Ibm scientists demonstrate world's fastest raphene transistor news essay

Science

In a just-published paper in Science magazine, IBM researchers have demonstrated a radio-frequency graphene transistor with the highest cut-off frequency achieved so far for any graphene device – 100 billion cycles/second (100 GigaHertz). The high frequency record was achieved using wafer-scale, epitaxially grown graphene using processing technology compatible to that used in advanced silicon device fabrication.

This accomplishment is a key milestone for the ‘ carbon electronics for RF applications (CERA) programme funded by DARPA, in an effort to develop next-generation communication devices.” A key advantage of graphene lies in the very high speeds in which electrons propagate, which is essential for achieving high-speed, high-performance next generation transistors,” said Dr T C Chen, vice president, science and technology, IBM Research.” The breakthrough we are announcing demonstrates clearly that graphene can be utilised to produce high performance devices and integrated circuits.” Graphene is a single atom-thick layer of carbon atoms bonded in a hexagonal honeycomb-like arrangement.

This two-dimensional form of carbon has unique electrical, optical, mechanical and thermal properties and its technological applications are being explored intensely.