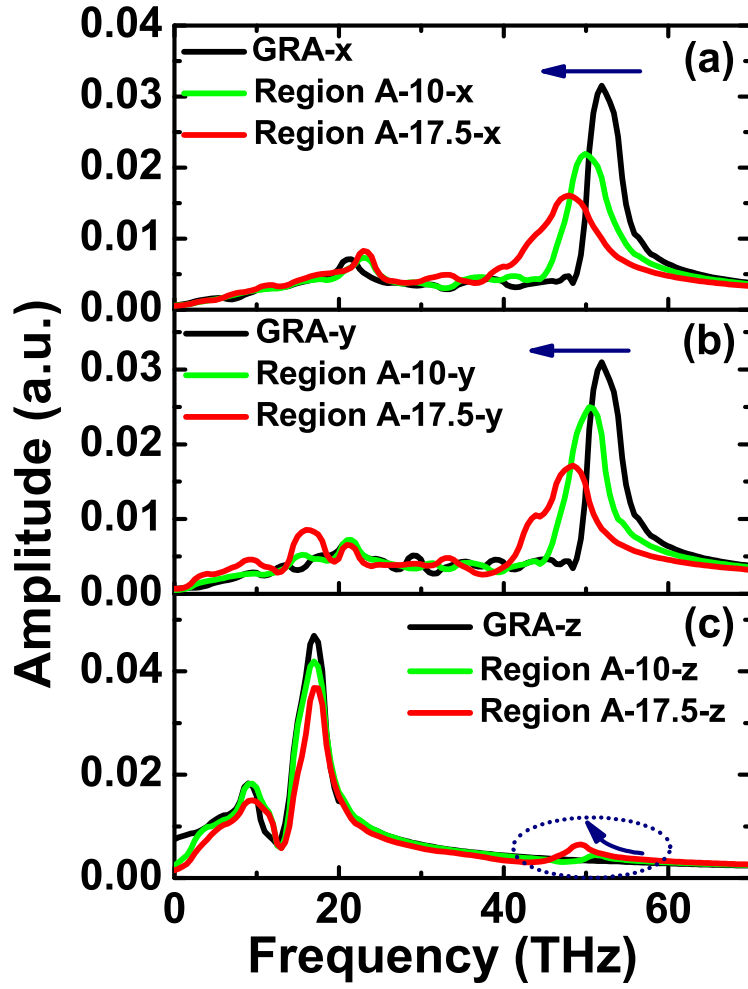


**Fig. A1** (color on line) Vertical deflection profiles. The indented CNT lies across the plane and indented to a depth of 15 Å, as showed in the lower inset snapshot. Error bars correspond to out-of-plane oscillation magnitude from the average height. The upper inset figure plots the temperature profile for the GNR.



**Fig. A2** (color on line) The  $x, y, z$  components of the phonon spectrums for pristine and indented GNR. Definition for region A is the same as that in Figure 3, and the indentation depth is 10 Å and 17.5 Å, respectively.