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Title: Flow battery field scale

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Which flow cell design is best for a stack-scale battery?

Serpentine and interdigitated flow fields are the most frequently studied and compared designs. It is found that the overall battery performance heavily depends on the balance between the electrochemical polarizations and pumping work . More significantly, there exist many issues when scaling up the flow cell toward the stack-scale batteries.

How does flow field geometry affect redox flow batteries?

Author to whom correspondence should be addressed. In vanadium redox flow batteries, the flow field geometry plays a dramatic role on the distribution of the electrolyte and its design results from the trade-off between high battery performance and low pressure drops.

Which flow patterns can be used for scaled-up battery design?

Therefore, engraving flow patterns on electrodes for the flow-through structure is another potential strategy for scaled-up battery design. In summary, the serpentine and interdigitated flow fields are still the most popular patterns for RFBs.

What happens if you scale up a flow battery?

In addition, the pressure drop in the main channels may increase considerably when scaling up the flow battery.

Feb 1, 2024 · ;The flow field designed in electrode greatly lowers sealing pressure demand for vanadium redox flow battery with better reliability and shows potential benefit for large-scale ...

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