How to set up CVD for Graphene Synthesis

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Abstract

The emergence of graphene has revealed a new versatile platform of materials, which are now being studied in almost every corner of science. However, new coming groups who wish to start a graphene program may rely on low quality production methods or expensive commercially available graphene, to get started. Chemical vapour deposition has proved to be a durable way of growing graphene due to the ability of several metals to catalyse the synthesis at high temperatures. Especially Cu has shown great potential for producing large area monolayer graphene, and a lot of effort has in recent years been put into understanding and optimising the procedure.

Here we report on setting up low pressure chemical vapour deposition with the aim of growing graphene, and what considerations to make regarding safety. Furthermore, graphene was grown on Cufoil and characterised using Atomic Force Microscopy, Optical Microscopy and Raman Microscopy.

Figures



Figure 1: Optical microscopy of graphene on Cu using differential interference contrast.