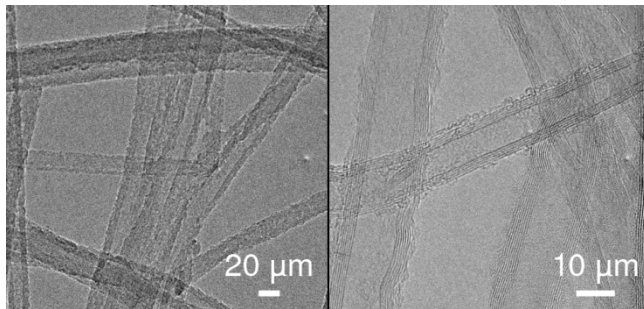


Supporting Information:

Advanced Functional Materials, “*In situ* mechanical testing reveals periodic buckle nucleation and propagation in carbon nanotube bundles,” by Shelby B. Hutchens, Lee J. Hall, and Julia R. Greer



Typical TEM images of CNTs extracted from an undeformed pillar.

In situ videos: (included)

PillarCompression_25xspeed.mpg

PillarCompression_25xspeed.avi

A pillar compression performed at a strain rate of 0.001 s^{-1} , then sped up to 25× the original rate for easier viewing.

PillarCompression_25xspeed_data.mpg

PillarCompression_25xspeed_data.avi

Stress-strain data gathered simultaneously with the pillar compression shown in

‘PillarCompression_25xspeed.mpg’. Both videos may be played side-by-side to correlate the buckling events and stress-strain humps.

PillarCompression_InitialJump.mpg

PillarCompression_InitialJump.avi

The initial portion of a pillar compression illustrating an abrupt initial jump in displacement while the indenter head is constrained to a displacement rate of ~ 300 nm/s.