

Towards graphene applications in electronics

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Abstract

Since the discovery of graphene many promising applications have been identified. Furthermore, graphene has shown to have a great potential to be applied in electronics, optoelectronics and photonics. Many multifunctional working prototypes have been demonstrated using CVD (Chemical Vapour Deposition) graphene. The successful introduction of graphene into the semiconductor industry will require the development of Complementary Metal-Oxide Semiconductor (CMOS) compatible CVD graphene [1]. Depending on the type of application and the function of the graphene in the device, the integration scenario could vary from front to back-end. However, all the integration scenarios will require a scalable, uniform and high-quality graphene. Therefore, uniformity, high charge carrier mobility and controlled doping at wafer scale are the current focus from the material production perspective. In addition, there are many other factors that have to be taken into consideration during the fabrication of graphene devices at wafer scale [2] including contact resistance [3], encapsulation [4,5], type of substrate, uniformity, etc. During this talk I will cover challenges related to the graphene production and device fabrication at wafer scale.

References

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