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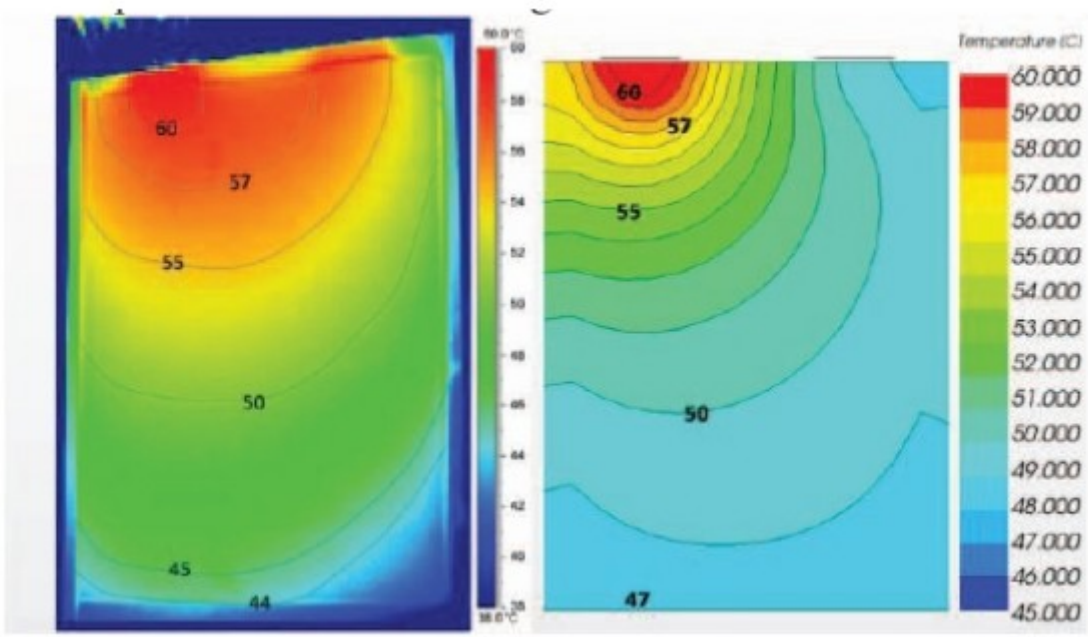
Validation of a new simulation tool for the analysis of electrochemical and thermal performance of lithium ion batteries.



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Order on SAE Website: Validation of a new simulation tool for the analysis of electrochemical and thermal performance of lithium [1]

Abstract:

With the increasing focus on the use of lithium ion batteries for traction applications the ability to simulate electrochemical and thermal performance of such batteries is of great interest. This paper details a multi-length scale approach which is used to simulate a single lithium ion pouch cell and compare against some previously published experimental work. This approach is then extended and used as a building block to a much more complex simulation using multiple cells within a battery pack. This technology also simulates the cooling system performance and the inherent coupled behavior of the battery?s operation and its thermal environment.

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