

Dry transfer key to scalable production and integration of graphene

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Applied Nanolayers BV (ANL) has spent the last years developing solutions for graphene production and integration, such as wafer scale growth processes and tools and wafer-to-wafer transfer processes and tools, combined with wafer scale quality analysis, and wafer scale device fabrication. We now offer a foundry service to integrate these materials on existing semiconductor technology to precisely those customers who wish to bring their graphene application to a higher TRL. This allows SME's as well as larger companies to develop their intended 2D material device applications without having to invest upfront in expensive production infrastructure.

ANL has its own 200 mm automated CVD platform to enable the consistent growth of high-quality graphene. For the transfer ANL has developed a unique wafer-to-wafer transfer technique with dry graphene bonding. This transfer method is more reliable and easier to automate than liquid based transfer methods. It also provides better control over stress, strain and wrinkles in the graphene layer, which results in more uniform final device performance.

Next to its foundry service ANL has also developed a graphene Application Development Kit (ADK). This enables ANL's customers to execute fast prototyping using ANL's graphene and use a manual dry bond. This method provides the best possible results, only to be topped by ANL's automated transfer. The ADK can be used at wafer level, but it can also be cut in pieces and transferred to individual chips or other small size applications.

Figures



Figure 1: Picture of Graphene Application Development Kit