Electronic Supplementary Information

Chirality Analysis of Horizontally Aligned Single-Walled Carbon Nanotubes: Decoupling Populations and Lengths

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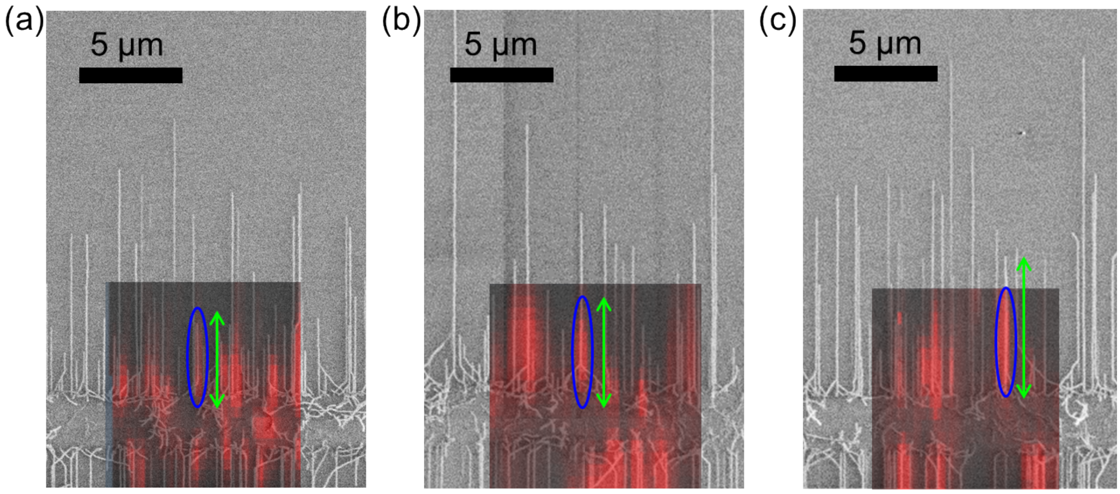

Fig. S1 Overlapped Raman mapping and SEM images to determine lengths of chirality-assigned SWCNTs. The red contrast of the Raman mapping images represents the G-band intensity of SWCNTs obtained with 488 nm excitation. The blue circles show the areas where RBM spectra of the focused frequency range are detected. The green arrows show the determined SWCNT lengths. (a,b) SWCNT lengths are determined only by Raman mapping images when SWCNT lengths are within Raman mapping areas. (a) SWCNTs with same lengths are found in SEM images at identical positions corresponding to Raman mapping images. (b) No corresponding SWCNTs are apparently found in SEM images probably because multiple SWCNTs with different lengths lie closely parallel or with forming bundles. (c) When SWCNT lengths extend beyond Raman mapping areas, the lengths of corresponding SWCNTs are determined by SEM. Although existence of multiple close-lying SWCNTs in SEM images may cause incorrectly-long determination of length, we used the CVD condition in which the multiple close-lying SWCNTs with relatively long length are rare.

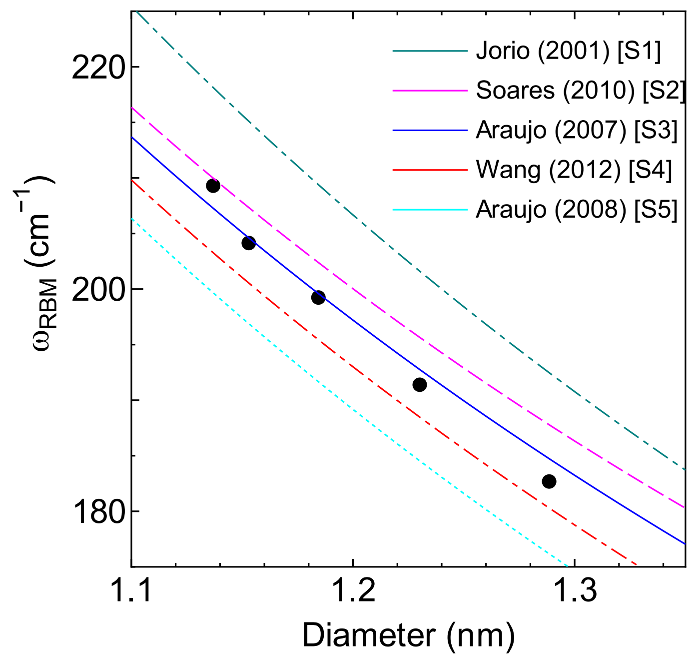

Fig. S2 Average of RBM frequencies acquired in this study plotted against diameter of assigned chiralities in comparison with fitting equation from the literatures. [S1-S5]

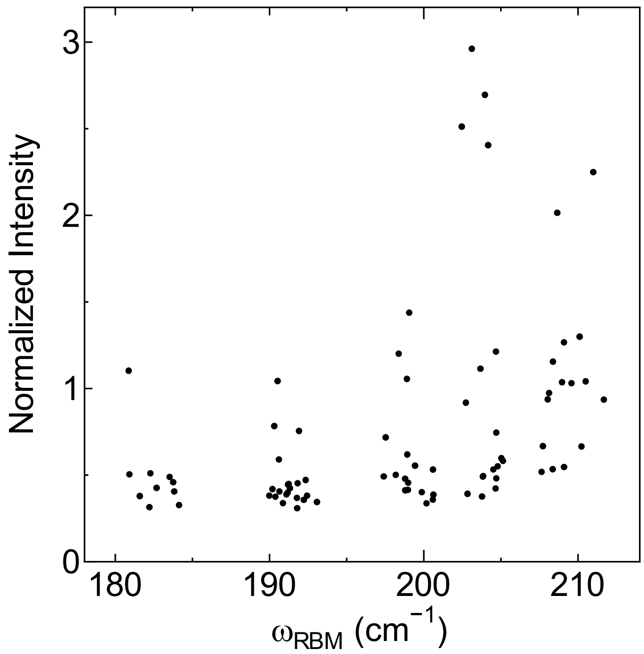

Fig. S3 Normalized intensity of RBM peaks versus RBM frequencies.

Reference

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[S5] P. T. Araujo, I. Maciel, P. Pesce, M. Pimenta, S. K. Doorn, H. Qian, A. Hartschuh, M. Steiner, L. Grigorian, K. Hata, and A. Jorio, "Nature of the constant factor in the relation between radial breathing mode frequency and tube diameter for single-wall carbon nanotubes," *Phys. Rev. B* **77**, 241403 (2008).