

Toward world's smallest radio: nano-sized detector turns radio waves into music

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Researchers in California today report development of the world's first working radio system that receives radio waves wirelessly and converts them to sound signals through a nano-sized detector made of carbon nanotubes.

The “carbon nanotube radio” device is thousands of times smaller than the diameter of a human hair. The development marks an important step in the evolution of nano-electronics and could lead to the production of the world's smallest radio, the scientists say. Their findings appeared online today and are scheduled for publication in the Nov. 14 print edition of ACS' *Nano Letters*.

Peter Burke and Chris Rutherglen developed a carbon nanotube “demodulator” that is capable of translating AM radio waves into sound. In a laboratory demonstration, the researchers incorporated the detector into a complete radio system and used it to successfully transmit classical music wirelessly from an iPod to a speaker several feet away from the music player.

Although other researchers have developed nano-sized radio wave detectors in the past, the current study marks the first time that a nano-sized detector has been demonstrated in an actual working radio system, the scientists say.

The study demonstrates the feasibility of making other radio components at the nanoscale in the future and may eventually lead to a “truly

integrated nanoscale wireless communications system,” they say. Such a device could have numerous industrial, commercial, medical and other applications.

Source: American Chemical Society

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