

Evaluation of the Individualization State in Single-Walled Carbon Nanotube Solutions using Absorption, Raman, and Photoluminescence Spectroscopy

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Abstract

We report a method for characterizing the individualization of single-walled carbon nanotubes (SWCNTs) in a solution based on absorption, Raman, and photoluminescence spectroscopy. In the first van Hove transition interband (S11), we selected two distinct peaks and introduced kurtosis as a quantitative value for representing the sharpness and magnitude of the peaks. Three samples of individualized SWCNTs prepared using our condition and two published conditions were analyzed using Kurtosis. In addition, we used the radial breathing mode peaks and photoluminescence map to estimate the individualization qualitatively. As the results, we found that three methods to characterize the individualization state showed consistent results for each other and could be effectively utilized for making well-individualized sample.

References

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Figures



