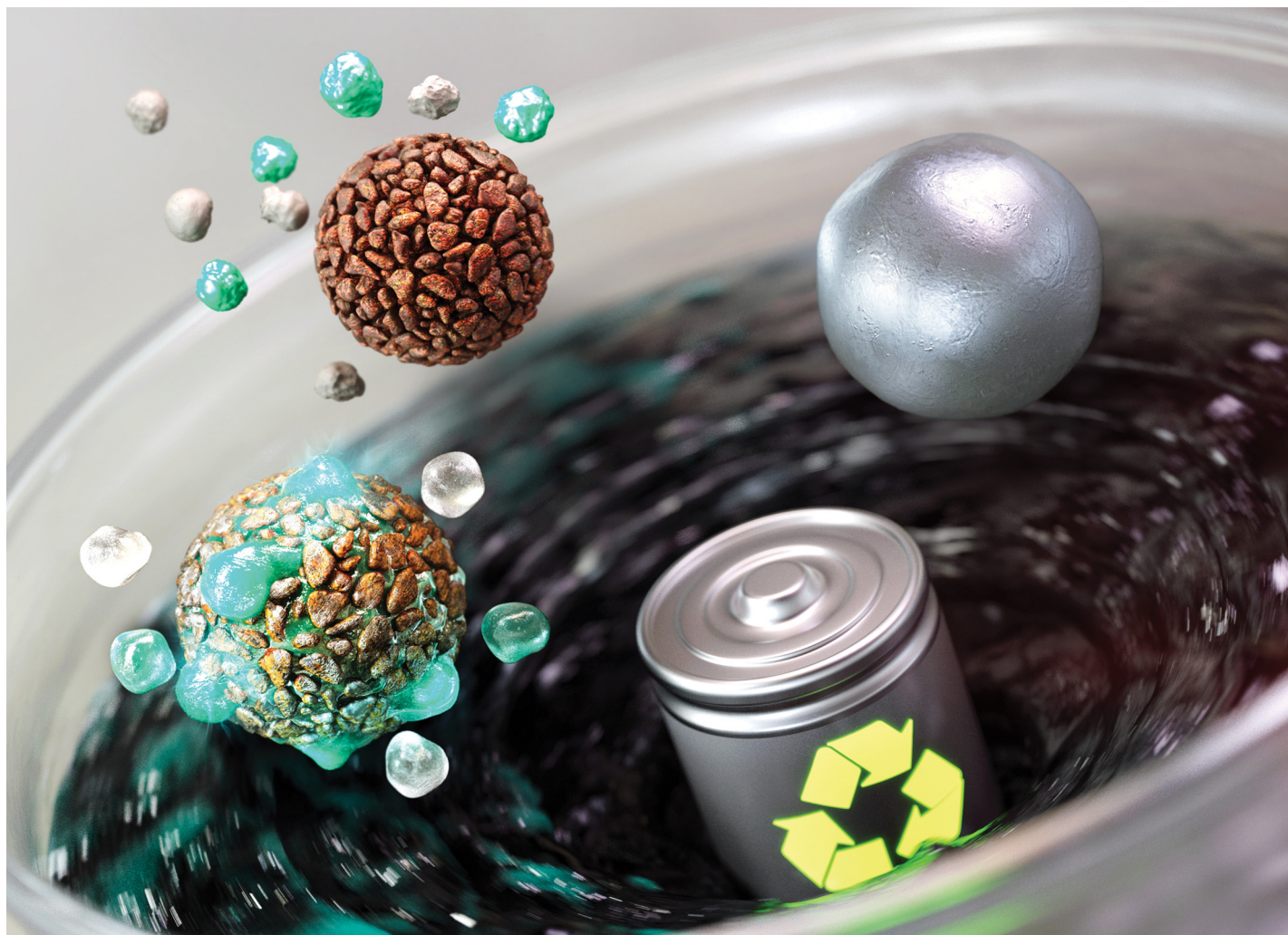




**Showcasing research from Professor Ju Li's laboratory,
Massachusetts Institute of Technology, Cambridge, US.**

Upcycling spent medium-Ni cathodes *via* novel liquified salt sourcing

We present a direct upcycling strategy that converts spent medium-Ni cathodes into Ni-rich, single-crystalline cathode materials using liquified eutectic salt chemistry. A transient quasi-liquid phase, formed from LiOH-LiNO_3 and $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ under planetary centrifugal mixing, enables uniform precursor diffusion and microstructural reconstruction. This process suppresses rock-salt phase formation and significantly enhances electrochemical performance, delivering improved cycling stability and rate capability. The scalable, energy-efficient method minimizes greenhouse gas emissions and energy consumption, offering a sustainable and transformative approach to spent battery and next-generation cathode production.

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See Moonsu Yoon, Yanhao Dong,
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