

# Slow charging does not help extend battery life

A new study published by California scientists (USA), can change the way lithium-ion batteries clean in consumer electronics products and electric vehicles, help extend battery life and use batteries effectively. than.

**A new study published by California scientists (USA), can change the way lithium-ion batteries clean in consumer electronics products and electric vehicles, help extend battery life and use batteries effectively. than.**



The new study, published in the journal *Nature Materials* , challenges the ancient arguments that slow battery charging will help extend battery life and charge batteries too quickly, causing damage to batteries.

" *We have always thought the battery is a single device, but inside a battery of batteries (for example, the iPhone) contains trillions of charged particles,* " said *William Chueh* , Materials and Energy Science researcher at *Stanford Research Institute* , *the lead author of the paper,* said.

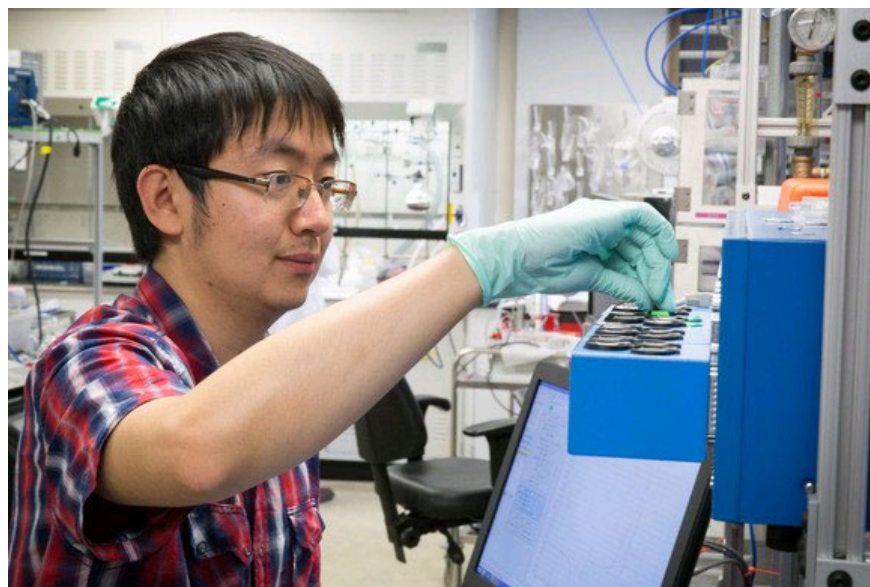
" *We, a committee of scientists, have studied at a macro level how the entire battery works, but our research looks at each individual nucleus to find out how it works. Its dynamics ,* " *Chueh* said.

Chueh and his team used particle accelerators at the Energy Department's SLAC Accelerator Laboratory to observe how individual nanoparticles work when the battery is charged and discharged. This is the first time this process has been observed and recorded at such a level of detail.

The current is not evenly distributed to the particles to gradually charge all particles that are absorbed by single particles or small particle groups over a short period of time until each particle is fully charged, then electric current is transferred to the next particle. The battery is efficiently charged through each particle with a series of

extremely fast charging processes. Researchers are surprised because fast charging is said to damage batteries.

" *In the past 10 or 20 years, we have always thought that the slower the charge, the less the battery's heat and the longer the battery's life and durability. But after what we saw in this study, we could end it. "The point of view is not entirely accurate ,"* Chueh said.



With the newly discovered knowledge, researchers are proposing some more uniform ways of charging, a change that could extend the durability of lithium-ion batteries from two years to about 10 years. Consistent charging, whether fast or slow, causes little local heat, which can increase battery durability.

Researchers are also looking for ways to charge and discharge batteries faster without harming batteries.

This study could benefit many devices such as electric vehicles, because users often take several hours to charge them. If it is possible to reduce charging time, the driver will not have to spend a lot of time in the middle of waiting for a long journey.

But first, the team needs to do more tests. In particular, they will have to run the battery's electrode through thousands of charge discharges to simulate typical usage and measure performance. Negotiations with consumer electronics manufacturing companies and the automobile industry began to take place.

The team consists of members from *the Massachusetts Institute of Technology* , Sandia National Laboratory, Samsung Advanced Research Institute, American Institute of Technology and *Lawrence Berkeley National Laboratory* .

You finished reading the article "**Slow charging does not help extend battery life**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.