From Academic Research to Products and Enterprise: A Case Study for Graphene

Graphene has many outstanding properties, such as mechanical strength, electrical and optical properties, chemical stability, thermal conduction, and low mass density as well as the largest theoretical surface to volume ratio. Hence graphene is a unique and idea material for a wide range of applications in many technologically important fields, such as clean energy, environment, and flexible electronics. Since its discovery in 2004, graphene and graphene composite materials have been the hottest topic in research.

In my presentation, I will use graphene as an example, to demonstrate how graphene can be applied in energy storage, as active material that results in major improvement in the quality for fast charging Li ion batteries and supercapacitors; how the graphene based products may fundamentally change the landscape for electric vehicles and consumer electronics.

I will also illustrate the significant opportunities offered for entrepreneurship. How companies based graphene products have attracted major funding from government agencies, VCs and private companies in Singapore, China and Israel, and the UK.

About Prof Shen Zexiang

Dr. Ze Xiang Shen is a Professor in the School of Physical and Mathematical Sciences, and Co-Director, Centre for Disruptive Photonics Technologies at NTU. He also holds a joint appointment at the School of Materials Science and Engineering, NTU.

His main research areas include carbon related materials, especially graphene. He has some extensive collaborations with industry on graphene based composites for energy storage (Li ion batteries and supercapacitors).

He was awarded the NTU Nanyang Award for Research and Innovation 2009 as well as the Gold Medal for Research Excellence by Institute of Physics Singapore in 2011.