Recent Developments and Applications of the Filtered Cathodic Vacuum Arc Technology

The Filtered Cathodic Vacuum Arc (FCVA) technology has been widely known to produce high quality Diamond-like amorphous carbon films (or sometimes known as amorphous-Diamond films due to its high sp^3 content in excess of 80%) and is currently used by the Media industry for harddisk coatings. In this seminar, I will like to present an updated development on all aspects of the FCVA technology.

On the FCVA system, I will give a brief update on the different version, from custom-designed small deposition system to industrial high-throughput systems will be shown. On the films produced by the FCVA system, I will show different types of materials that the FCVA technique can produce beyond the deposition of Diamond-like Carbon (DLC) films. Furthermore, I will also present some applications of these materials. This includes embedded nanocomposite materials as catalyst for the growth of multi-wall carbon nanotubes for applications as electron source in vacuum microelectronics. Deposition of high quality metal oxide films for applications in photonics as optical coatings. Growth of thick, low stressed and high sp^3 content Diamond-like carbon films for Microelectromechanical Systems (MEMS) applications.

Finally, I will also like to give a brief introduction to the Diamond/Diamond-like carbon group in School of Electrical & Electronics Engineering as well as a brief overview of the Nanoscience & Nanotechnology Research Cluster in Nanyang Technological University.