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**Helically coiled carbon nanotube forests for use as electrodes in supercapacitors** ANTHONY CHILDRESS, KEVIN FERRI, RAMAKRISHNA PODILA, APPARAO RAO, Clemson Univ — Supercapacitors are a class of devices which combine the high energy density of batteries with the power delivery of capacitors, and have benefitted greatly from the incorporation of carbon nanomaterials. In an effort to improve the specific capacitance of these devices, we have produced binder-free electrodes composed of helically coiled carbon nanotube forests grown on stainless steel current collectors with a performance superior to traditional carbon nanomaterials. By virtue of their helicity, the coiled nanotubes provide a greater surface area for energy storage than their straight counterparts, thus improving the specific capacitance. Furthermore, we used an Ar plasma treatment to increase the electronic density of states, and thereby the quantum capacitance, through the introduction of defects.

Anthony childress
Clemson Univ

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