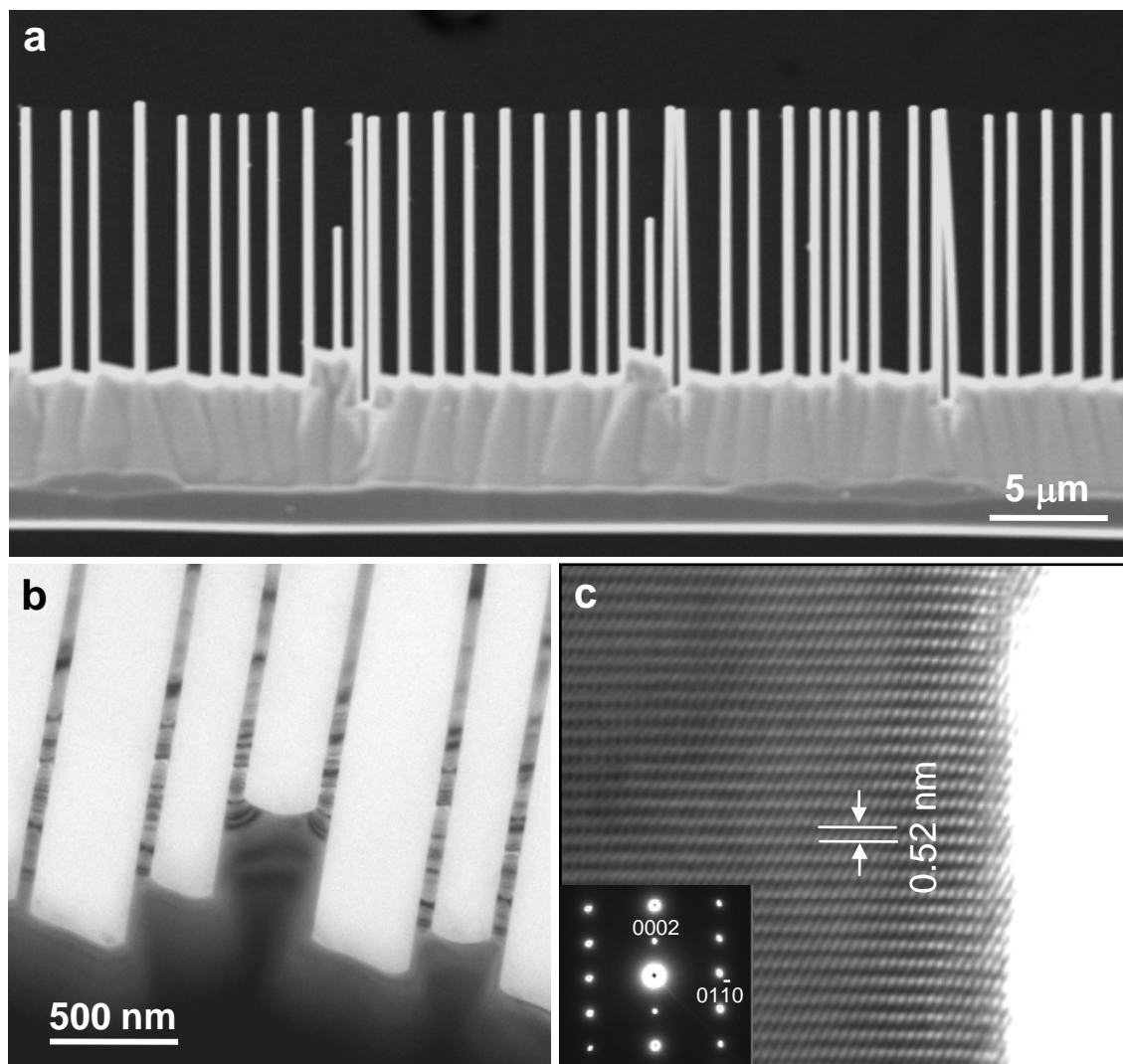


## **Supporting Information**

### **Spontaneous Growth of ZnCO<sub>3</sub> Nanowires on ZnO Nanostructures in Normal Ambient Environment: Unstable ZnO Nanostructures**

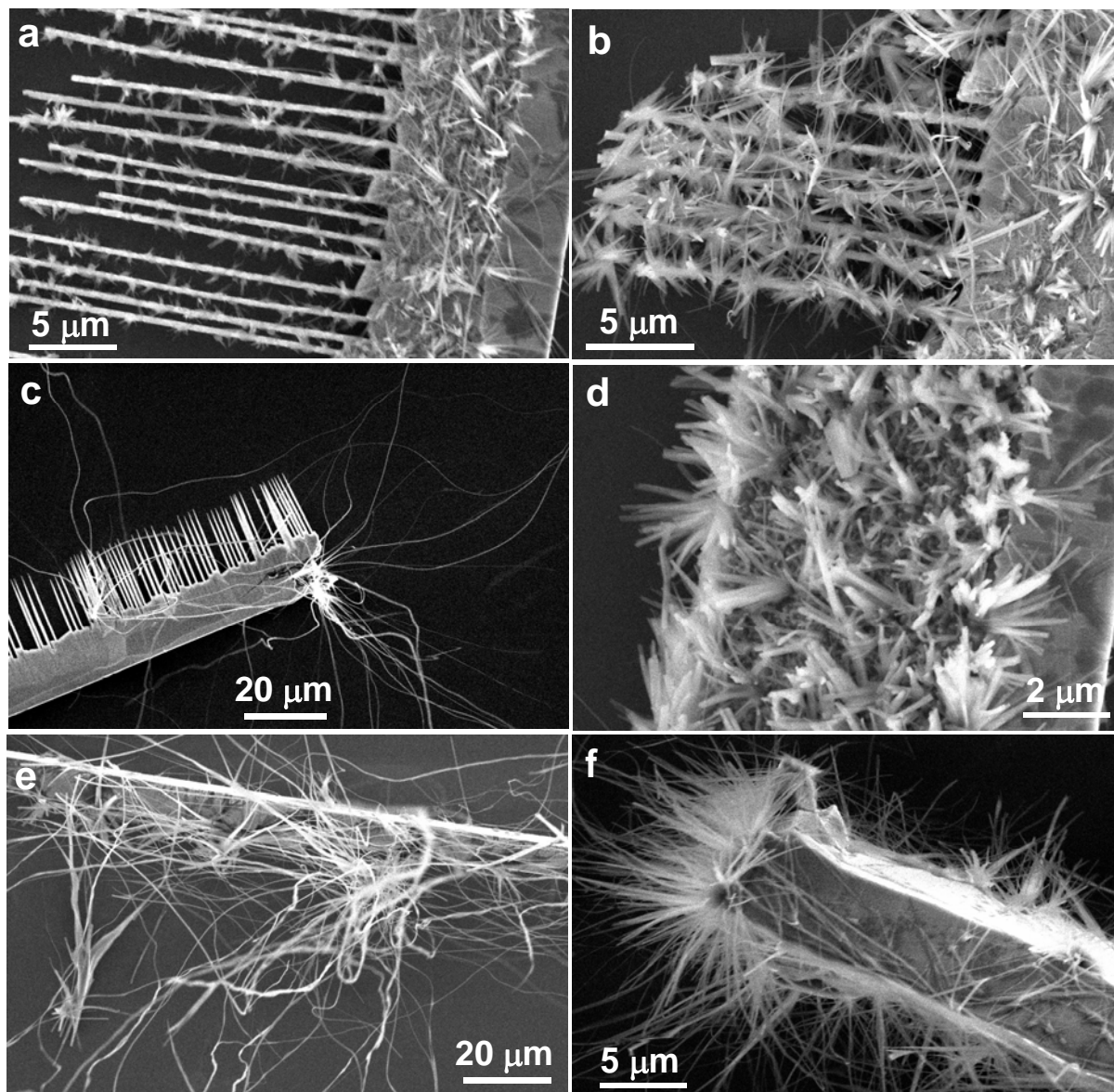
Zhengwei Pan, Jing Tao, Yimei Zhu, Jing-Fang Huang &  
M. Parans Paranthaman

## Supporting Information: Figure S1



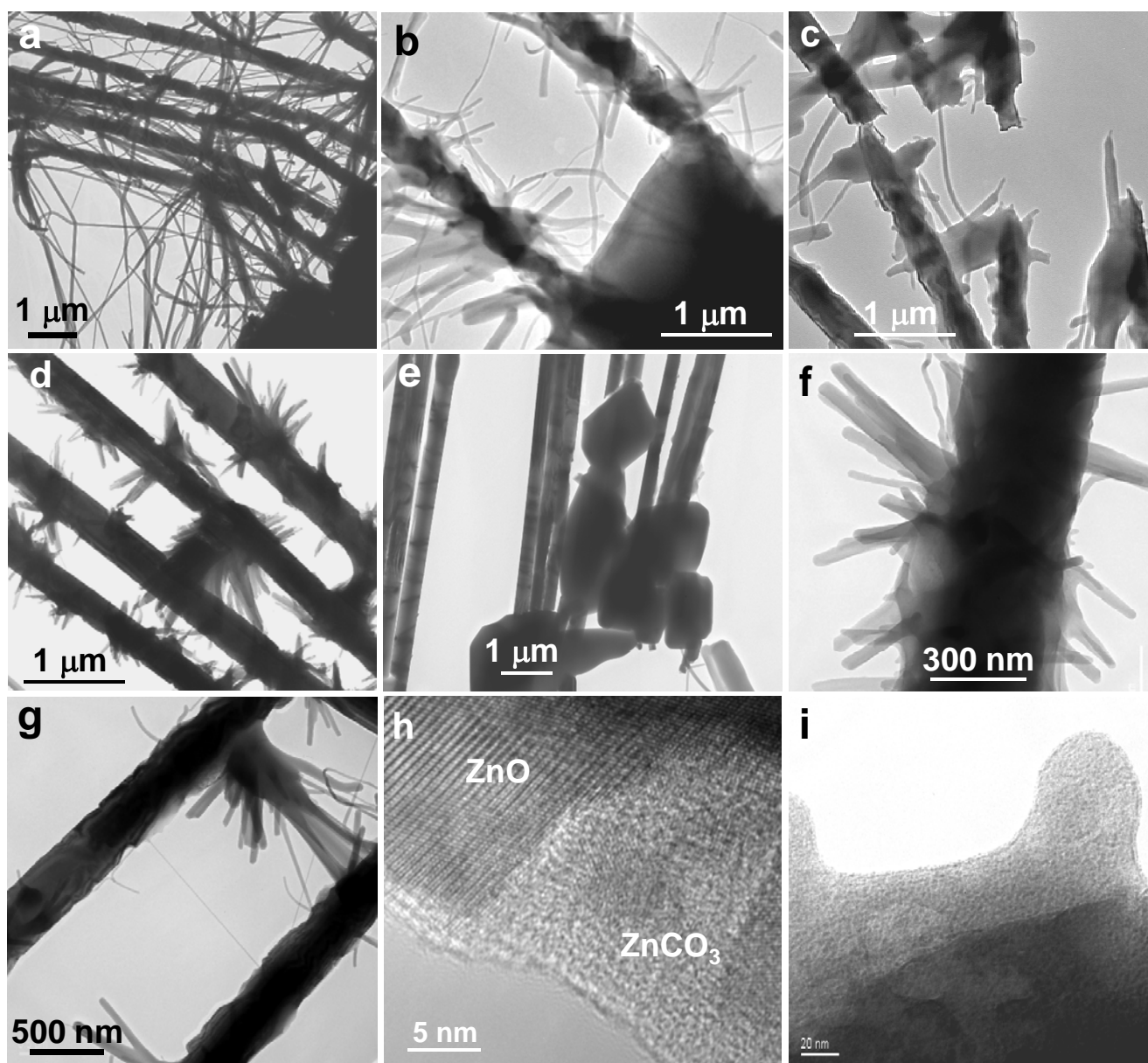
**Figure S1.** Electron microscope images of ZnO combs before atmospheric corrosion, showing the perfection of the original ZnO combs. (a) SEM image. (b) TEM image. (c) High-resolution TEM image of one comb tooth.

## Supporting Information: Figure S2



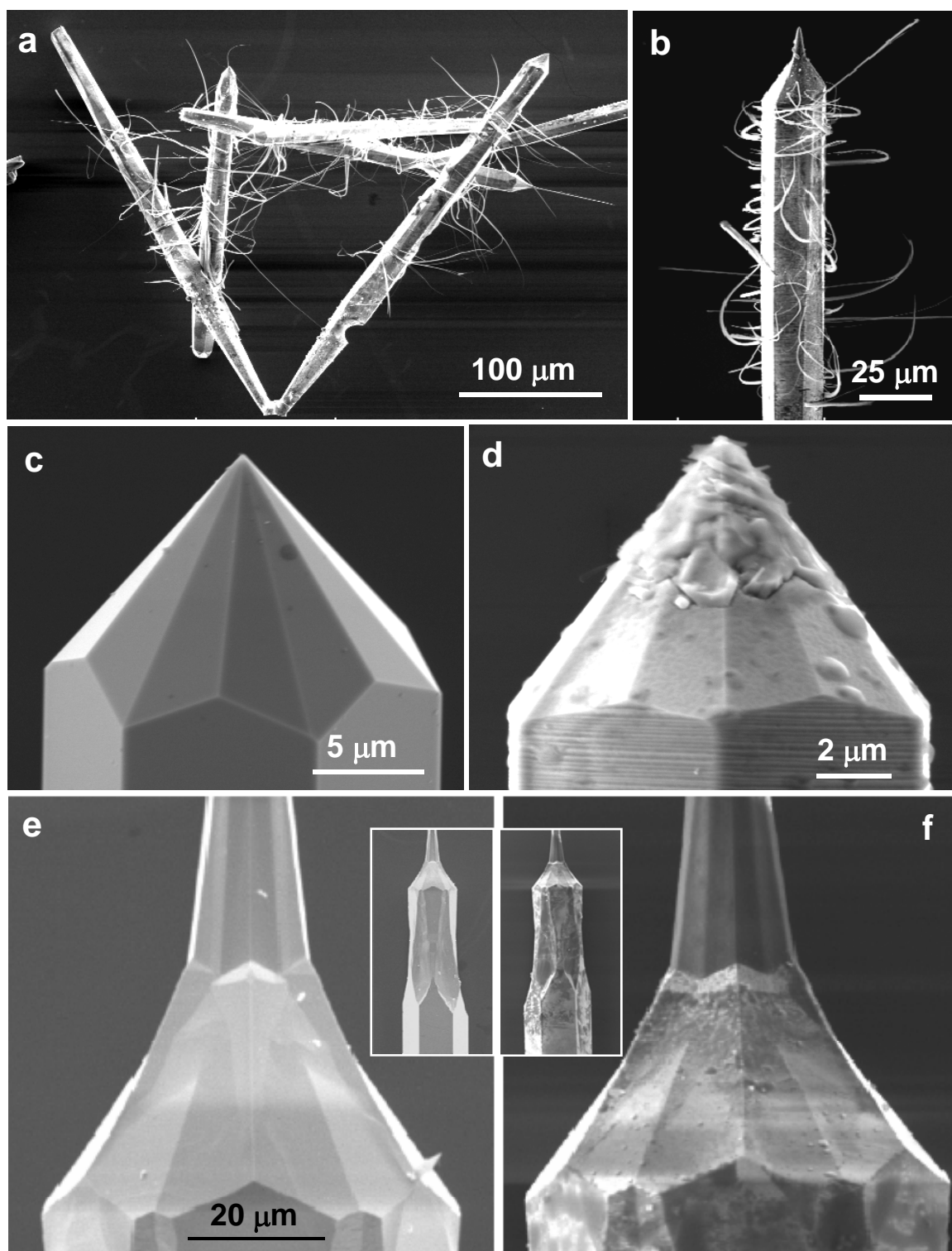
**Figure S2.** SEM images of corroded ZnO combs (a–c) and ribbons (d–f) due to the growth of ZnCO<sub>3</sub> nanorods and nanowires.

## Supporting Information: Figure S3



**Figure S3.** TEM images of corroded ZnO combs due to the growth of ZnCO<sub>3</sub> nanorods and nanowires. (a) Low-magnification image showing a lot of randomly distributed ZnCO<sub>3</sub> nanowires grown from a ZnO comb. (b) Enlarged image showing two destroyed comb teeth. (c) Broken comb teeth. (d) ZnCO<sub>3</sub> nanorods and (e) cubes grown from ZnO comb teeth. (f) A ZnO nanowire surrounded by ZnCO<sub>3</sub> nanorods. (g) ZnCO<sub>3</sub> nanowires and nanorods bridge two adjacent ZnO nanowires. (h) HRTEM image of a deeply etched ZnO nanowire. (i) Formation of ZnCO<sub>3</sub> nanorod on a ZnO nanowire surface.

## Supporting Information: Figure S4



**Figure S4.** SEM images of ZnO whiskers before and after corrosion. The whiskers contain a pyramid sharp tip (radius of curvature <100 nm) and a hexagonal prism. (a and b) Due to the atmospheric corrosion, ZnCO<sub>3</sub> nanowires were grown on the surface of the used to be very clean ZnO whiskers. (c) Tip part of an uncorroded ZnO whisker, showing the clean top and side surfaces. (d) Tip part of a corroded ZnO whisker. ZnCO<sub>3</sub> particles and film were grown on the whisker's pyramid (as well as the body part), destroying the used to be very sharp tip. (e and f) A part of a ZnO whisker before and after the corrosion. The insets are the low-magnification images of the same whisker. By comparing (f) with (e), it is apparent that ZnCO<sub>3</sub> particles and film were formed on the ZnO whisker surface after the corrosion.