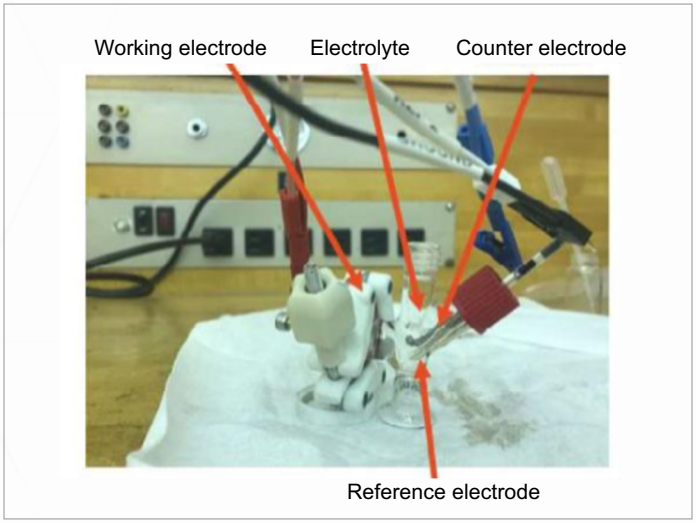
Lithium-Ion Battery Recycling Process

VTIP 17-099: "A Lithium-Ion Battery Electrode Recycling Process"

International Patent Application PCT/US2018/026528

THE CHALLENGE

Lithium ion battery technology has become ubiquitous in modern society. The electrification of transportation is making the demands for LIB materials increase exponentially. As markets grow, environmental issues related to lithium-ion batteries will raise more concerns and there will be a tremendous need for low cost lithium ion batteries. In order to make the technology more affordable, used batteries must be recycled to recover critical components. Current recycling methods are very inefficient and result in significant loss of important material, driving up battery costs.



The mechanisms of a lithium-ion battery.

OUR SOLUTION

Li and his team have developed a novel lithium-ion battery recycling process that can fully recycle all the valuable materials from a used lithium-ion battery, including but not limited to packaging material, aluminum and copper current collector, electrolyte, binder, cathode materials. The recycled electrode materials that directly recovered from the used battery retains the same morphology, particle size distribution and electrochemical performance. The entire process can be automated as well. This invention can drastically reduce the cost of LIB manufacturing and will make a very positive environmental impact.

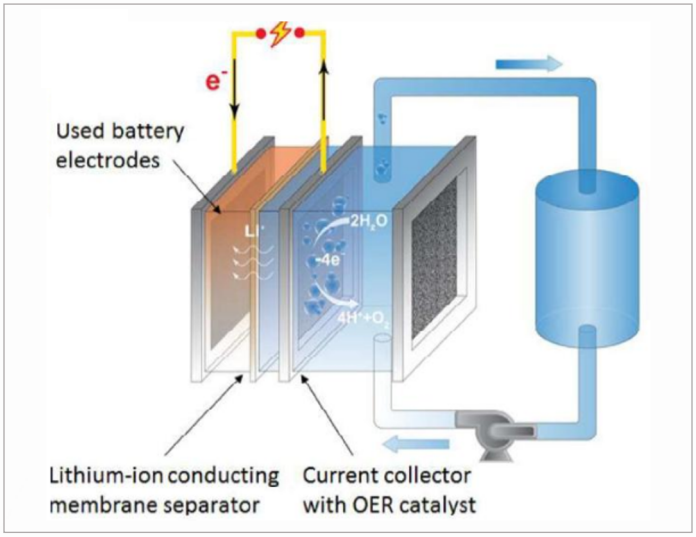


Diagram of an example of a recycling process of lithium-ion batteries.

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