Electronic Supplementary Material (ESI) for CrystEngComm.
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Supplementary information

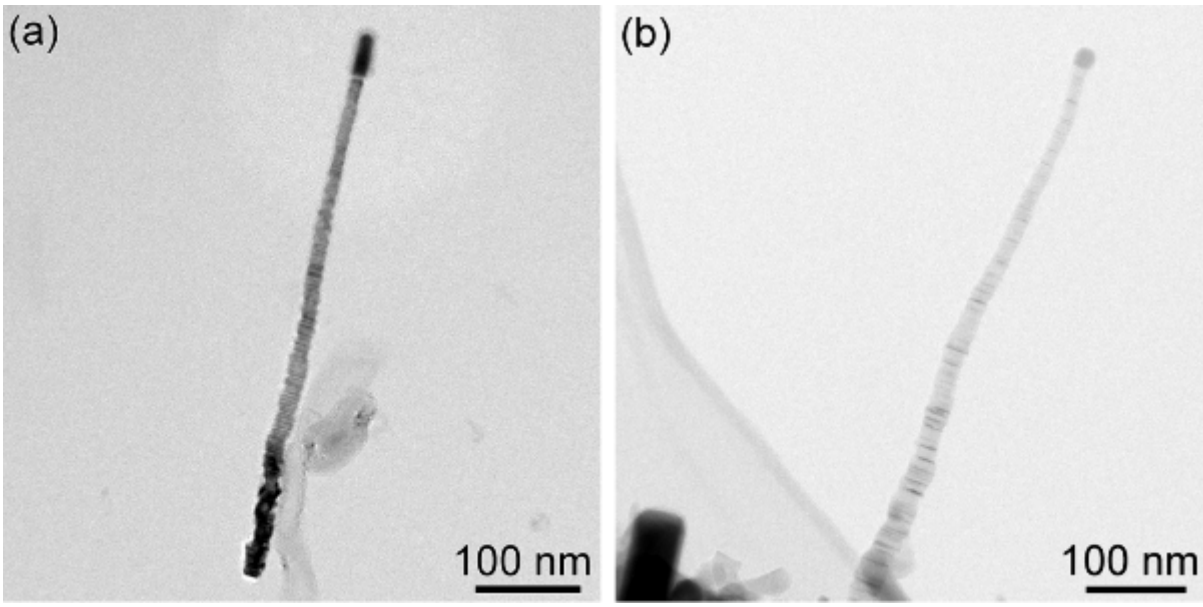

Figure S1. (a) TEM image of a thin and short SiC nanowire and (b) TEM image of a twisted short SiC nanoneedle.

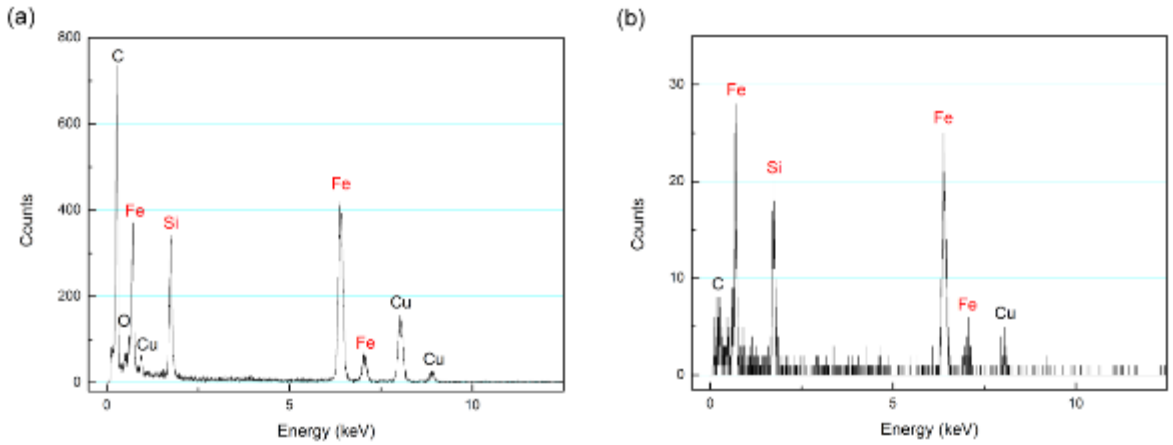

Figure S2. (a) EDS spectrum of the catalyst of the SiC nanowire and (b) EDS spectrum of the catalyst of the SiC nanoneedle.

Table S1. EDS result of the catalyst of the SiC nanowire.

Element	Atomic %	Uncertainty %
C	77.67	0.55
Fe	9.96	0.23
Si	6.03	0.12
O	2.45	0.09
Cu	3.87	0.17

Table S2. EDS result of the catalyst of the SiC nanoneedle.

Element	Atomic %	Uncertainty %
C	21.08	1.83
Fe	43.05	2.77
Si	32.22	1.50
Cu	3.63	1.19

The presence of Cu in the EDS spectra came from the TEM grid. Due to the interfering signals from the carbon film, copper grid, and SiC nanostructures themselves, a quantitative data cannot represent the actual composition of the catalysts. It is noteworthy that certain differences in the carbon contents in EDS are observed. This is due to the differences in the data acquisition mode during the EDS analysis. The EDS analysis of the catalyst of the nanowire was performed at the same time while acquiring the HRTEM images. It was in the TEM mode with a micro probe beam and the spatial resolution is about 20 nm. In contrast, the EDS analysis of the catalyst of the nanoneedle was performed in STEM mode with a nano probe beam, because of the much smaller size of the catalyst. The spatial resolution is about 2 nm. As a result, the actual EDS

count for the nanowire is much higher than that of the nanoneedle (several hundred vs. several tens). Due to the larger spatial resolution during the EDS analysis of the nanowire, more interfering signals from the carbon film on the TEM grid were collected, leading to a higher carbon content in the final EDS result. Therefore, the crystal structures of the catalysts were determined mainly through the HRTEM images and the FFTs of the images.

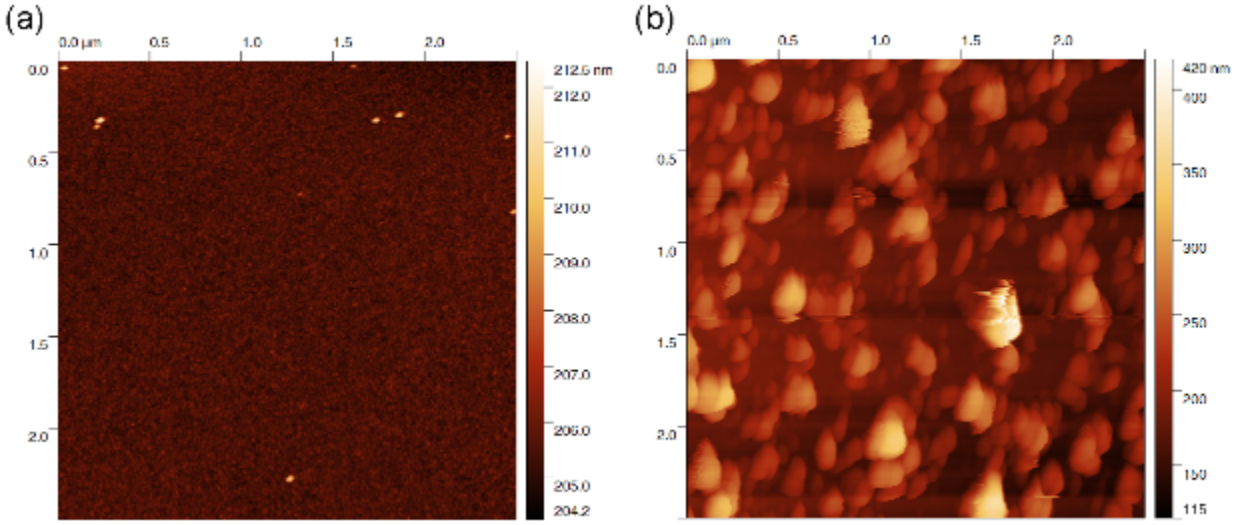

Figure S3. AFM surface topography images of (a) fresh iron coated Si wafer and (b) after 10 min's H_2 plasma etching.