

Understanding Graphene

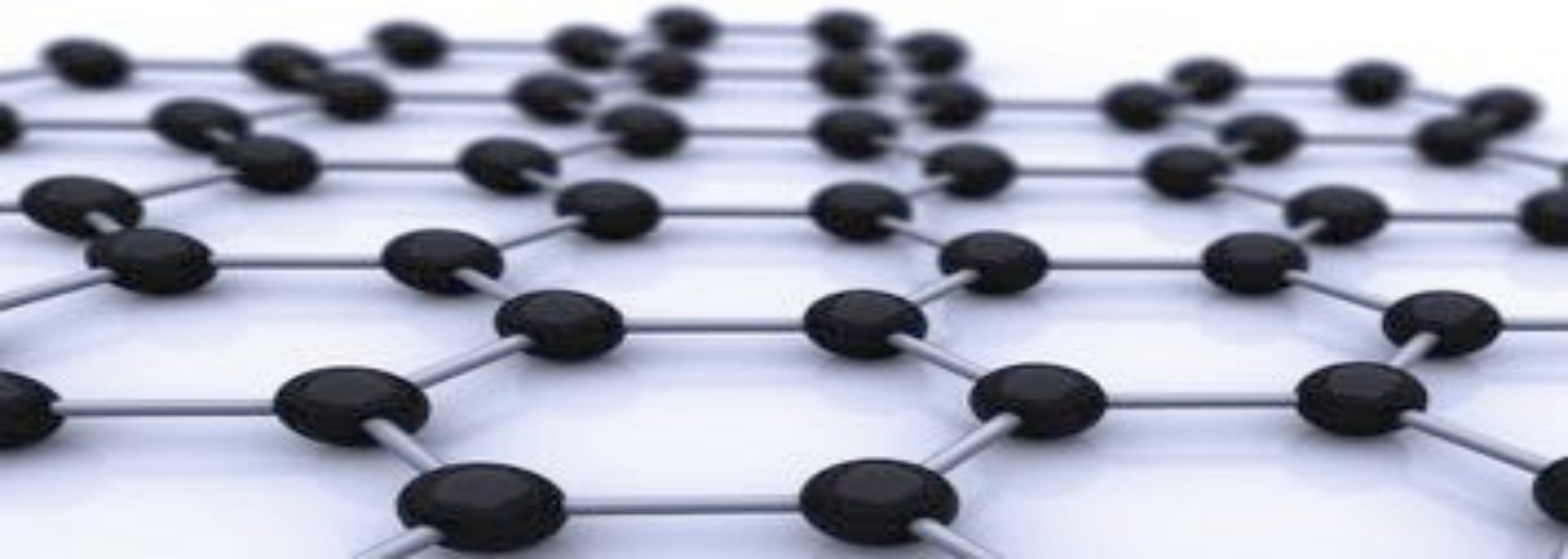
Part 1 what is graphene?

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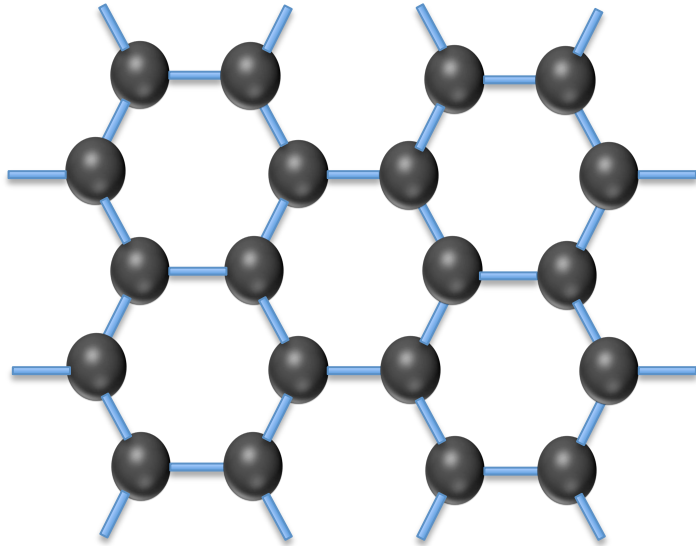
Graphene – What is it...

World's thinnest material, made of carbon

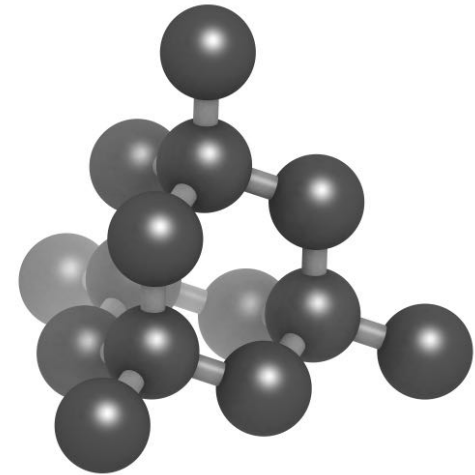
Think of a sheet of hexagons connected together rather like chicken wire and you'll get the idea



Graphene is carbon structured as a two dimensional layer



When carbon atoms are arranged in flat two dimensional sheets like this they are graphene

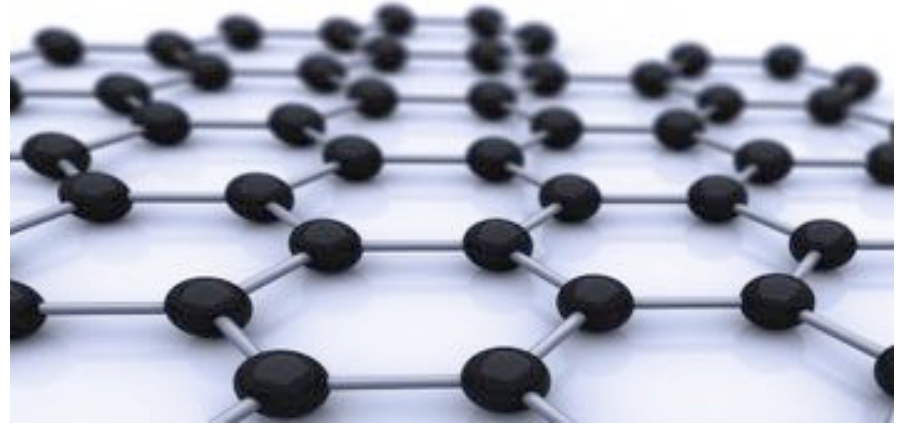


When carbon atoms are arranged in three dimensions like this they are diamond

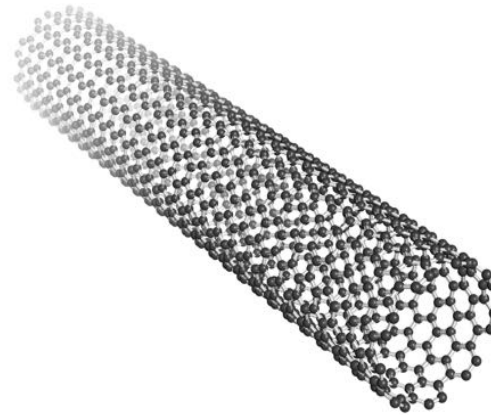
The carbon family: Dimensions



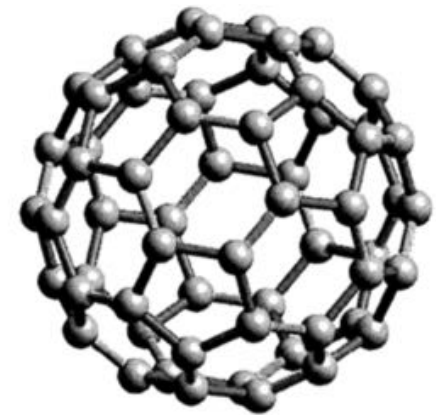
Graphite, Diamond,
Amorphous Carbon:
3D material



Graphene:
2D material



Carbon nanotubes:
1D material



Fullerenes:
0D material

What is Graphene?

- Graphene is pure carbon
- The atoms are connected in a hexagonal pattern (Like chicken wire)
- This forms flat sheets
- This means graphene is a two dimensional material (the world's first 2D material)