

Abstract Submitted
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High Performance and Economic Supercapacitors for Energy Storage Based on Carbon Nanomaterials VLADIMIR SAMUILOV, BEHZAD FARSHID, ALEXANDER FRENKEL, Department of Materials Science and Engineering, Sensor CAT, State University of New York at Stony Brook, Stony Brook, NY 11794-2275, USA, SENSOR CAT AT STONY BROOK TEAM — We designed and manufactured very inexpensive prototypes of supercapacitors for energy storage based on carbon nanomaterials comprised of: reduced graphene oxide (RGOs) and carbon nanotubes (CNTs) as electrodes filled with polymer gel electrolytes. The electrochemical properties of supercapacitors made using these materials were compared and analyzed. A significant tradeoff between the energy density and the power density was determined; RGO electrodes demonstrated the highest energy density, while composite RGO/CNT electrodes showed the highest power density. The thickness of the RGO electrode was varied to determine its effect on the power density of the supercapacitor and results showed that with decreasing electrode thickness power density would increase. The specific capacitances of over 600 F/g were observed.

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