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Title: A 3-D binder-free nanoporous anode for a safe and stable charging of lithium ion batteries

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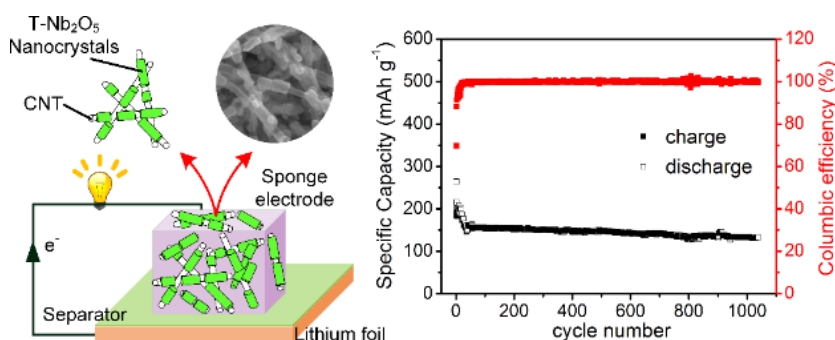
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GRAPHICAL ABSTRACT



T-Nb₂O₅ nanocrystals are *in situ* grown in CNT sponges and serve as binder-free, safe and stable lithium ion battery anodes.

HIGHLIGHTS

- *In situ* growth of T-Nb₂O₅ nanocrystals in CNT sponge for a safe binder-free anode.
- 3-D nanoporous structural network enhances rate capability and cycling stability.
- Voltage window of hybrid anode varies from 1-3 V to prevent SEI formation.
- Binder-free anode has high retention rates after 1000 cycles

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