Figure 1. Schematic showing the orientation of the CNTs during hot-pressing (arrow shows the direction of applied pressure). The CNT alignment orientation is horizontal.

Figure 2. SEM images showing FIB polished composites a) perpendicular to the MWCNT alignment direction and b) parallel to the aligned MWCNTs. Arrows indicate porosity.

Figure 3. 3D tomographs from SEM images of FIB slices reconstructed into a representation of the bulk composite for a) a few individual CNTs and b) all CNTs in the sampled volume.

Figure 4. TEM images of FIB fabricated TEM sample a) and b) prepared normal to the MWCNT alignment direction and c) and d) approximately parallel to the MWCNT alignment direction. Images b) and d) are higher magnification showing the interface has no observable cracks or voids.

Figure 5. a) Microcantilever beams in the CNT/ABS composite. b) and c) SEM images showing the length *l*, width *w* and height *h* of a cantilever beam. In c), the re-deposited material evident on the lower right hand face of the beam resulted from the final milling step of the lower left hand side and was removed prior to testing.

Figure 6. Representative a) load-displacement plot for a glass microcantilever beam loaded to failure (inset – same data replotted as maximum tensile stress against maximum tensile strain). b) SEM image of the fracture surface of an ABS glass beam showing a smooth surface and an imperfection on the left corner of the beam that is the likely origin of fracture.

Figure 7. a) A typical load-displacement graph of MWCNT/ABS glass composite (straight dotted line added to show bowing). b) loading-unloading curve on the composite cycled to progressively higher loads until failure. SEM images of c) a tested microcantilever beam and d) and e) higher magnification of fracture surfaces showing bridging MWCNTs holding the broken beam sections together.