

Innovative materials for supercapacitor

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The worldwide demand for green and sustainable energy has pushed the development of nontoxic and ecological energy harvesting and storage devices characterized by high efficiency, reliability, versatility, and flexibility. The conventional rigid structure of standard energy storage devices cannot satisfy the specific requirements of the ever smaller portable electronic devices. To overcome these limitations, it is critically important to study suitable materials and processes to develop miniaturized energy storage devices such as flexible supercapacitors. Moreover, the growing demand for energy harvesting devices for harsh environment applications has focused the research on sustainable and efficient solutions.

The talk will focus on the main results obtained by the Center for Sustainable Future Technologies of the Italian Institute of Technology in the electrochemical energy storage field. In particular, the research efforts are devoted to the development of innovative materials and their optimization for different supercapacitor applications ranging from the wearable electronics to harsh environment conditions.