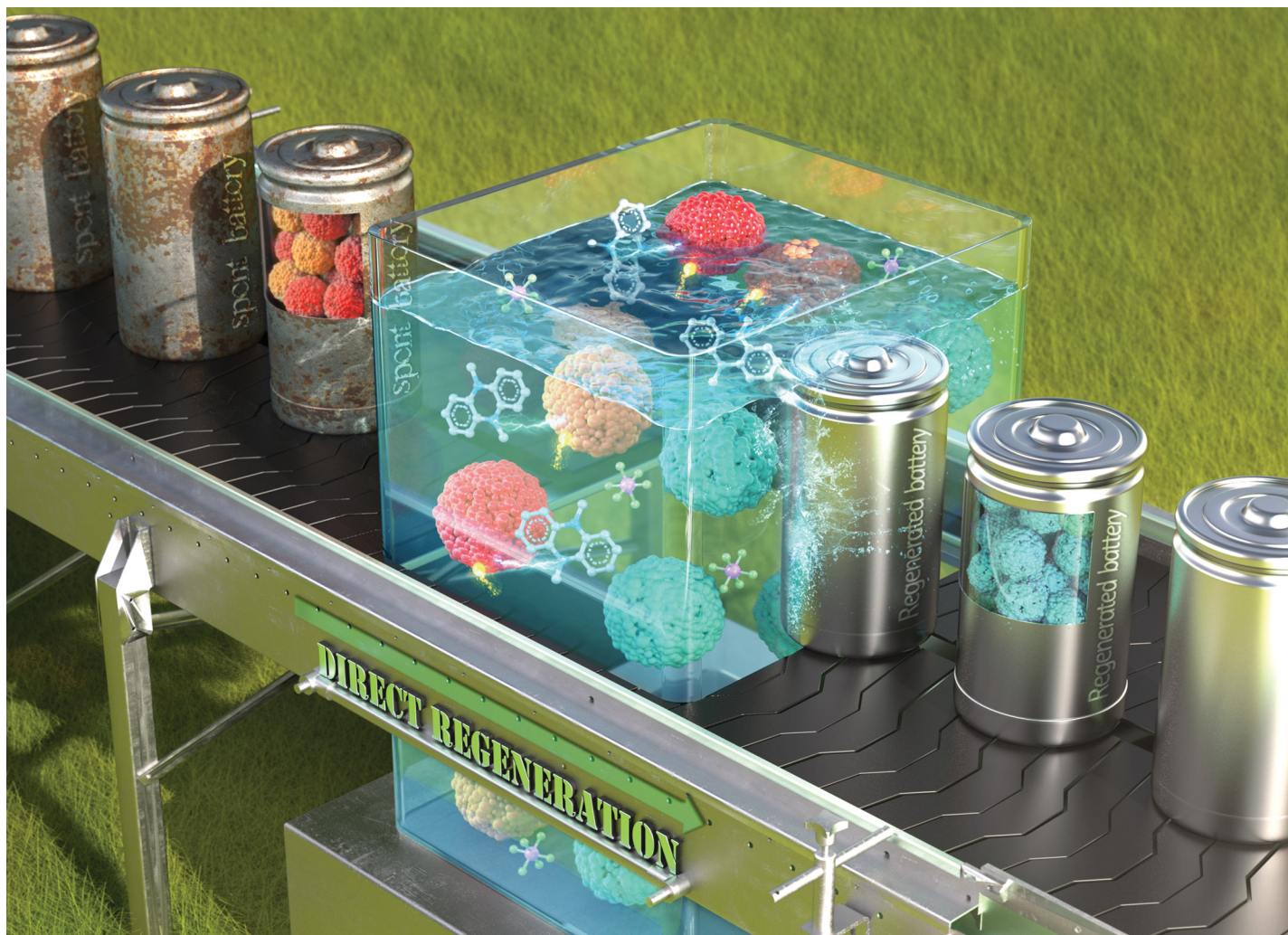


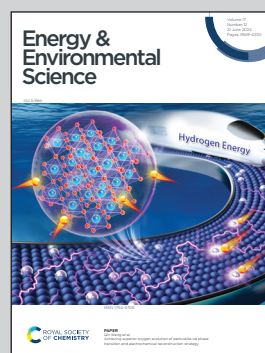


**Showcasing research from Dr Minah Lee's and Dr Jihyun Hong's groups, Korea Institute of Science and Technology (KIST), Seoul, Republic of Korea.**

Thermodynamically controlled chemical regeneration of spent battery cathodes using recyclable electron donors under ambient conditions

Thermodynamically controlled Li-coupled electron transfer from recyclable electron donors (RED) to cathodes is proposed as a viable route for directly regenerating spent cathodes in dry air at room temperature. The RED-based lithiation universally applies to cathode materials with heterogeneous Li loss, allowing the Li quantification and cathode separation processes to be bypassed for recycling. Further, the used regeneration solution can be refreshed by simply mixing with reductants for reuse in lithiation, promising minimal cost and chemical waste for recycling.

**As featured in:**



See Jihyun Hong, Minah Lee *et al.*,  
*Energy Environ. Sci.*, 2024, **17**, 4064.