



# GRAPHENE FLAGSHIP

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## What is Graphene?

The world's first two-dimensional material, this single layer of carbon atoms arranged in a hexagonal lattice has a set of unique and outstanding properties. As well as being the thinnest, strongest and lightest known material, graphene is flexible, impermeable to molecules and extremely electrically and thermally conductive. As the world strives to maintain its pace of innovation, graphene has much to offer within many different application areas.

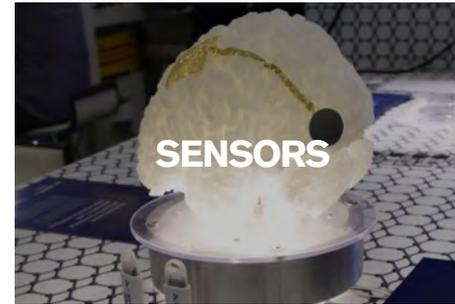
## Graphene Flagship

The Graphene Flagship was launched by the European Union in 2013 as part of its largest research initiative ever. With a budget of 1 billion it represents a new form of joint, coordinated research initiative on an unprecedented scale. The overall goal of the Graphene Flagship is to take graphene from the realm of academic laboratories into European society, facilitating economic growth and creating new jobs, in the space of ten years.

Learn more at [graphene-flagship.eu](http://graphene-flagship.eu)



Graphene can play a key role in the automotive, aerospace and building industries, where it can be used to enhance the properties of car panels, aerospace wings or concrete. As an additive in coatings, graphene could be used to weatherproof houses or prevent ships rusting.



Graphene's large surface area, high electrical conductivity, unique optical properties and high thermal conductivity make it ideal for sensors. Ultra-sensitive graphene-based sensors can also be smaller, lighter and less expensive than traditional sensors.



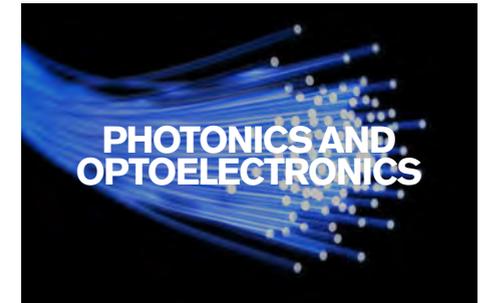
Graphene and related materials (GRMs), with their high surface area, large electrical conductivity, light weight nature, chemical stability and high mechanical flexibility have a big role to play in meeting the world's demand in both energy generation and storage.



Graphene is paving the way for novel diagnosis and treatments, thanks to its unique properties. For instance, the surface area of graphene makes an excellent platform for drug delivery and the conductivity makes for effective biosensors.



Graphene can facilitate the next generation of technology from chips and interconnects for data communication to flexible screens for wearable technology. Excellent sensing ability coupled with the ability to be integrated into electronics can also provide the building blocks for the internet of things.



Graphene-based technologies are proving integral to the new generation of communications, such as 5G and the internet of things - enabling high performance optical communication systems through ultra-fast and compact optoelectronic devices.

