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Experimental Kataura plot from individual Single-Wall Carbon nanotubes on silicon substrate. YA-PING HSIEH, MARIO HOFMANN, CHITTE LIANG, MILDRED S. DRESSELHAUS, JING KONG, MIT — The dependence of Raman scattering of individual carbon nanotubes on excitation energy was investigated. For this carbon nanotubes were grown on Silicon substrate and their Raman spectra were analyzed for a multitude of different laser excitation wavelength. Resonance windows for several tubes within one family were measured to obtain the energy of maximum intensity of the RBM feature. By carefully calibrating these RBM peak positions, this experimental data can generate an experimental Kataura plot, which was compared to the theoretical prediction. Finally, a relation between RBM frequency and diameter was obtained based on the experimental Kataura plot. These results will improve the chirality assignment of carbon nanotubes grown on silicon substrate.

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