

## 'World's smallest radio' unveiled

### **The world's tiniest radio is a step closer to reality.**

US scientists have unveiled a detector thousands of times smaller than the diameter of a human hair that can translate radio waves into sound.

According to a University of California team, the study marks the first time that a nano-sized detector has been demonstrated in a working radio system.

Made of carbon nanotubes a few atoms across, it is almost 1,000 times smaller than current radio technology.

Peter Burke and Chris Rutherford incorporated the microscopic detector into a complete radio system.

**" It is conceivable in the future that all components could be nanoscale, thus allowing a truly nanoscale wireless communications system "**

Prof Peter Burke

They used it to transmit classical music wirelessly from an iPod to a speaker several metres away from the music player.

Full details of their findings will be published next month in the American Chemical Society's Nano Letters.

"Though we have only demonstrated the critical component of the entire radio system out of a nanotube (the demodulator), it is conceivable in the future that all components could be nanoscale, thus allowing a truly nanoscale wireless communications system," they write.

### **Smart dust**

Many companies are interested in the long-term potential of carbon nanotubes - tiny cylinders of carbon that measure just a few billionths of a metre across.

Kris Sangani, Consumer Electronics Editor at the Institution of Engineering and Technology, UK, one of the world's leading professional societies, said there were many possible real world applications of "microscopic radio technology"- in medicine, commerce and on the battlefield.

He said the real challenge for industry was to miniaturise not just radio technology but other components such as sensors, the power supply and processors.

"Scientists are looking at carbon nanotubes to miniaturise all other technologies as well," he told BBC News. "If you can combine miniaturisation with cost control; that type of technology would be ubiquitous."

Such a development would bring the concept of smart dust - a cluster of devices, smaller than a grain of sand, equipped with wireless communications that can detect the likes of light, temperature, or vibration - into the realms of reality rather than science fiction.

Future uses might include meteorological, geophysical and biological research sensors. They could also be used for discreet military surveillance, or to create a distributed internet that would be accessible anywhere.

Story from BBC NEWS:

<http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7050477.stm>

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