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Radio Nano Calling...Testing 1,2,3,4

By *BARNABY J. FEDER*

When I got the news release today from the American Chemical Society's publication, [Nano Letters](#), that it was posting a paper about construction of the first working radio using nano-scale components, I wondered who would want such a tiny appliance.

"It's not clear whether there would be any advantage to the average consumer," conceded Peter J. Burke, the associate professor in U.C. Irvine's electrical engineering department who oversaw the research and co-authored the Nano Letters paper. "We don't know what you'd do with a radio so small you couldn't see it."

So far, the entire radio isn't that small. Chris Rutherglen, the grad student at the University of California at Irvine who built the device, has constructed a key part—a demodulator for all you radio buffs—out of a carbon nanotube 50 microns long and about 1.5 nanometers wide. This is the component that processes the incoming radio signal and then passes it on to the amplifier.

A true nano radio would include a host of other similarly tiny components, including an antenna, filters and amplifiers and other signal and power processors. Designs for some of these have been created while others remain on the research world's "to do" list, but, according to Nano Letters, this is the first time that anyone has taken any of these nano-components, plugged into the other elements of a radio and actually received and emitted clear sounds

In [this video](#), Mr. Rutherglen shows the device receiving a signal, broadcast from across his workbench of a lilting melody by O'Carolan, the 17th Irish harpist.

The radio featured in the paper reminded me of the scene in the time travel movie "Peggy Sue Got Married" where Peggy is briefing a nerdy high school classmate about how entertainment products get miniaturized in the future. "Everything else gets small, but for some reason, portable radios get enormous," she says.

So what is the goal? This appears for now to be one of those "do it first and then we'll think of something" research efforts. But here is one hint. The project is funded by the Defense Department.