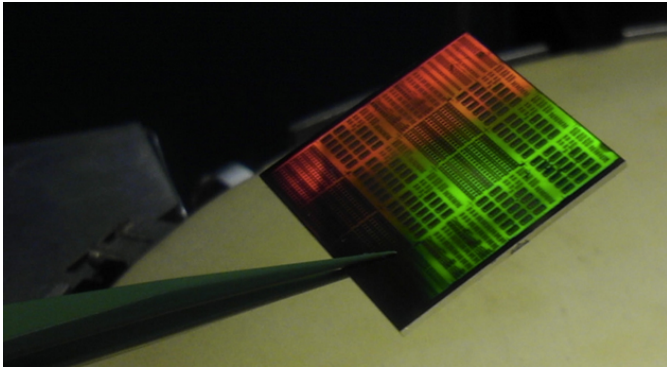


IBM Claims Best Graphene Circuit Yet

Written by Marco Attard
31 January 2014

IBM researchers claim they created a graphene-based circuit with performance 10000 times better than current options-- or at least one reliable enough to send and receive text messages.



As described in Nature the circuit features acts as a radio frequency receiver, meaning it translates radio waves into information one can understand, as well as send signals back and forth. Tests involved sending a message on a 4.3GHz carrier signal saying "IBM," which was sent and received distortion-free.

"This is the first time that someone has shown graphene devices and circuits to perform modern wireless communication functions comparable to silicon technology," IBM says.

The builds on earlier IBM research on the material, such as the first graphene-based integrated circuit built by IBM in 2011. Basically an atom-thick layer of carbon atoms, graphene promises to be a wonder material of the future, since in theory it allows the creation of tinier, more efficient transistors than silicon.

However graphene is a difficult material to work with, and manufacturing processes can damaged the finished product. The most recent circuit has graphene added only after the rest of the circuit is assembled, thus exposing the material to as few potentially damaging manufacturing steps as possible.

Now the IBM team is looking into integrating the technology in wireless communications systems in order to allow for the smaller, less power hungry wireless radios of the future. In part the research involves creating a cheaper manufacturing process-- IBM manufactures graphene in an oven, but a process allowing creation at room temperatures would be cost much less.

IBM Claims Best Graphene Circuit Yet

Written by Marco Attard
31 January 2014

Go [Graphene Radio Frequency Receiver Integrated Circuit \(Nature\)](#)