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Foreword

The rapidly changing customer preferences in mobility, contribution of the sector to climate change and the drive for sustainability drives the need for accelerated innovation higher than never before. In addition to the constant demands to make products low cost, low maintenance, improved reliability, there is also a mindful demand for improved safety, sustainability, connectivity, self-serviceability, convenience, etc. As a result, the desired form, fit, and functional needs of the product are becoming more and more complex with greater integration to both physical and virtual world. Accelerated transition to products catering to these complexities and increased functionalities would thus require simultaneous innovations in design for circularity, safety, technologies for net-zero emission, low carbon fuels, preventive maintenance, telematics etc.

One of the key ways to achieve this accelerated transition is through increased use of advanced simulations, analysis led design and validations as well as the use of data and data analytics. Use of machine learning and advanced analytics with connectivity to cloud computing is already exploding rapidly around the world. Progress in simulations and numerical methods to solve complex issues in EV and battery systems are being made. At the same time, continued innovations and new chemistries are being researched upon to improve the performance and safety of the batteries. India also continues to look for alternate fuels as well as new materials and chemistry for batteries to address the issues of energy security and reduce dependence on petroleum and Lithium, respectively.

This issue presents to you, articles spread across important topics covering automotive safety, electric/hybrid mobility, advanced numerical and analytical methods and powertrain technologies. We look forward to using this platform to bring to you solutions to more real-world challenges and research findings which will help the community to together transition into sustainable and safe-mobility.

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