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Electronics with a Twist

Researchers at Northwestern University and the University of Illinois at Urbana Champaign have developed methods for creating electronic circuits that can be stretched, bent or even twisted. Cynthia Graber reports

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[The following is an exact transcript of this podcast.]

[Electronics](#) come in all shapes and sizes—but there's been a limit on their flexibility. Now, researchers say they've created electronics that can be shaped in virtually any way, including bent, stretched and even tightly coiled. They published their results in the *Proceedings of the National Academy of Sciences*.

Silicon is the principal ingredient in electronics, and it's inflexible and brittle. To overcome this constraint, the researchers first developed one-dimensional, single-crystal silicon electronics, which they reported in 2005. The crystals could be stretched without losing their properties.

Then last summer they demonstrated that they could build tiny circuits that were connected by tiny metal bridges. The final product could be bent and placed over a curved surface. Most recently, the researchers modified the bridges into an S shape. The additional step takes the flexibility further—the electronics can now be twisted into curves as well. One use could be a sensor on a human body. But the scientists see applications beyond the biological—they're trying to develop flexible solar cells. Flat cells need to move to follow the sun. But a flexible cell could always receive direct rays without constant repositioning.

—Cynthia Graber

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