Delivering a commercially viable graphene electronic device

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Graphene has been shown to provide a material platform for a wide range of electronic devices at a Laboratory scale across a diverse range of applications. Realisation of these structures at an industrial has been limited by a scalable route to production, a method giving process control and fitting with the economic models already prevalent in the semiconductor industry.

Paragraf was formed to commercialise the invention of a transfer and catalyst free method of graphene production invented in the Materials Science department at the University of Cambridge, The aim was to use this technology to develop and bring to market a range of electronic devices and explore the fundamental application of graphene and other 2D materials to the challenges of future semiconductor devices.

The first product to Market from Paragraf is a graphene based Hall sensor. The excellent mechanical and electrical properties of graphene, which make it highly suitable for use in Hall sensors have been theorised and realised in academic literature. [2] Paragraf have developed a commercially scalable device, producing robust, highly sensitive Hall sensors opening new sensing applications.

In order to achieve the level of production control expected by the industry not only does the graphene deposition have to be repeatable but all the subsequent steps have to be well qualified and understood. Exploiting the properties of graphene

This talk will discuss the challenges of bringing a graphene device to market, production requirements, the benefits of graphene and interaction with existing semiconductor supply chain.

References

[1] Thomas, S. "A method of producing a two-dimensional material", WO2017029470
[2] Song, G. et al. "Operation of graphene magnetic field sensors near the charge neutrality point." Communications Physics 2.1 (2019): 1-8.