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Simultaneous Measurement of Raman and Rayleigh Spectroscopy for Probing Carbon Nanostructures Properties SANG-YONG JU, JI-WOONG PARK, Cornell University — Carbon nanotubes (CNTs) have demonstrated a promising candidate due to excellent electrical and mechanical properties originating from their one dimensionality. In order to fully utilize these characteristics in a novel electronic and optoelectronic device geometry, one must find and exploit their chiral information (i.e. (n, m)) as well as their electronic type. However, the elucidation of such information on the substrate remains challenging and the characterization of many nanotubes in parallel is even daunting. Recently, Rayleigh imaging debuts to characterize CNTs and shows a potential use for uncovering the aforementioned key parameters with aid of other technique. Here, we shows that the simultaneous measurement of Raman and Rayleigh signals shows excellent tool to measure the unequivocal chiral information of CNTs on a substrate. Our technique can probe a large number of CNTs, altogether with their spatial information on a substrate. This technique can provide a venue to fabricate CNT devices with “known” chiral indices and, therefore, correlate them with their electronic and optoelectronic properties.

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