

## Presenting Author Ray Gibbs

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## Near term commercial applications for Graphene, Composites and Conductive Pastes

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### Abstract

The potential for graphene and other nano particles to significantly enhance material properties has been well documented. However, as carbon is inert and does not mix well with other materials it needs to be homogeneously dispersed and bonded into the host material in order to realise its potential. There are hundreds of “graphene’s” in the market today and all display different characteristics. Knowing which one works best and applying a sympathetic surface treatment for a specific application is the Haydale expertise. This functionalisation treatment plus the years of processing know how sets Haydale apart in the ability to commercialise nano materials.

For industry to adopt these new materials we need to demonstrate a repeatable and cost effective functionalisation process that is scalable and can be tailored to the specific requirement. One of the challenges industry faces is that there is currently no standard definition of graphene which means that R&D and general procurement departments may not know exactly what it is they are buying nor be able to replicate test results with a subsequent batch of material. Industry requires a standardisation of materials to remove this uncertainty.

Recent work at Haydale has now confirmed significant improvements in electrical, thermal and mechanical performance of Carbon Fibre pre preg, opening up many applications NOW. These breakthroughs plus new pastes for bio medical sensors offers real commercial opportunities for Graphene, something the world has been waiting!

Further, in order to persuade industry to adopt the new materials we need to be able to incorporate the functionalised materials into existing production facilities thus avoiding the need for replacement of existing capital equipment. Ray Gibbs will examine these challenges and explain how Haydale has established a consistent supply chain of the nanomaterials and are addressing the commercial adoption challenges through the establishment of Centres of Excellence in strategic locations across the globe.

### Biography

Ray is a Chartered Accountant, and former Deloitte audit and corporate finance partner for 9 years. He has over 20 years’ experience in high technology and fast moving consumer goods businesses and is a former CFO of Chemring Group Plc. Ray was part of Haydale Graphene Industries’ management team that acquired Haydale Limited in 2010, and has been immersed into the graphene and nano world for 5 years. An accomplished international speaker now seen at many Graphene conferences, Ray offers a rare insight into industry and the ability to make the bridge with the academic world.