New batteries can be recharged by 70% in just two minutes

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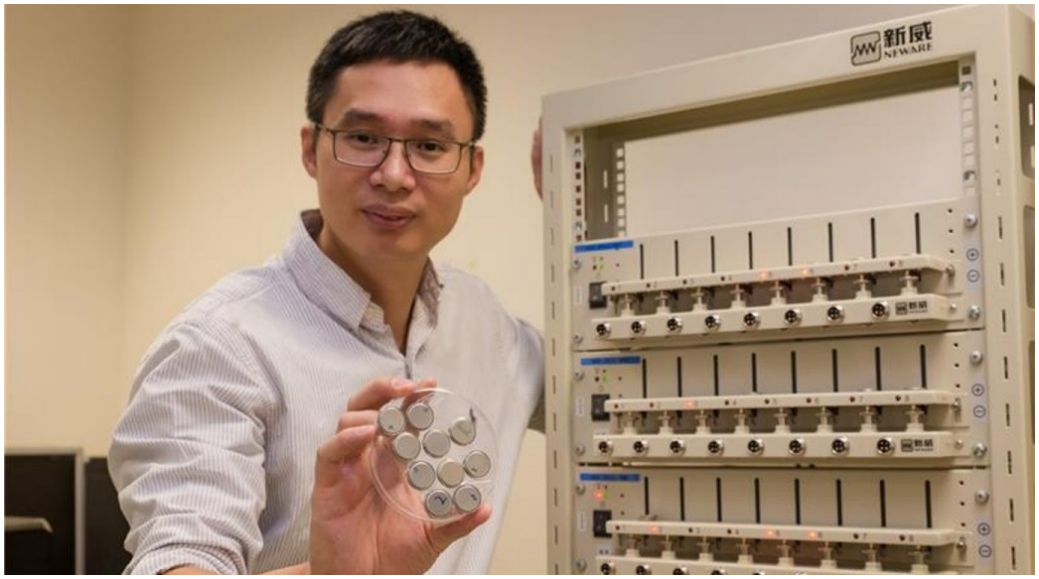


New lithium-ion batteries could see a breakthrough for electric vehicles.

Many people are currently put off by the vehicles' lengthy four hour charge time and short battery life, but the new batteries, developed by scientists from Nanyang Technological University (NTU Singapore), can be recharged up to 70% in just two minutes – 20 times faster than at the moment.

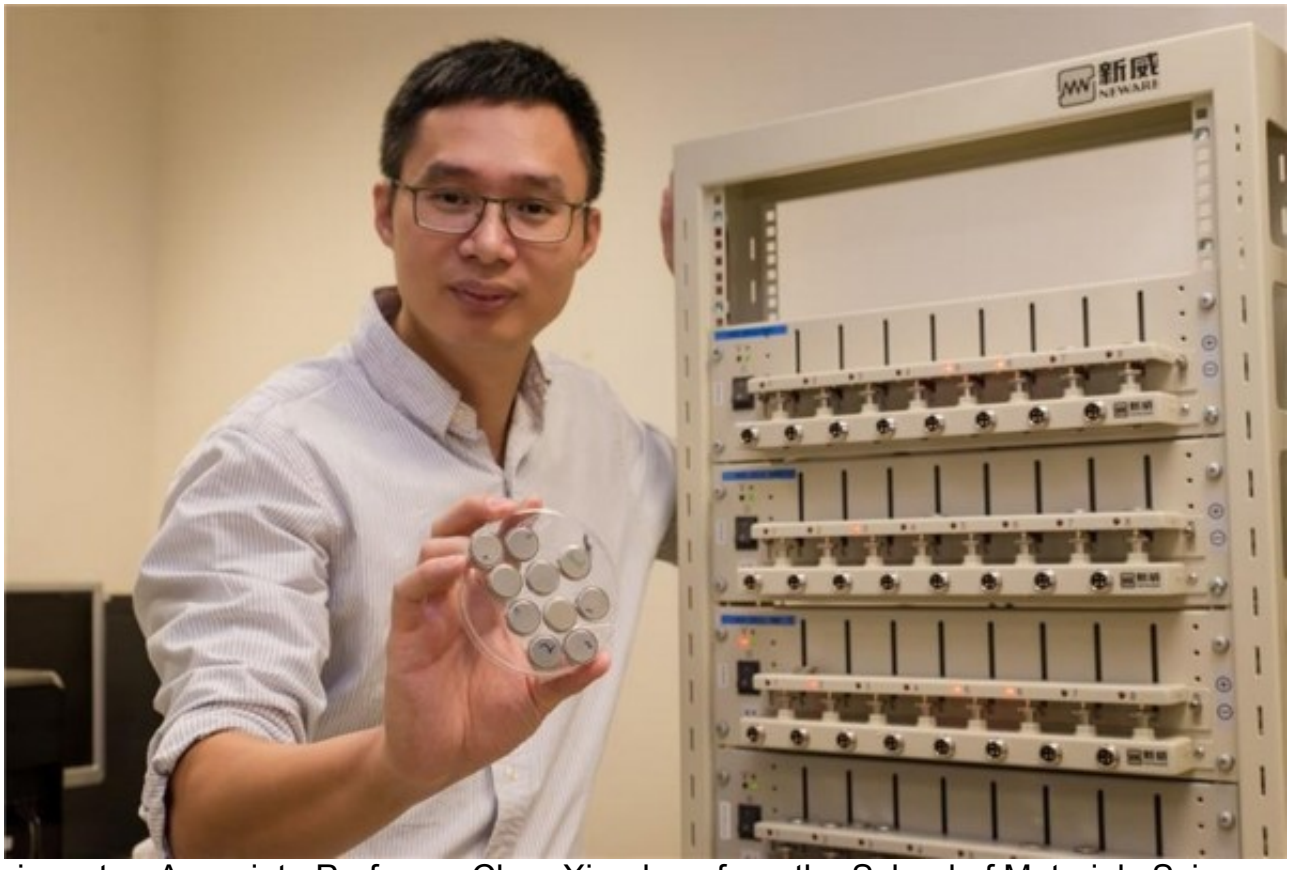
Their life span is also 10 times longer than current lithium-ion batteries, at 20 years. For an electric vehicle that means it could endure 10,000 charging cycles – 20 times more than the current 500 cycles gotten from today's batteries.

A Tesla Motor, completely electric (Haruka Takahashi/AP)

To speed up the chemical reactions taking place in the battery by so much, NTU Singapore's scientists replaced the graphite that is traditionally used for the anode (negative pole) with a new gel material made from titanium dioxide.

The cheap, abundant and most importantly safe material that is found in soil is often used as a food additive or in sunscreen lotions to absorb UV rays. Titanium dioxide is naturally found in a spherical shape, but the scientists came up with a method to turn the particles into tiny nano tubes a thousand times thinner than the diameter of a human hair.

NTU professor Rachid Yazami, who was the co-inventor of the lithium-graphite anode 34 years ago that is used in most lithium-ion batteries today, said Professor Chen Xiaodong's invention is the next big leap in battery technology.



The inventor, Associate Professor Chen Xiaodong from the School of Materials Science and Engineering at NTU Singapore (Nanyang Technological University)

"Electric cars will be able to increase their range dramatically, with just five minutes of charging, which is on par with the time needed to pump petrol for current cars," said Chen.

"Equally important, we can now drastically cut down the toxic waste generated by disposed batteries, since our batteries last 10 times longer than the current generation of lithium-ion batteries."