

Industry Perspective on Thin Film Graphene Growth

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In the recent years, graphene has attracted the attention of a considerable number of scientists from all scientific areas. The unique properties of this two dimensional material which include, high carrier mobility, electrical conductivity, transparency, thermal conductivity and mechanical strength, make thin film graphene as a prominent candidate for novel electronic, opto and sensing applications.

This presentation puts into perspective thin film graphene growth technology by chemical vapour deposition and compares it with other depositions technologies at AIXTRON. We start with examined the published growth mechanisms for graphene and use this as the key development drivers for deposition equipment features.

Growth results are presented from small scale up to 300mm wafer scale. The use of in-situ growth monitoring and graphene electronic and opto device results are also presented.

Finally, three different integration schemes and value chain opportunities for graphene thin film production are discussed.