Electronic Supplementary Material (ESI) for Nanoscale Advances.

Pressure dependant conduction of individual multi-walled carbon nanotubes: the effect of mechanical distortions

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Supplemental Information

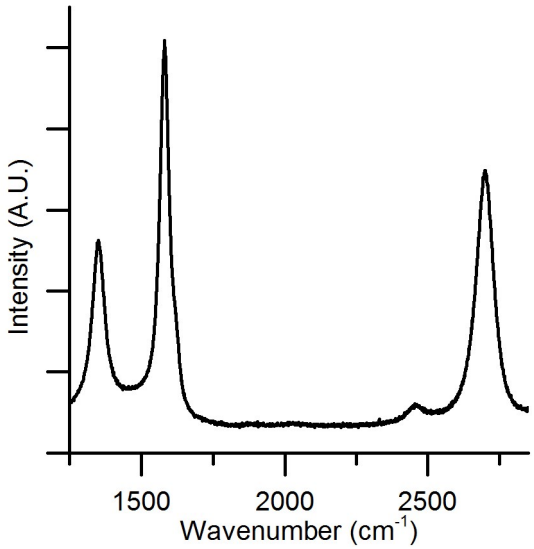

Fig. S1 Raman spectrum of multi walled carbon nanotube after argon bombardment.

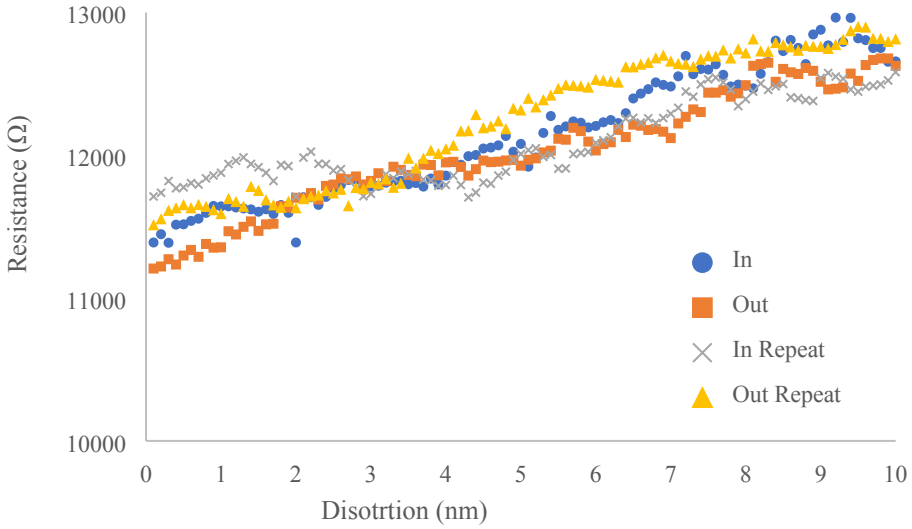

Fig S1. Plot of electrical resistance of an individual MWCNT as determined from 3PP I-V measurements as a function of the distortion induced by pressure applied by the central "floating" probe (blue dots) and relaxation (orange squares) and repeat induced pressure (grey crosses) and repeat relaxation (yellow triangles).

Equation E1 was used for the simple model in Figure 3, the equation

$$(\mathrm{mx} + \mathrm{c}) + \ a\sin\frac{\pi}{d}x \qquad \text{(E1)}$$

Where *m* is gradient of the line is related to the resistivity, c is the inherent resistance of the system, both *m* and *c* can be estimated by fitting a straight line to the experimental data, *a* is a arbitrary factor to give the plot the necessary amplitude to be visible to the read, here taken to be 100, *d* is the period of the oscillation calculated using FFT analysis from the experimental data and *x* is the displacement increment of the tip, 0.1 nm,

Fourier Transform analysis has been carried out on the 3 probe data to calculate the peak separation period using the same method described in our previous work.[13]

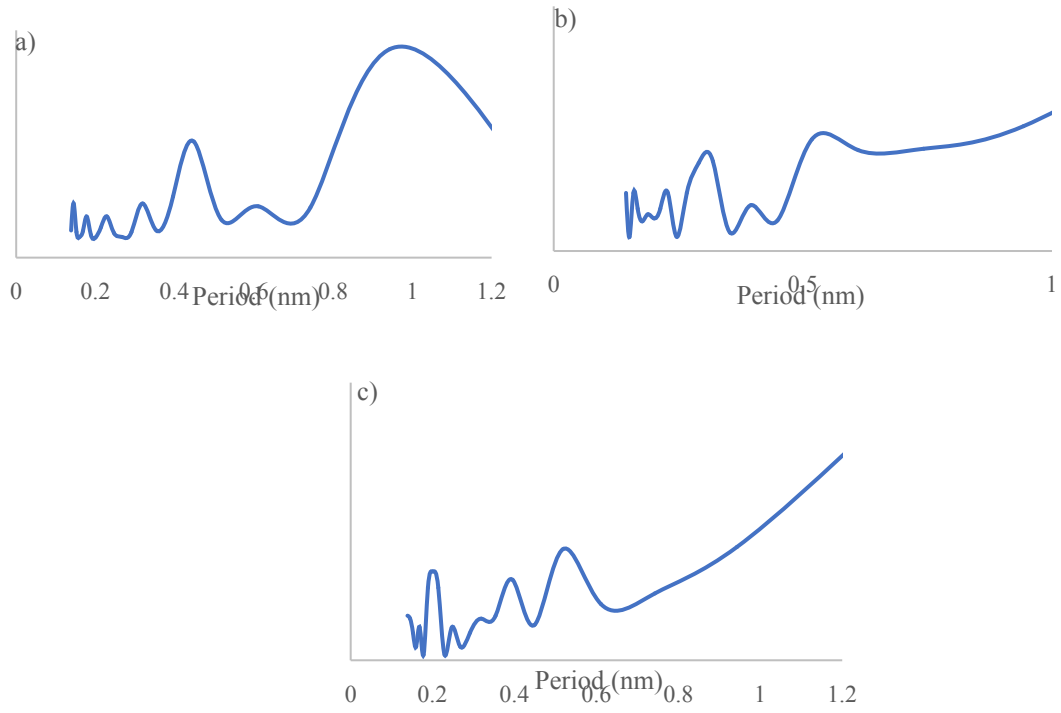

Fig S2. FFT of electrical resistance of individual MWCNT under distortion from a "floating" probe with tube diameter of a) 100 nm, b) 120 nm and c) 140 nm.