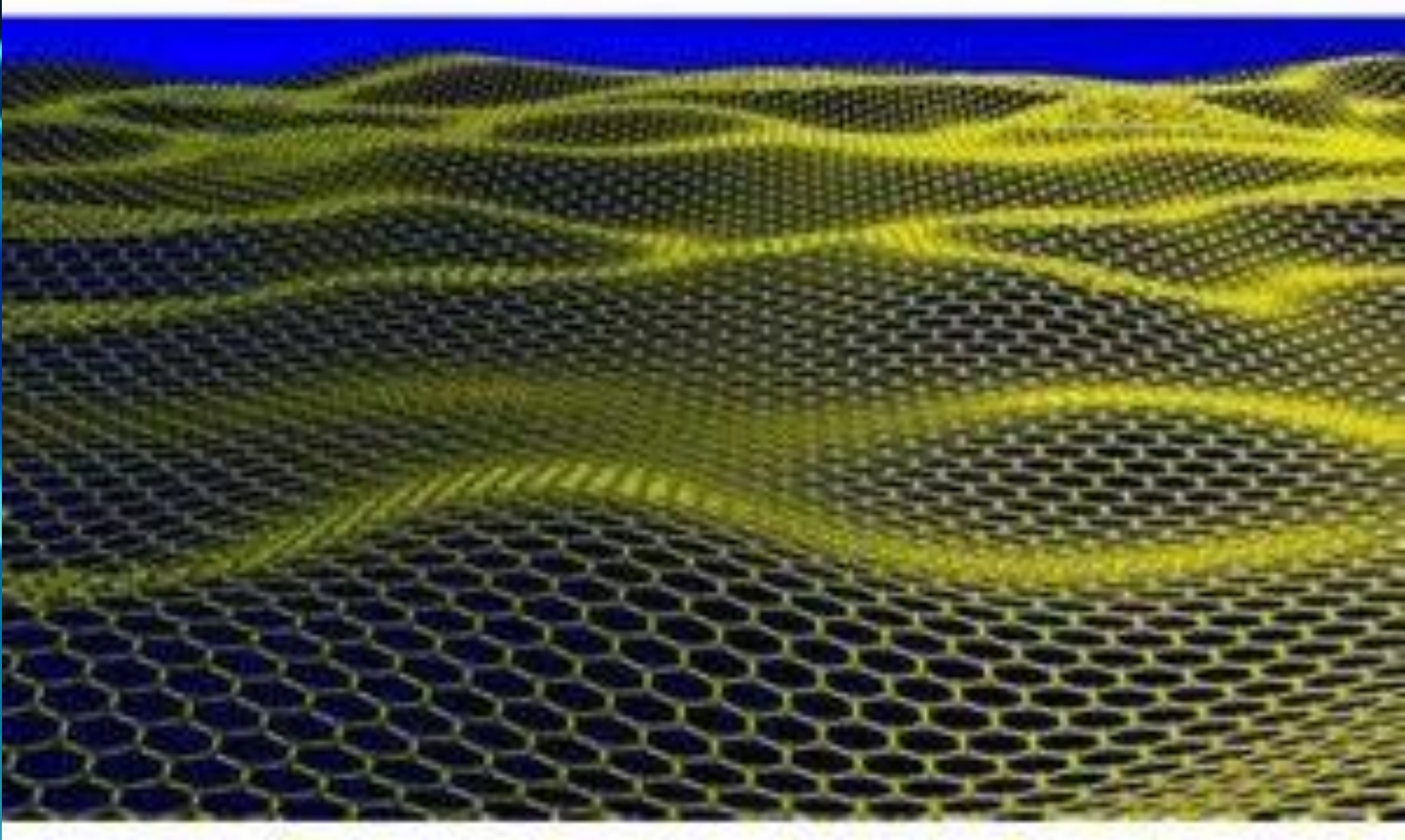


# Graphene



<http://www.primaryinfo.com> | Primary Information Services | technology sourcing, project info, trade-data

# GRAPHENE

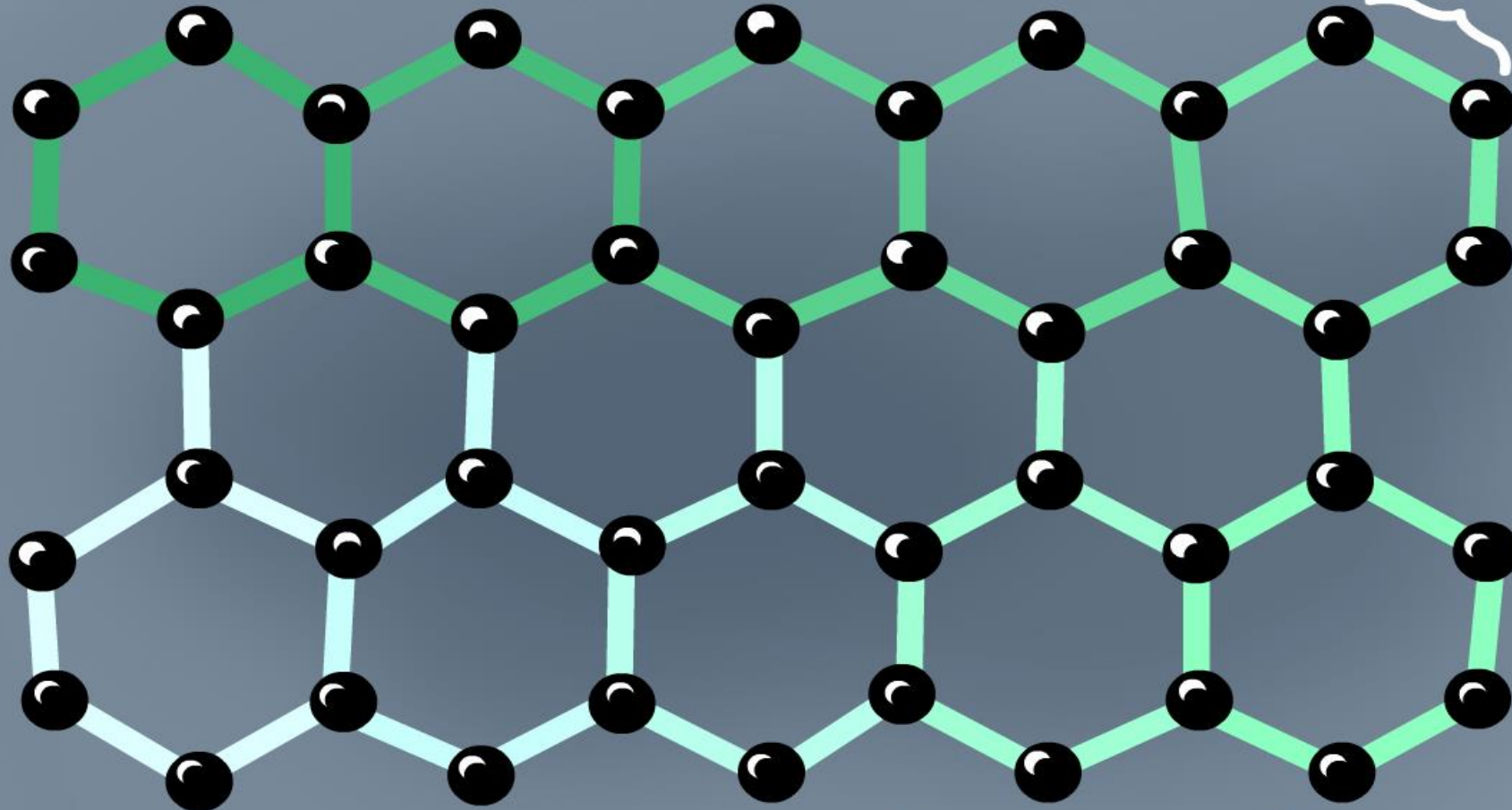
LIGHT!

0.142 nm

RIGID

100x  
STRONGER  
THAN  
STEEL

PERFECT  
THERMAL  
CONDUCTOR

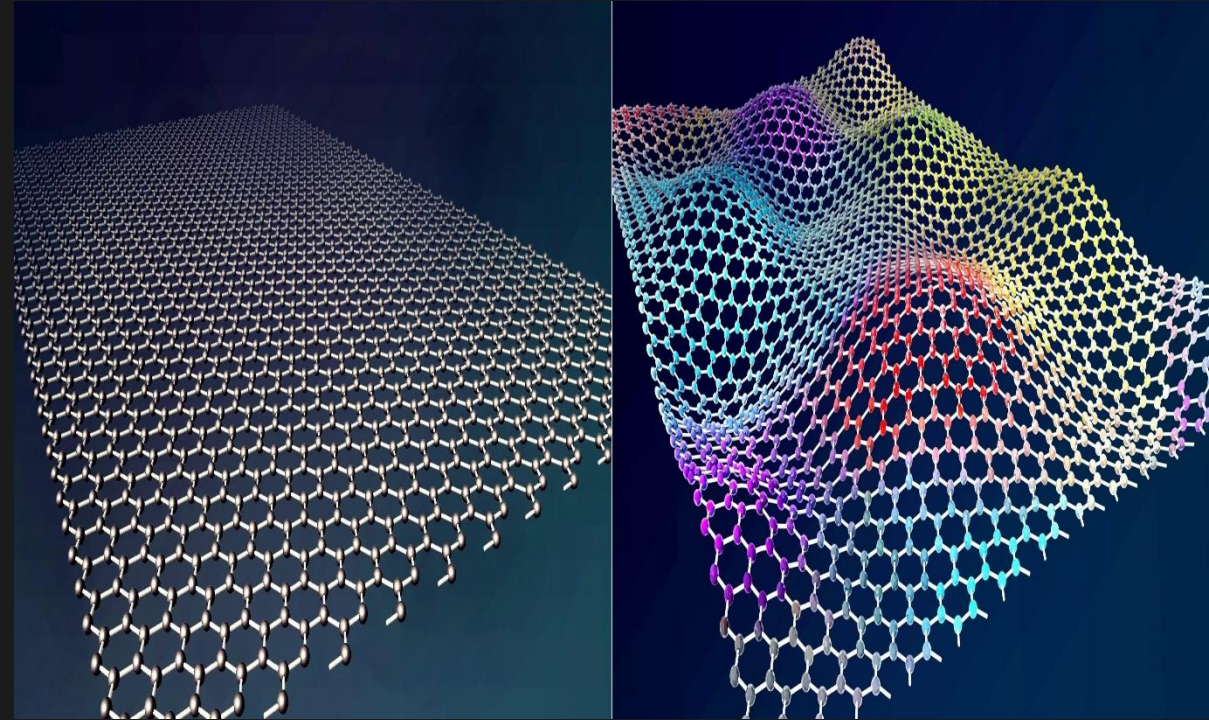


A CRYSTALLINE ALLOTROPE OF CARBON



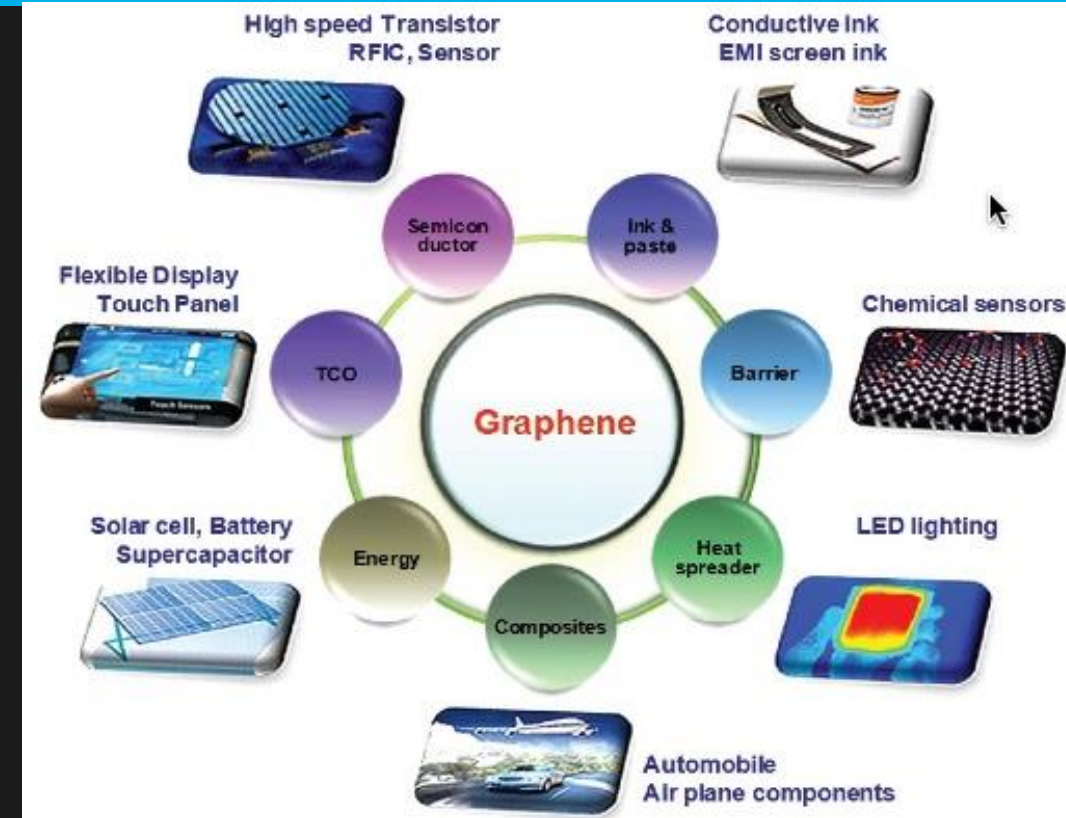
# Product Overview

- Graphene is a form of carbon, whose properties can act as a filter between the body and external environment to ensure ideal temperature for the wearer
- Graphene is a multi-million dollar industry and has varied applications from aeronautics to textiles
- Graphene-based products include denim jeans and jackets that can be worn in hot climate.
- One gram of graphene costs ₹3,500 — more than the cost of gold.



# Technology Sourcing

- Four different techniques have been used to make graphene: Chemical vapor deposition, mechanical peel-of method, Epitaxial growth on electrically insulating surfaces such as SiC and colloidal suspensions.
- Companies including Graphene Square; Graphensic AB; 2D Carbon Graphene Material Co., Ltd.; XG Sciences, Inc.; and Graphene Laboratories, Inc. are investing heavily in research and development related to the product.
- Patents access, Product developments and collaborations and agreements are the key strategies to source the Technologies



# Market Scenario

## GRAPHENE The 'miracle material' that could revolutionize our world

**What is it?** Graphene is a one-atom thick layer of carbon arranged in a honeycomb lattice. When millions of these are stacked one on top of another they form graphite – a mineral consisting of carbon which is found in pencils.

Graphene was discovered in 2004 at the UK's University of Manchester by physicists Andre Geim and Konstantin Novoselov when they isolated a single-layer of graphene using Scotch Tape before going on to demonstrate its remarkable conductive and resilient properties.

Geim and Novoselov's work earned them the Nobel Prize in physics in 2010 and today researchers are in a race to realize its technical and commercial capabilities.

An infographic titled 'GRAPHENE The 'miracle material' that could revolutionize our world'. It features a central illustration of a honeycomb lattice of carbon atoms. A blue and orange pencil is shown drawing a line on the lattice. A blue and white molecular model is also present. The background is a light blue grid. Three text boxes provide information: 'What is it?' explains the structure and its relation to graphite; the middle box describes the 2004 discovery by Geim and Novoselov; the bottom box mentions their Nobel Prize and ongoing research.

## Applications

- semiconductors, energy storage and generation devices

## Graphene Oxide

- application scope in biomedical, solar cells, composites, batteries, supercapacitors, and biosensors

## Replacement for silicon

- Batteries, electrodes for touch screens, transparent memory technology, and transistors among other components of electronics industry

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# Graphene

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Questions?



<mailto:primaryinfo@gmail.com>