



THE UNIVERSITY  
of ADELAIDE



# ZAM BATTERY

**A zinc acid manganese (ZAM) battery that has more than double the energy density of comparable batteries.**

## Benefits

- A wet cell battery having energy densities exceeding 800 Wh/kg.
- Quick stable recharge.
- Stable constant discharge.
- Inexpensive materials (zinc and manganese) and simple standard construction.
- Superior recycling of charging/re-charging tested over 1500 cycles.

## Technology overview

The ZAM battery uses a latent high-voltage manganese dioxide electrolysis process in a conventional zinc-ion battery, resulting in a new electrolytic zinc acid manganese system, via enabled proton and electron dynamics, that maximizes the electrolysis process.

Compared with other zinc-based electrochemical devices, this new electrolytic ZAM battery has:

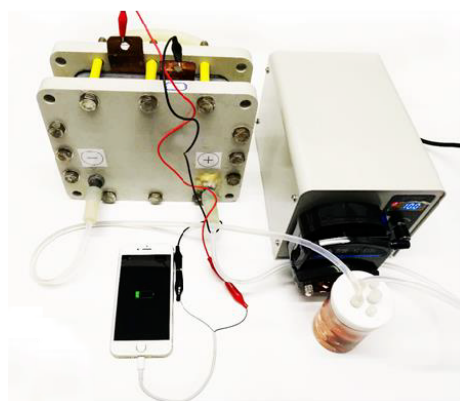
- a record-high output voltage of 1.95 V

- an imposing gravimetric capacity of about 570 mAh g<sup>-1</sup>,
- a record energy density of approximately 409 Wh kg<sup>-1</sup> when both anode and cathode active materials are taken into consideration.

The cost is conservatively estimated at <US\$10/kWh. This opens a new opportunity for the development of zinc-based batteries, and should be of immediate benefit for low-cost practical energy storage and grid-scale applications.

Additional in-depth technical details on the battery can be found by referring to:

Angew. Chem. Int. Ed.  
10.1002/anie.201904174



## Applications

With the uptake of green energy generation, the need to store this energy using batteries

has become even more profound. Homes, solar farms, electric vehicles and high energy use industries are some examples that would benefit from the ZAM battery.

## Opportunity

We are seeking partners in battery fields.

## IP status

Pending provisional patent application with PCT cover available.

## Inventors

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## FURTHER ENQUIRIES

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