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Measuring Single-Walled Carbon Nanotube Length Using Length Analysis by Nanotube Diffusion AINSLEY MCDONALD-BOYER, ALI ALIZADEHMOJARAD, BRUCE WEISMAN, Rice University — The average length of single-walled carbon nanotubes (SWCNT) in a SWCNT dispersion was attempted to be measured using Length Analysis by Nanotube Diffusion (LAND). Due to the fluorescent property of semiconducting nanotubes, the SWCNT's emission can be collected when they are excited with the appropriate wavelength. Using a high-resolution camera as part of an inverse laser microscope apparatus, the movement of individual nanotubes in the sample was captured in the form of videos and images. By analyzing the motion of the nanotubes from the images using specialized software, the diffusion coefficient can be found which allows the length of the nanotubes can be calculated. This work specifically investigated (6,5) nanotubes by using a 973 nm bandpass filter to remove the emission from other species found in the dispersion.

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