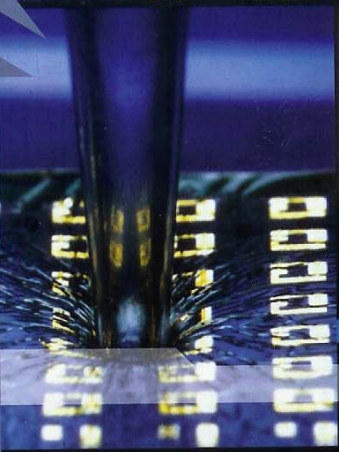


Bendy, Stretchy Electronics

Science magazine published a paper in April, 2008 that describes the construction of flexible electronics. A group of researchers combined nanoribbons of silicon with thin plastic or rubbery substrates in order to create strong, bendable electronics without sacrificing overall electrical performance. This flexible electronic creation was developed using conducting organic materials. A key feature is the electronic layer that lies in a neutral bending place and experiences almost no strain, even when the device is bent. Scientists hope to further develop this technology for direct integration with biological systems, medical prosthetics, monitoring devices, and complex machine parts, as well as provide expanded ranges of stretchability that will extend electronic systems to other material types.



Photos: J. Rogers, University of Illinois

Regrowing Limbs, Salamander-Style

A salamander's limb may be small compared to a human limb, but the two have many intrinsic similarities. Both human and salamander limbs are encased in skin; inside are a bony skeleton, muscles, ligaments, tendons, nerves, and blood vessels. So, how do salamanders regrow an amputated limb and, if there are so many similarities between us, then why can't we? Scientists have long pondered over this question, and now it seems they are finally closing in on some answers. Researchers realize that the human body's and the salamander's initial responses to serious injuries are comparable, but our

strategies for wound-healing completely diverge. While human skin cells cover and work to close a wound with a scar, salamander skin cells work in conjunction with fibroblasts that form a blastema, or an aggregation of stem like cells that will serve as progenitors for the new limb. There are several signs which indicate that humans do have the ability to rebuild complex parts, one of which is the ability of our fingertips to regenerate. Researchers continue to work with mice to find ways to induce blastema growth in the initial wound healing response—the first step to mammal limb regrowth. The next big hurdle will be finding ways to regenerate complex joints—but researchers hope to be there in the next few years. At this rate, regenerating human body parts within the next few decades is more than a remote possibility.



Photos: Shutterstock & istockphoto