

### Supplementary Information:

Figure S1 indicates the specific capacity of the  $\text{MoO}_{3-x}$  NWs in the lower potential range for 20 cycles. Figure S2 shows the reactor setup used for the silicon coating on the  $\text{MoO}_{3-x}$  nanowires. Figure S3 corresponds to the SEM image of pure  $\text{MoO}_{3-x}$  NW arrays and silicon coated  $\text{MoO}_{3-x}$  nanowire array with the diameter scales.

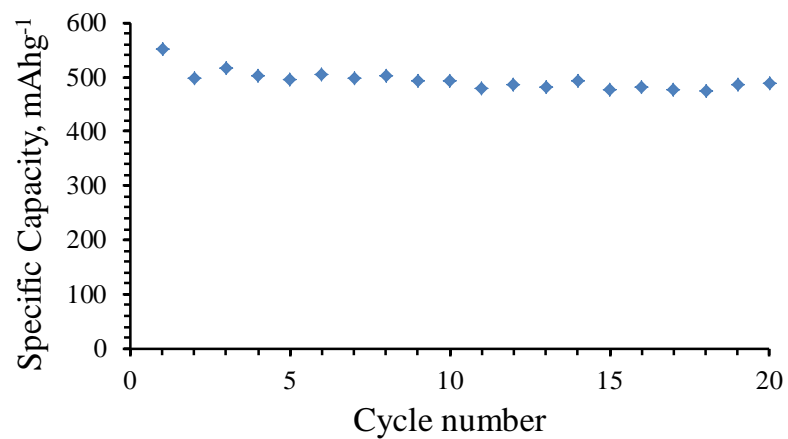


Figure S1: Capacity retention below 0.7 V for pure  $\text{MoO}_{3-x}$  NW arrays .

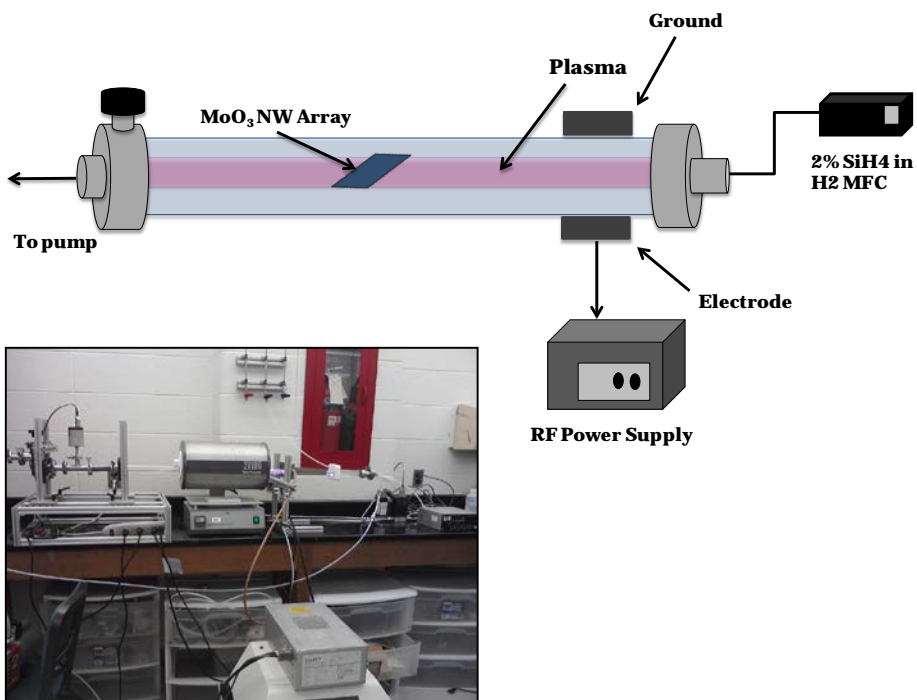


Figure S2: Schematic and picture of the reactor setup used for silicon coating.

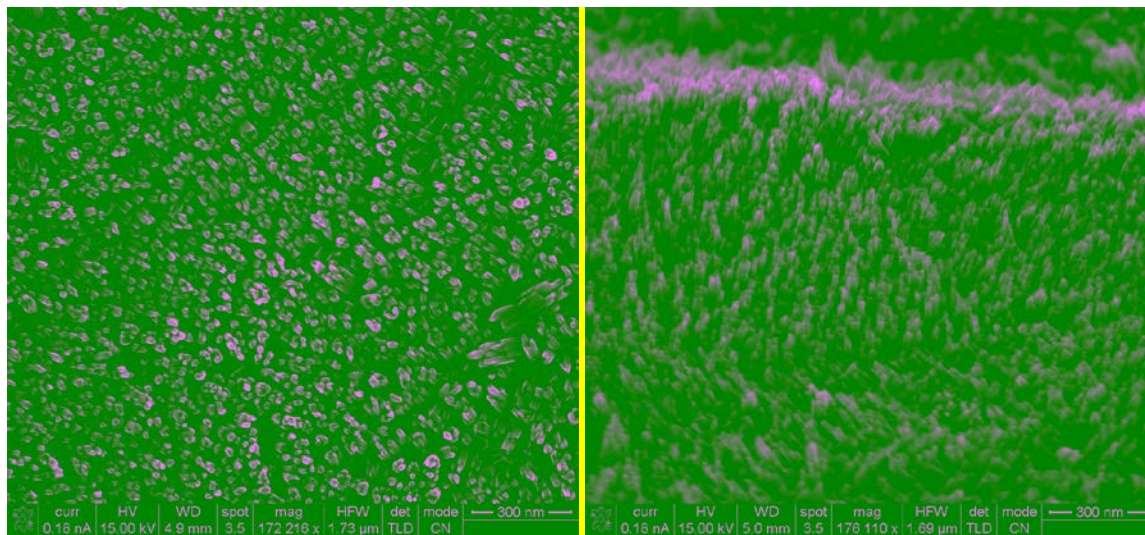


Figure S3: SEM images of silicon coated MoO<sub>3-x</sub> NW arrays.