

Abstract Submitted
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Purification of Semiconducting Single-walled Carbon Nanotubes by Isopycnic Centrifugation DAVID JONES, Brigham Young University Department of Physics — The single-walled carbon nanotube is a promising medium in the field of nanoelectronics. However, even the most advanced production methods yield aggregates of both metallic and semiconducting species. If carbon nanotubes are to be used in electrical applications, it is essential that they be isolated according to their electrical conductivity. We are using isopycnic centrifugation to isolate nanotubes. Absorption spectroscopy is used to identify nanotube species within a given sample before and after purification. Our current challenge is to quantify the purity of the isolated semiconducting nanotubes by way of direct measurement. Dielectrophoresis is used to align nanotubes upon electrodes after which individual electrical measurements can be performed. By performing direct measurements on a large sample size of purified semiconducting nanotubes, the effectiveness of this purification technique can be verified electrically.

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