgarh, India. Her main research interests include power quality, distributed generation, Electric vehicle, renewable energy systems, Development of filtering and estimation algorithm for power system parameters etc.</p>	