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## Graphene Based Composite Coating for Supercapacitor Electrode

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With the ever growing demand and constant need for environmental friendly, sustainable and high-efficiency energy storage devices, the supercapacitors have attracted tremendous interest for potential applications in electronic circuits such as consumer electronic devices and powering application. In today's electronic world, supercapacitors are in high demand for applications including electric cars, wireless telecommunications and high-powered lasers. Supercapacitors are also known as electrochemical energy storage devices that combine the high energy-storage capability of conventional batteries with high power-delivery capabilities of a conventional capacitors. It is also known for higher power and longer cycle life than normal batteries due to their superior high power density, rate capability and long cycle-life. Supercapacitors represent the alternative to common electrochemical batteries. Most common type of supercapacitors available are electrical double layer capacitor (EDLC) type in which the use of graphene in supercapacitors can be represented by its greatest mechanical properties and energy density due to large surface area to weight ratio. It is reported in many journals that graphene has a theoretical surface area of 2630 square meters per gram. This density is only possible with a single standalone graphene sheet which is one of the major contributions towards the excellent supercapacitance characteristics. In this paper, a detailed study is conducted on graphene as an electrode coated composite material which shows a tremendous increase in supercapacitance properties. A new electrode coating material composites was developed and characterized through various techniques.

### Biography:

Dr. Ansari is currently working as an Associate Professor of Mechanical Engineering at Universiti Tenaga Nasional, Malaysia. He graduated his B.Eng. (Mechanical Engg.) from University of Madras (India) in 1994, after which he was bonded to serve a Saudi company (Al-Jawdah Co.) in Riyadh, K. S. A. for 1 year. After a few years, he was invited to work as Lecturer in Polymer Technology at Crescent Engineering College (Now known as B. S. A. University, Chennai, India) where he completed 5 years of academic service. Later, he was seconded to work in Malaysia's newly established University, AIMST University. After 1 year, he was given sponsorship to pursue his Ph.D at Universiti Sains Malaysia (U. S. M.). He earned his Ph.D in 2009. He has published more than 50 research publications. He serves as a technical reviewer in many international journals and conferences.