Graphene: The Future of Technology

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ABSTRACT

This research presentation displays the impacts on graphene technology for electrical devices.

As technology is improving, the need for compatible devices increase thus requiring an efficient system: Graphene

BACKGROUND

- Graphene is a thin layer of pure carbon atoms tightly packed in a honeycomb structure.
- In 2004 two researchers at The University of Manchester: Prof Andre Geim and Prof Kostya Novoselov discovered graphene.

PROPERTIES OF GRAPHENE

- It is many times times stronger than steel, yet incredibly lightweight and flexible.
- It is electrically and thermally conductive but also transparent.
- It is the world's first 2D material and is one million times thinner than the diameter of a single human hair.
- 35% less electrically resistive than that of copper.

WHAT DOES GRAPHENE TECHNOLOGY LOOK LIKE?

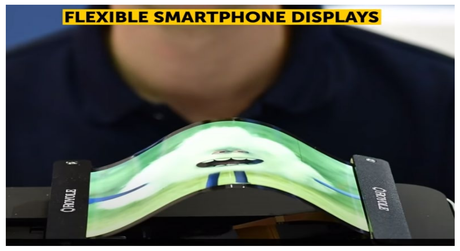

Fig 1: Advanced Devices

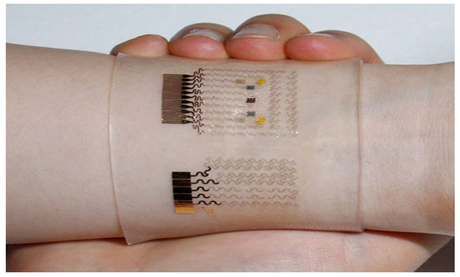

Fig 2: Wearable Technology

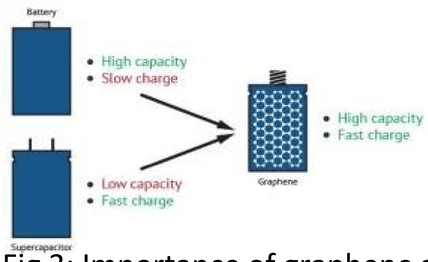

Fig 3: Importance of graphene and main take away!

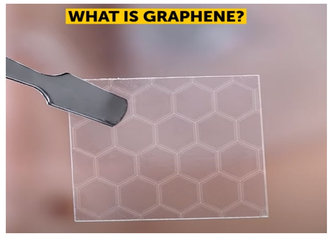

Fig 4: 2D graphene

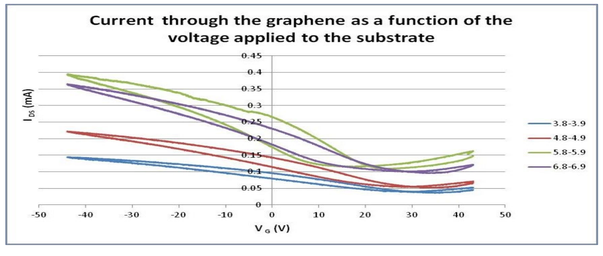

Fig 5: Rate of current as voltage increases

WHAT CAN GRAPHENE DO?

- Graphene has high capacitance and could power devices that consume high power within a short time.
- Due to its properties, it can handle 'stress'(overheating, bending etc...)
- According to researchers from MIT, graphene has good power efficiency while still maintaining an eco friendly environment.
- Graphene can be used as a coating to improve current touch screens for phones and tablets.
- It can also be used to make the circuitry for our computers, making them incredibly fast.

APPLICATIONS OF GRAPHENE

Wearable Technology: Because of graphene's 2D structure, you're able to wear a phone on your wrist or a tablet you could roll up like a newspaper.

Graphene Transistor: Researchers at The University of Manchester have already created the world's smallest transistor using graphene, the smaller the size of the transistor, the better they perform within circuit.

Graphene Semiconductors: Graphene semiconductors could replace existing technology for computer chips. Research has already shown that graphene chips are much faster than existing ones made from silicon.

REFERENCES & ACKNOWLEDGMENT

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