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## A Linear Recursive State of Power Estimation for Fusion Model Component Analysis with Constant Sampling Time

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The state of power of lithium-ion batteries, as the main product of choice for electric and hybrid electric vehicle energy storage systems, is one of the precise feedback control parameters for the battery management system. The proposed research establishes a method for the analysis of charging and discharging constitutive factors under the sampling time, realizes the online identification of parameters by building an adaptive forgetting factor recursive least-squares method based on the Thevenin model, and uses the online parameters to achieve an effective characterization of the power state under voltage and current limitations. The results demonstrate that the accuracy error of online parameter identification is less than 0.03 V. Combining the analysis of charging and discharging constitutive factors under sampling time with the fusion model of voltage and current limitation makes the power state estimation more reliable and accurate. The results demonstrate that the power state estimation error in the discharging state is less than 8%.

**Keywords:** state of power; lithium-ion batteries; energy storage systems; charging and discharging constitutive factors; online identification; fusion model of voltage and current limitation

## FULL TEXT

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