**Editorial comments:**  
The manuscript has been modified by the Science Editor to comply with the JoVE formatting standard. Please maintain the current formatting throughout the manuscript. The updated manuscript (555149\_R1\_070816.docx) is located in your Editorial Manager account. In the revised PDF submission, there is a hyperlink for downloading the .docx file. Please download the .docx file and use this updated version for any future revisions.  
  
1. Formatting: Please number steps sequentially. For instance, there are two steps 2.1.4.

Completed  
  
2. Grammar: Line 56 – “to selectively removing”

Corrected  
  
3. Visualization: 1.3.3 should not be highlighted for filming as it cannot be visualized.

Figure 1 has been modified and updated.  
  
4. Additional detail is required:  
-1.3.3 – It is unclear how Figure 1 would help estimate these values.

Figure 1 has been modified and updated.  
-1.3.8 – How is the milling location noted? Is it marked in the software?

This sentence was removed because it is unnecessary. The intent of the statement was to alert the user to recall where the location of interest was located within the field of view at lower magnification.

-1.4.5 – What determines the appropriate angle here?

This instruction has been modified with the following sentence: “Select a suitable rotation angle that aligns with the native vertical and horizontal scan orientation of the SEM.”

-First 2.1.4 – When does rastering begin? How long is the beam on before pausing it?

Rastering begins in the prior step. The pause icon should be selected immediately after the previous step. This instruction has been modified.

-Second 2.1.4 – How long should the beam be on?

The scan duration depends on the size of the selected area, resolution and dwell time and may be approximated by multiplying the number of pixels within the scan area and the dwell time per pixel.

-2.3.2.4 – Which conditions? What step 2.1.4?

Step 1.3.6. This has been updated in the manuscript.  
  
5. Please remove commercial branding: Line 113 – “FEI Quanta 600F” – Please indicate that other systems could be used.

Completed.  
  
6. Discussion:  
-Line 341 – Rates are not shown in Figure 1. Please clarify. Figure updated.  
-Please discuss the critical steps of the protocol. Additional discussion added.  
  
**Reviewers' comments:**  
**Reviewer #1:**  
*Manuscript Summary:*  
This work demonstrates the milling of CNTs using precise oxidative processing. The pictures are sufficient to represent this technique, and the description seems accurate and thorough. I see no reason for this to not be accepted for whatever further steps are needed to process a video article.  
  
*Major Concerns:*  
N/A  
  
*Minor Concerns:*  
N/A  
  
*Additional Comments to Authors:*  
N/A  
  
  
**Reviewer #2:**  
*Manuscript Summary:*  
In this work, the authors provide the protocols and examples for the CNTs milling methods using ESEM. The detailed processing conditions in ESEM were explained, as well as the synthesis of CNTs forests.  
  
*Major Concerns:*  
1. Although the authors explained the mechanism of CNTs milling process, the current manuscript is not enough to convey the central physics during those processes for the general readers who do not have experiences. More detailed descriptions about the underlying physics would be helpful for general readers.

Although the focus of this manuscript is procedural, we have added an equation to the manuscript to estimate the etch rate of CNTs based on the SEM parameters and the water vapor ambient. This equation relates observations to physical mechanisms, as detailed further in reference

2. As the authors mentioned, there have been several techniques to fabricate or manipulate CNT forests, such as TEM, FIB, and others. It is intuitive that ESEM is more effective and practical for large-scale applications. However, it would be important that ESEM milling process is able to control the precise parts or complex shapes. For the visualization of those points, the addition of samples which have more complex structures via the above CNT milling process would be needed.

The demonstration of a milled circle represents an arbitrary shape that may not be achieved with conventional x-y rastering of an electron beam. It is our intent to demonstrate that the technique may be utilized with electron-beam lithography software to enable arbitrary geometry control.   
  
*Minor Concerns:*  
1.1.1) and 1.1.2) This is the general procedure to synthesize vertically-aligned CNTs. In addition to ALD, it should be mentioned that other deposition methods, such as E-beam or thermal evaporation would be applicable.

The reviewer is correct in these statements. These steps have been modified to address this point.

1.3.3) Is there any quantified relation between the physical conditions of CNTs and the operating conditions of SEM? It would be needed to provide the regulation of the processing conditions.

Figure 1 has been modified to provide additional guidance relative to milling rates. Further, the addition of the etch rate equation on line 115 provides further guidance relative to the quantity of available reactions sites by CNT defects.

1.4.6) The relation between the milling feature size and a magnification might be described as some mathmatical formulas or fitting parameters. Or the authors can provide one table to describe the correlation of feature sizes and magnifications.  
  
The relationship between feature size and magnification is outside of our previous examinations and will depend intimately on all parameters discussed in the manuscript (acceleration voltage, spot size, ambient pressure, magnification, resolution, working height, etc.). While it is envisioned that minimum feature resolution is an important metric for specific applications, we feel that it is outside the scope of the current work.