

Abstract Submitted
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Carbon Nanotube Aerogels with High Porosity and Electrical Conductivity¹ ANGELO PORCU, LUIS D. RIVAS, ANAMARIS MELNDEZ, IDALIA RAMOS, University of Puerto Rico at Humacao, MOHAMMAD ISLAM, Carnegie Mellon University, ARJUN YODH, University of Pennsylvania — Carbon aerogels are promising materials for energy applications. Freestanding aerogels were created from co-gels of single-wall carbon nanotubes (SWCNT) and the conducting polymer poly(3,4-ethylenedioxythiophene)-poly(styrene sulfonate) (PEDOT:PSS). We tested several ratios of SWCNT/PEDOT:PSS to produce samples with the optimum combination of mechanical and electrical properties. The aerogels are lightweight, mechanically robust, and recover their original shape after deformation. High resolution scanning microscopy analysis shows their high porosity, filamentous structure, and the distribution of the polymer around the SWCNT. We analyzed the electrical properties of the gels using four-point I-V measurements and got high conductivities of over 100 S/cm. We will also present results of the fabrication of these co-gels in the shape of fibers.

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