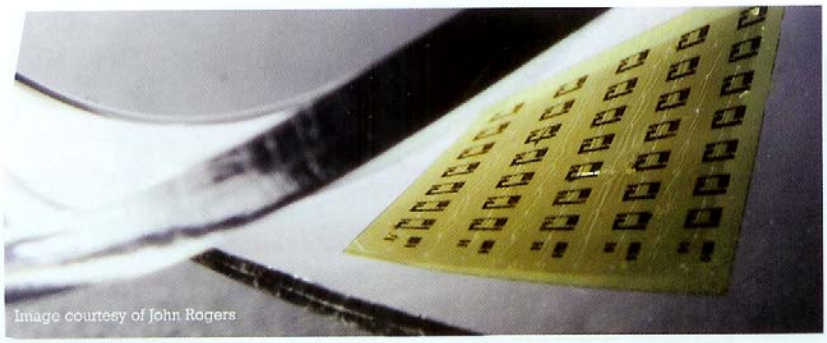

Image courtesy of John Rogers

Nanoribbons lead to bendable circuits

Nanoribbons have been used to develop flexible circuit boards that could be integrated into wearable computers or biomedical devices.

The nanoribbons are formed from ultra-thin sheets of silicon bonded to sheets of rubber. These are the first flexibile chips to use silicon.

Previously, it was believed that silicon would be too brittle to use in flexible chips as it is quite brittle and rigid. However, the researchers led by John Rogers at the University of Illinois were able to optimize the silicon used in the nanoribbons to produce circuits that were fully foldable and stretchable.

Details of the new invention were published in the journal Science.

www.uiuc.edu

Gripping secrets of ivy revealed

Researchers at the University of Tennessee have discovered the secret behind the ivy plant's amazing gripping abilities – they appear to secrete nanoparticles that help them grip to surfaces.

Microscopic rootlets spring out from the stems and secrete a "little yellowish matter", as first described by Charles Darwin in 1876.

Atomic force microscopy has now lifted the lid on the yellowish matter and revealed that it contains uniform particles 70nm across. The researchers believe the nanoparticles are produced inside the stem and then secreted out through the rootlets.

The research team is now working out the mechanism by which the ivy produces nanoparticles and hope to work out exactly how they help the plant stick to surfaces. They will also investigate whether they could use ivy to produce other nanoparticles.

www.tennessee.edu

Carbon Nano-tubes Help Mend Bones

Japanese scientists have discovered that carbon nanotubes could help to speed up the recovery of broken bones.

CNTs placed in contact with damaged bones not only helped to regenerate bone tissue but also reduced inflammation during healing. Measurements taken as the new bone was forming revealed that the CNTs become integrated into the bone matrix and appear to act as a starting point for new bone tissue to begin to grow.

When the CNTs were used in conjunction with a bone morphogenetic protein (BMP), commonly used to facilitate bone regrowth, the production of new bone material was accelerated even further.

Conventional methods for treating broken bones is a lengthy process, that involves weeks of cast or splint wearing for the patient. The new technology could lead to much faster healing processes for those who experience broken bones.

www.shinghu-u.ac.jp