

## **Energy Storage: Ni-Based Supercapacitors**

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Supercapacitors have attracted great interest and development as energy storage devices. Supercapacitor have found a lot of energy storage applications in electric cars and other equipment. Different materials have been proposed and used for supercapacitors. In this presentation, high performance supercapacitors based on nanoscale Ni-based materials, which show very high specific capacitance and energy density, are focused. Nanomaterials have special properties, and have important applications in energy storage and many other devices. The energy storage performance of such materials and devices are examined and the very high energy storage ability is discussed. Microstructure, morphology and surface area, and energy storage performance are found strongly related. 3D core-shell structures contributing to energy storage is presented and discussed. Charged full supercapacitors prototypes will be shown to light up bulb and turn fans in this presentation.

Dr. Gong Hao is a full professor at Department of Materials Science and Engineering, National University of Singapore. He has published more than 240 international journal papers, served as chairmen for some international conferences, and editorial committees for a few international journal. His research areas are electronic, functional, and sustainable energy materials thin films, nanostructures, heterostructures and devices. Considerable efforts have been made in the design, fabrication and study of electronics and functional thin films and structures. His current interests and concentrations are supercapacitors, solar cells and transparent and functional semiconducting and conducting oxide (TSO and TCO) and compound semiconductor thin films; nanostructures and devices, owing to their unique and special applications; supercapacitors; solar cells; functional devices.