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These Batteries Really Keep Going and Going

An interview with Professor Zhongwei Chen
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What research is being done on new batteries?

My research is mainly focusing on the advanced materials development for next generation battery and fuel cells. What we are trying to do is develop high-energy density, next generation batteries. We also develop another type of battery, called rechargeable zinc battery, for the renewable energy like solar, wind, this energy. When people try to use it in large scale, you are better to have a really good, you know, energy-storage system, before you can use it. Because for this wind and solar, it is not so stable. This battery could last 10 years, or even more than 20 years. So this renewable energy could also not be expensive, so that everyone can use it for the future.

What will batteries be made from in the future?

The solution is to develop novel materials. For example, like a current lithium battery we use in our cell phone or in Tesla electric vehicles, that is a graphite-based lithium battery. In the past few years we developed a silicon-based ion material. If you compare the silicon materials with the graphite materials used in the commercial battery, the silicon's energy density is ten times higher. So with this, you can increase the battery, you know energy density, 150%. I believe in the next few years, we will see the silicon-based lithium battery will replace the traditional graphite-based lithium battery.