REFORMULATED MODEL [1] BASED PREDICTION, MONITORING AND CONTROL OF RECHARGEABLE ELECTROCHEMICAL BATTERIES

De, Sumitava, Lawder, Matthew, Northrop, Paul, Ramadesigan, Venkatasailanathan, Subramanian, Venkat, Suthar, Bharatkumar

Dahl, Lisa

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Advanced technology for Li ion batteries that allows 20% greater energy storage and 50% reduction in charging time without compromising the safety or lifetime of the battery system. Rechargeable batteries (e.g. Li ion) are managed as part of a subsystem that includes control of the charge and discharge of the battery stack. Traditionally an empirical control approach is used because of the fast computation speed even though it provides suboptimal battery performance. More complex modeling can improve battery performance but heretofore the required modeling times were too long to provide interactive control of the battery subsystem. The technology from Washington University in St Louis provides very rapid and accurate control yielding greater energy storage and reduced charging time for Li ion batteries.