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Elasticated electronics tip up

Bend me, shape me

By Sylvie Barak: Friday, 28 March 2008, 7:42 AM

US BOFFINS HAVE figured out a way to make silicon chips bendy and stretchy, which they reckon will be the stepping stone for flexi electronic devices such as wearable computers and implantable health monitoring systems in the future.

Professor of materials science at the University of Illinois, John Rogers, and his team have shown that it's possible to use ultrathin silicon to build whole sheets of bendy circuits made transistors, amplifiers, and logic gates. The research is to be published in this week's *Science Journal*.

The study was based on previous research undergone in Professor's Roger's lab in 2005, when a team managed to produce a stretchable form of single crystal silicon. That apparently involved bonding very thin narrow strips of silicon to rubber. The professor, in an interview with the BBC, said that at a microscopic level the strips had a sort of wavy structure that behaved like "accordion bellows" in that they allowed stretching in one direction.

This latest study is based on integrated circuits (complete silicon chips) which can be made to stretch in two directions. The entire circuit can be made just one and a half microns thick, which works out at hundreds of times thinner than the silicon circuits found in computers.

To make sure that the circuit works well in whatever direction it's twisted or bent, the boffins placed the silicon, the most fragile component, at a distance between the top and bottom of the circuit sheet where it will experience the least amount of strain. It also optimizes the electronics and allows them to work as well as those on a solid

wafer, according to Rogers.

After removing the circuits, the silicon base is discarded, leaving delicate shavings of circuitry held in plastic.

These slivers are then bonded to a piece of pre strained rubber. When the strain is removed, the rubber snaps back into shape, and the circuits on the surface fold up accordingly. Almost like crumpling a piece of paper.

Bendable electronics aren't a totally new concept. In the past, researchers have tried stamping, printing, and even spraying circuitry onto plastic sheets, but they were made from organic semiconductor materials, which although useful for transistors in roll-up displays, for example, are just too slow for more-complex computing applications. µ

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Maybe in Most Limited of Useages

This is more of Vibration Tolerant Technology than Stretch Armstrong.Its' Good idea.
Take Graphene, another "new" promoted tech, it wouldn't even work due to infinite routing & heating within buckie balls, except that at 1 nanometer, carbon is too small to roll up.So Maybe?.

Rubber Tranistors too, are on small scale of things, NOT Trampoline for computing processor surface, they just cann't bend that much, also bigger is better if Elasticated?(solid turned semi-solid thru enzyeme/organic interaction) to work at all.
"Use Elastic waist bands on your Undies, Not for your Ultie." Possible slogan?
Thomas Drashek
posted by : Rubber_Joe_on_Rocky, 28 March 2008

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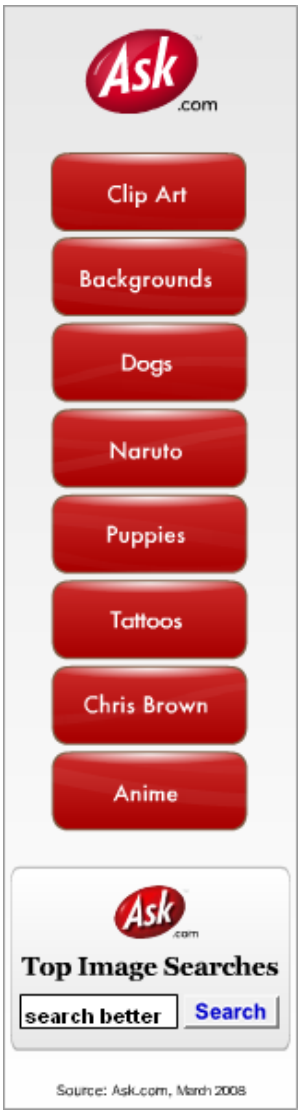

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