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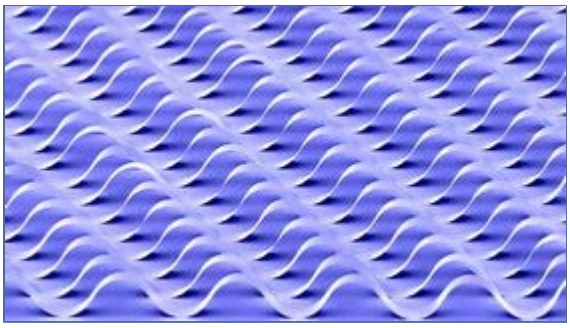
Flexible electronics could find applications a artificial muscles



Semiconductor ribbons with buckled profiles on polydimethylsiloxane surfaces that are functionalized for surface cl stretchability. Credit: Argonne National Laboratory

Flexible electronic structures with the potential to bend, expand and manipulate electronic devices are being devel Energy's Argonne National Laboratory and the University of Illinois at Urbana-Champaign. These flexible structure as electronic devices that can be integrated into artificial muscles or biological tissues.
In addition to a biomedical impact, flexible electronics are important for energy technology as flexible and accurate

These structures were developed from a concept created by Argonne scientist Yugang Sun and a team of researc Rogers. The concept focuses on forming single-crystalline semiconductor nanoribbons in stretchable geometrical c and surface chemistries used in their fabrication and the mechanics of their response to applied strains.

“Flexible electronics are typically characterized by conducting plastic-based liquids that can be printed onto thin, be our work was to generate a concept along with subsequent technology that would allow for electronic wires and cir accordions leading to sensor-embedded covers for aircraft and robots, and even prosthetic skin for humans.

“We are presently developing stretchable electronics and sensors for smart surgical gloves and hemispherical elec

The team of researchers has been successful in fabricating thin ribbons of silicon and designing them to bend, stre losing their ability to function. The detailed results of these findings were published in the *Journal of Materials Chei* semiconductor nanoribbons for high-performance stretchable electronics," which is available **online**.

Before coming to Argonne in August of 2006, Sun worked as a research associate under John A. Rogers at the Ur this project was first initiated. With the opening of Argonne's Center for Nanoscale Materials late last year, he was scientists' investigations in the properties of materials at nanoscale dimensions.

The Center for Nanoscale Materials at Argonne integrates nanoscale research with Argonne's existing capabilities materials research and electron microscopy with new capabilities in nanosynthesis, nanofabrication, nanomaterials

With the many resources at Argonne at his disposal, Sun plans to expand his research to focus on applications in

Source: Argonne National Laboratory
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