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## Process For Electrodepositing Manganese Oxide With Improved Rate Capabilities For Electrical Energy Storage

Tech ID: 28783 / UC Case 2017-590-0

### BRIEF DESCRIPTION

The invention is a novel method for enhancing the energy, power and performance of lithium ion batteries. It applies a new process for electrodepositing Manganese Oxide in a way that improves the electrical properties as well as the rate at which the battery can operate. Using this method, the energy storage capabilities is boosted significantly; making it faster, more reliable and enabling various applications to become more dependent on electric/battery solutions.

### FULL DESCRIPTION

This invention proposes a new process for enhancing the energy storage capabilities of an important Li+ insertion metal oxide: MnO<sub>2</sub>. This process enables MnO<sub>2</sub> to function at a higher rate, and for thicker coatings, enhancing the energy and power of batteries and capacitors. This technology, along with a related technology (please see Related Case 2016-760) allows for nanowire-based batteries and capacitors with extremely long cycle lifetimes (over 200,000 recharging cycles) without loss of capacitance.

### SUGGESTED USES

- Electronics
- Electric cars
- Phones/tablets/laptops (Portable devices)
- Batteries
- Capacitors

### ADVANTAGES

- Electrical conductance is increased by an order of magnitude
- Higher storage capacity
- Enhanced performance rate/speed
- Faster, more reliable battery solution

### PATENT STATUS

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### OTHER INFORMATION

#### CATEGORIZED AS

- » **Energy**
  - » Storage/Battery
- » **Materials & Chemicals**
  - » Nanomaterials
  - » Storage
- » **Nanotechnology**
  - » Electronics
  - » Materials
  - » Tools and Devices

#### RELATED CASES

2017-590-0

Country	Type	Number	Dated	Case
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## STATE OF DEVELOPMENT

Demonstrated at a proof of concept level, with initial results reported.

**UCI** Beall  
Applied Innovation

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