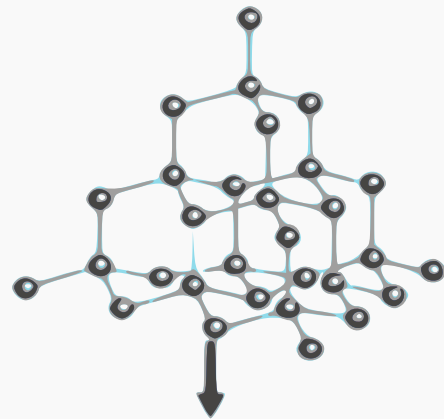


Allotropes of Carbon

Element exist in different form/physical state

Diamond



Electrical conductivity

Poor ✗

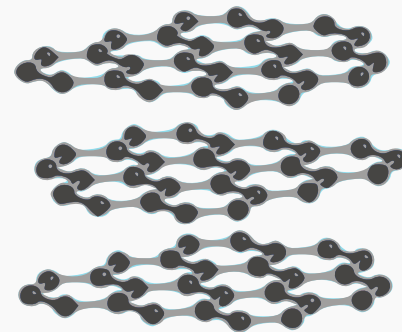
- C sp^3 hybridized
- No free moving electron

Special property

- Hardest substance
- Jewellery



Graphite



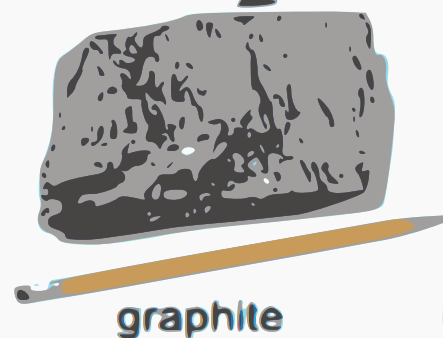
Electrical conductivity

Good

- Within layer, C sp^2 hybridized
- ONE free delocalized π electron

Special property

- Soft, layer slide across each other



graphite

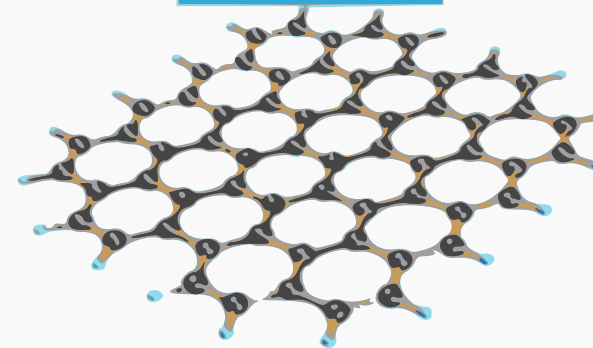


lubricant



electrode

Graphene



Electrical conductivity

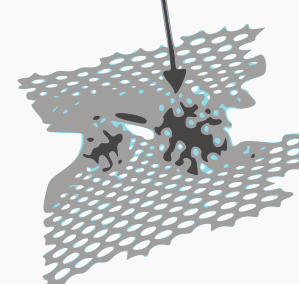
Very Good ✓

- Within layer, C sp^2 hybridized
- ONE free delocalized π electron moving across the layer easily

Special property

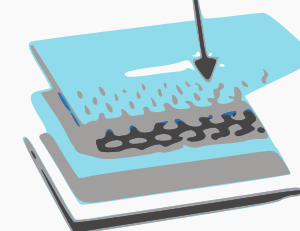
Lightest/strongest material replacing silicon in photovoltaic cell

Drug delivery

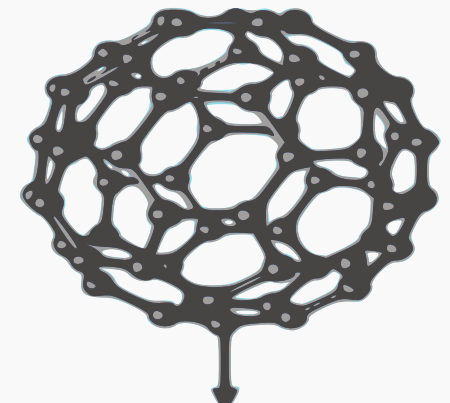


Drug in graphene

Transistor/Electronic Transparent conducting electrode



Fullerene, C60



Electrical conductivity

Semiconductor

- Surface sphere, not planar
- Electrons CANNOT flow easily.
- Lower electron mobility

