

Sila Nanotechnologies is Revolutionizing Lithium-ion Batteries

Sila Nanotechnologies

Gene Berdichevsky Co-Founder & CEO

Since its foundation in 2011, [Sila Nanotechnologies](#) has been developing silicon-based materials to power a new era of lithium-ion batteries. We interviewed Gene Berdichevsky, co-founder and CEO, to find out more.

Improving lithium-ion battery capacity

—Tell us about your company.

Our mission is to deliver the best materials for energy storage that will take battery power to the next generation. Materials for conventional lithium-ion batteries include graphite anodes and metal oxide cathodes. The materials we develop replace these and significantly increase energy storage capacity without increasing battery size.

—So your product isn't the battery itself?

No, we don't make the batteries; we make the materials that play an important role in determining their capacity. The materials we make replace the graphite-based anodes in conventional batteries with silicon which has superior capacity. This fact has been known widely enough that graphite-silicon composites have been used in the past. But we're the first to eliminate graphite completely. You could say this is the first meaningful advancement in lithium-ion batteries since their introduction in 1991.

Powering phones and electric vehicles

—What is your target market?

First, we're looking at consumer devices like mobile phones. With our technology, we can pack the same power in an even smaller battery. That freed up space can then be put to more effective use.

We also have our sights set on automobiles—that is, electric vehicles. For EVs, the benefit of a smaller battery is cost. A smaller battery is cheaper, which can lead to more affordable EVs down the line. This is a huge advantage.

—You must be up against some stiff competition. What makes you stand out? Yes, there are many companies working on high-capacity battery materials. But their strategy is to replace a small percentage of graphite with silicon. We replace 100% of it; that's our edge. And while a few startups have jumped into silicon technology, their products aren't market-ready yet. We've been working on these for the past seven to eight years and are finally at mass production. Also, many of these startups are reconstructing the battery itself. That makes partnering with existing battery manufacturers challenging. That isn't an issue for us.

—Do your materials require any structural or specific modifications on the part of manufacturers?

None at all. All manufacturers need to do is replace their graphite anode with our silicon-based product.

—You mentioned that consumer devices and automobiles are your target markets. What is your plan?

Well, we're going to focus on consumer devices for the first two to three years. We think the automobile market will take a little more preparation. That being said, the consumer device market is substantial. After we've grown there, we'll tap into automobiles. Nobody has ever done this before as far as we know. We've already partnered with automobile companies like BMW.

A former Tesla employee, now aiming to be the global standard in batteries

—Tell us about how you got here.

I was an engineer at Tesla in their battery system development division. That's where I realized battery development had a long way to go. I left my position at Tesla in 2008 to learn more about battery properties because I wanted to improve existing batteries which would reduce their cost and make electric vehicles more affordable. That led to this company in 2011.

—Do you have your sights on the global market?

We work closely with manufacturers all around the world, and particularly with field leaders in Korea, Japan and China. We want to reach as many people and cover as much ground as possible while working closely with our local partners. And of course, we also hope to team up with mobile phone manufacturers who want to use our product. Eventually we want to support EV production through partnerships with companies like Toyota and Honda.

—What is your outlook for the future?

We're definitely still in the middle of a very long journey. Replacing all of today's cars with EVs will take significant technological advancement. Ultimately, though, we want to become the standard in lithium-ion batteries. If the day comes when all batteries use our technology —well, we couldn't ask for anything more. First, we need to reach several billion through consumer devices, and then even more people through their cars.

The transition to lithium from nickel metal metal hydride was the first revolution in battery technology. We think our technology is the next. It might take ten years. But our goal is to get there.

Co-Founder & CEO
Sila Nanotechnologies
Gene Berdichevsky

Gene worked as an engineer at Tesla Motors after studying mechanical and energy engineering at Stanford University. In 2011, he co-founded and became CEO of Sila Nanotechnologies.

Company Profile

Founded 2011

Business Consumer devices, development of long-lasting high-capacity batteries for automobiles

Funds \$125 million (as of March, 2019)

Employees >100

Location San Francisco, California

Website www.silanano.com