Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Chirality Separation of Single-Wall Carbon Nanotubes using Aqueous Two-Phase Extraction JEFFREY FAGAN, National Institute of Standards and Technology — Aqueous two-phase extraction (ATPE) was recently demonstrated to enable the separation of individual species of single-wall carbon nanotubes (SWCNTs) across the separated phases. In this presentation I will describe the use of a dextran - polyethylene glycol aqueous two-phase system along with a separation scheme of varying surfactant concentrations to enable isolation at high purity of specific small diameter SWCNT species. Separation by ATPE is rapid and robust, with a remarkable tunability that allows isolation of most single nanotube chiralities at high purity. Choice of surfactant(s), temperature, polymer concentrations, and the addition of small molecule salts can all be used to tune the exact partitioning of single SWCNT species between the two phases.

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Date submitted: 14 Nov 2013 Electronic form version 1.4