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(54) **STATE-OF-CHARGE BALANCING IN BATTERY MANAGEMENT SYSTEMS FOR SI/LI BATTERIES**

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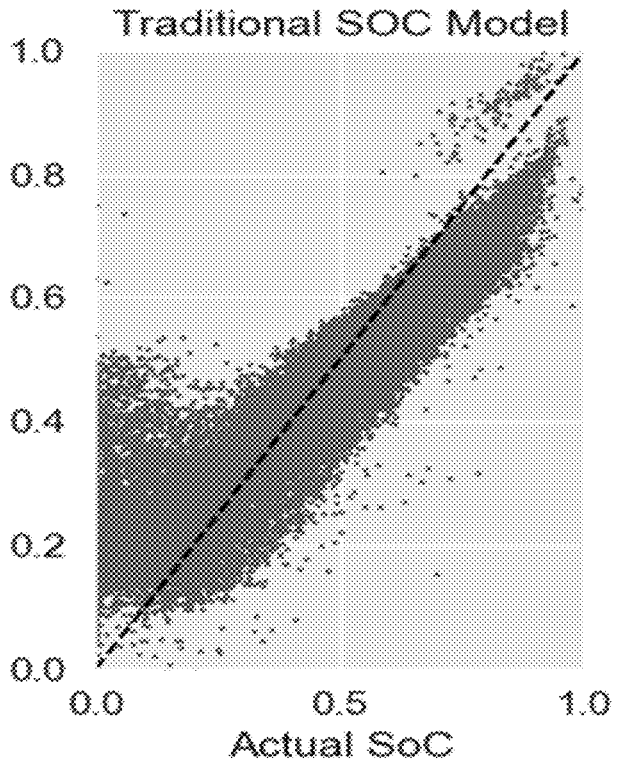
(57) **ABSTRACT**

Systems and methods are provided for state-of-charge balancing in battery management systems for Si/Li batteries. At least one state-of-charge (SOC) model may be configured, particularly to account for one or more unique characteristics associated with a cell type of one or more cells of the plurality of lithium-ion cells, and a state-of-charge (SOC) of a plurality of lithium-ion cells may be assessed. Based on the assessing of the state-of-charge (SOC), the plurality of lithium-ion cells may be controlled. The assessing may include calculating or estimating the state-of-charge (SOC) using the at least one state-of-charge (SOC) model. The controlling may be configured to equilibrate the state-of-charge (SOC) of the plurality of lithium-ion cells, or to modify a state-of-charge (SOC) of an individual lithium-ion cell or a group of lithium-ion cells, so that the plurality of lithium-ion cells as a whole has a balanced state-of-charge (SOC).



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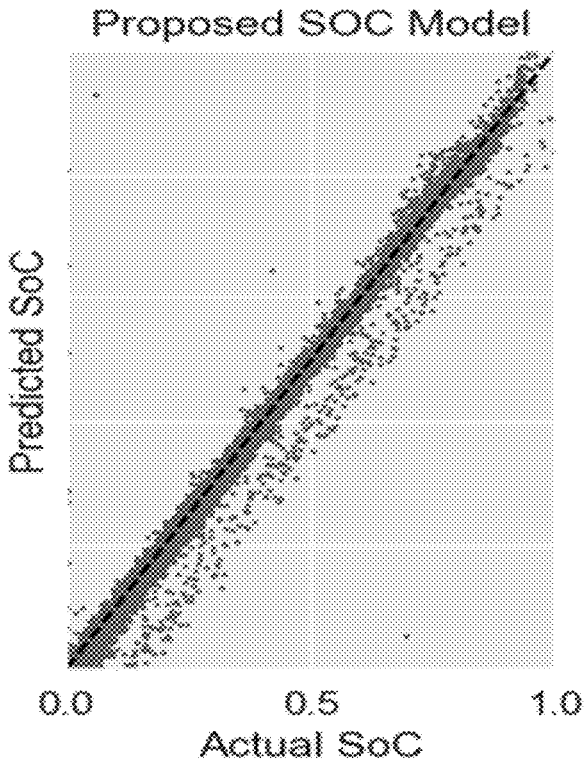

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