Toward 'invisible electronics' and transparent displays

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Researchers in California are reporting an advance toward the long-sought goal of "invisible electronics" and transparent displays, which can be highly desirable for heads-up displays, wind-shield displays, and electronic paper.

The scientists describe development of tiny, transparent electronic circuits — the most powerful of their kind to date — that could pave the way for transparent electronics and other futuristic applications, including flexible electronic newspapers and wearable clothing displays. Their study appeared in the Jan. 27 issue of *ACS Nano*, a monthly journal.

In the new study, Chongwu Zhou and colleagues point out that although scientists have previously developed nano-sized transparent circuits, previous versions are limited to a handful of materials that are transparent semiconductors.

The researchers describe the development of transparent thin-film transistors (TTFTs) composed of highly aligned, single-walled carbon nanotubes — each about 1/50,000th the width of a single human hair. They are transparent, flexible, and perform well. Laboratory experiments showed that TTFTs could be easily applied to glass and plastic surfaces, and showed promise in other ways for a range of possible practical applications.

Article: "Transparent Electronics Based on Transfer Printed Aligned

Carbon Nanotubes on Rigid and Flexible Substrates," *ACS Nano*

Provided by ACS