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Electronic Supplementary Information

Exploring the kinetics of Ordered Silicon Nanowires with the Formation of Nanogaps Using Metal-assisted Chemical Etching

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S1 Observations of existing nanogaps at the edge of Si nanowires

Figures S1 present the side-view SEM images of etched nanowires with various etching durations using a H_2O_2/HF MaCE method, where one can clearly observe the existence of nanogap surrounding a nanowire. Noticeably, no significant differences of those nanogaps in terms of morphology can be found with the increase of etching time.

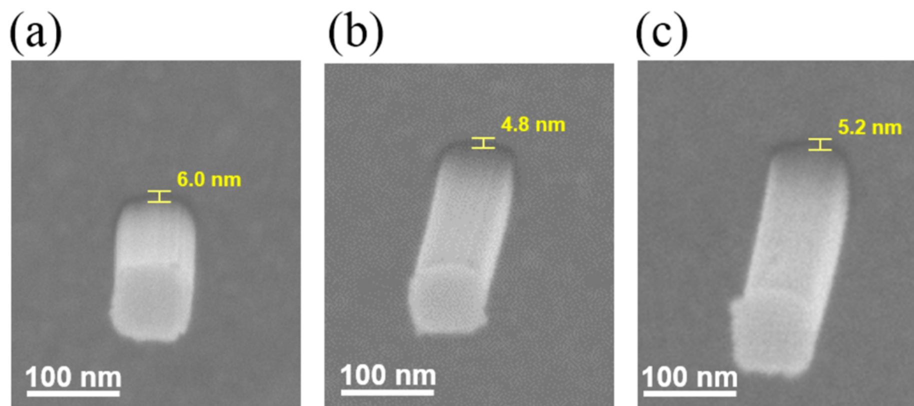

Fig. S1. Side-view SEM image of fabricated Si nanowire arrays via H_2O_2/HF MaCE method for (a) 1-sec reaction, (b) 3-min reaction, (c) 5-min reaction.

S2 Morphology of metal mesh prior to etching process

As described in the main text, 3-nm Ti (as an adhesion layer) and 20-nm Au (as a catalyst for MaCE process) were sequentially deposited on patterned Si. This bi-layered structure is substantially thick to serve as a continuous layer for processing the MaCE reaction, as evidenced in Fig. S2.

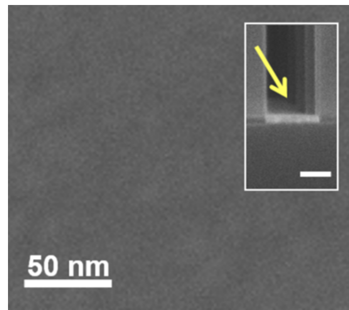

Fig. S2. Top-view SEM image of Ti (3 nm)/Au (20 nm) layers on Si prior to performing MaCE process. The insert figure shows the side-view SEM image of Ti/Au layers after performing 5-min MaCE process. The scale bar is 100 nm.