SWNT Imaging Using Multispectral Image Processing

MICHAEL BLADES, MASSOOMA PIRBHAI, SLAVA V. ROTKIN, Lehigh University — A flexible optical system was developed to image carbon single-wall nanotube (SWNT) photoluminescence using the multispectral capabilities of a typical CCD camcorder. The built in Bayer filter of the CCD camera was utilized, using OpenCV C++ libraries for image processing, to decompose the image generated in a high magnification epifluorescence microscope setup into three pseudo-color channels. By carefully calibrating the filter beforehand, it was possible to extract spectral data from these channels, and effectively isolate the SWNT signals from the background.

Michael Blades
Lehigh University

Date submitted: 19 Dec 2011