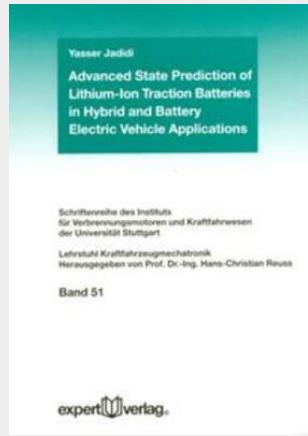


Advanced State Prediction of Lithium-Ion Traction Batteries in Hybrid and Battery Electric Vehicle Applications

Automotive power trains with high energy efficiencies – particularly to be found in battery and hybrid electric vehicles – find increasing attention in the focus of reduction of exhaust emissions and increase of mileage. The underlying concept, the electrification of the power train, is subject to the traction battery and its battery management system since the capability of the battery permits and restricts electric propulsion. Consequently, the overall vehicle efficiency and in particular the operation strategy performance strongly depends on the quality of information about the battery. Besides battery technology, the key challenges are given by both the accurate prediction of battery behaviour and the electrochemical battery degradation that leads to power and capacity fade of the traction battery. This book provides the methodology for development of a battery state monitoring and prediction algorithm for application in a battery management system that accounts for the effects of electrochemical degradation.



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