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UIC Chemists Reveal Graphene For Nanoscale Device Potential

Dec 18, 2009

Graphene is known for its semiconducting properties and researchers have revealed that it can be shaped with just one nanodroplet of water.

University of Illinois at Chicago (UIC) scientists have revealed that the semiconductor graphene - which is a single-atom-thick sheet of carbon - can lead to the development of new types of nanoscale devices as it becomes pliable using just a nanodroplet of water.

Using weak forces between nanodroplets which are positioned on graphene sheets can shape the material, allowing it to be folded into different shapes for various applications, Petr Kral, assistant professor of chemistry at UIC, explained.

"It's similar to the way proteins are folded in biological cells with the help of chaperone proteins," he added.

Graphene - known for being a favourable semiconductor over carbon nanotubes and silicon - interaction with nanodroplets does not result in the two becoming chemically binded.

Mr Kral found that water droplets could be used to bend, roll, shape and slide graphene into different complex structures - including capsules, rings and sandwiches.

These are potential building blocks of nanodevices with unique optical, electrical and mechanical properties.

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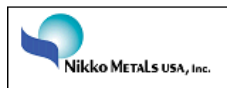
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