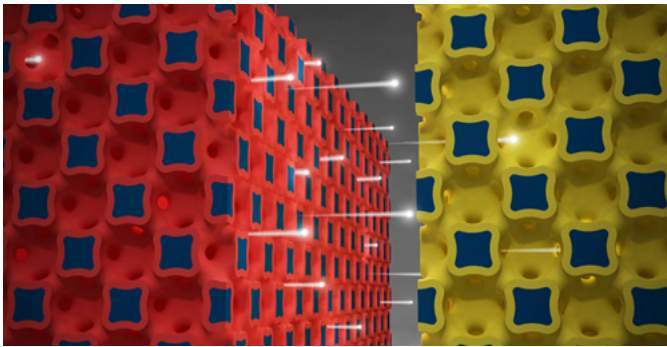


The Future of Batteries: Small in Size, Big in Power?

Written by Marco Attard
17 April 2013

University of Illinois researchers create tiny lithium-ion batteries able to out-power even the most powerful capacitors-- batteries few millimetres in size able to recharge mobile devices "in the blink of an eye."



The key to the batteries' power is a redesigned cathode and anode structure. While standard li-on batteries consist of a solid lithium salt cathode and a graphite cathode, the University of Illinois battery uses a nickel-tin anode and manganese oxide cathode with a 3-dimensional internal microstructure.

The result is porous electrodes with a massive surface area allowing for more chemical reactions to take place, which results in a massive boost to power output and charging.

The first battery using the technology is a button-sized number the researchers claim combines the power output of supercapacitors and the energy storage of fuel cells.

"Any kind of electronic device is limited by the size of the battery— until now," lead researcher William P. King says. "Consider personal medical devices and implants, where the battery is an enormous brick, and it's connected to itty-bitty electronics and tiny wires. Now the battery is also tiny."

In theory the technology allows for smaller, lighter batteries able to boost signals by up to 30

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times in broadcast distance. The next step for the researchers is to integrate the battery with electronics components, as well as looking into low-cost manufacturing.

Go [Small in Size, Big on Power: New Microbatteries a Boost for Electronics](#)