



Carbon Nanomaterials for Energy Conversion and Storage Technologies

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Message from the Guest Editors

From acting as benign high-surface area, electronically conductive support for electrochemical energy generation in early polymer and alcohol fuel cells, to the current developments of nanostructured carbon-supports with tailored surface chemistry; carbon continues to facilitate the next generation of fuel cell, supercapacitor and battery technologies.

Surface modified and doped nanostructured carbons are being extensively developed for enhanced CO tolerance in anodic methanol and hydrogen oxidation reactions and precious metal-free cathodic oxygen reduction reaction (ORR) electrodes. The need for clean energy storage is further necessitating the exploration of tailored porosity and hierarchical design of carbon nanomaterials for enabling high energy and power density electrochemical supercapacitors.

Another latest application of carbon for energy application has been proposed in triboelectric energy harvesting technologies. Nanostructured carbon electrodes as charge collection electrodes with high optical transparency, electrical conductivity and flexibility make them highly attractive for use in triboelectric energy harvesting technologies.

