

## **Applications and the Commercialisation of Graphene/2D Electronic Devices**

C. J. Humphreys

*School of Engineering and Materials Science, Queen Mary University of London, London E1 4NS, UK  
Paragraf Limited, 7-8 West Newlands, Somersham, Cambridgeshire PE28 3EB, United Kingdom*

c.humphreys@qmul.ac.uk

Many impressive graphene electronic devices have been made in laboratories worldwide, using small flakes of exfoliated graphene and assembling the devices by hand. However, it has been difficult to scale up to manufacturing graphene electronic devices. Hence these impressive graphene devices largely remain at the laboratory level. My research group has scaled-up from tiny flakes of graphene to wafer-scale graphene and graphene electronic devices using a new graphene growth method, metal organic chemical vapour deposition (MOCVD). This method is large-area, catalyst-free and transfer-free. It is promising for the manufacture of graphene devices. To exploit this technology, we have founded a company, Paragraf, which has 120 employees, over 100 granted patents and a further 100 patents applied for. In this talk I will go from the basic science of graphene/2D materials, through applications to commercialisation.