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Advances in 2D Materials Production; From R&D to Commercialization

Over the past decade there has been considerable research focus on 2D materials. In particular, graphene, hexagonal boron nitride (hBN) and the family of transition metal dichalcogenides (TMDs), to name a few, exhibit unique electronic, optical and physical properties which can be exploited within various technologies and new application areas.

Besides the extraordinary advances in 2D materials research, their commercialization still remains challenging, especially for applications like electronic/optoelectronics, advanced coatings and energy-storage systems, where high quality, large scales, high throughput and reproducibility are required. From the available growth techniques, which play an important role on the materials properties, chemical vapour deposition (CVD) has proved to meet the aforementioned requirements.

In this presentation an overview of our technology capabilities and CVD graphene systems are reported with an emphasis on which market these tools can penetrate. We introduce our roll-to-roll system which can produce continuous monolayer or multilayer graphene coatings onto a variety of substrates. Finally, we introduce our CVD systems for 2D growth highlighting the benefits and versatility of the systems.