

Supporting Information

Synthesis and Structure-Dependent Optical Properties of ZnO Nanocomb and ZnO Nanoflag

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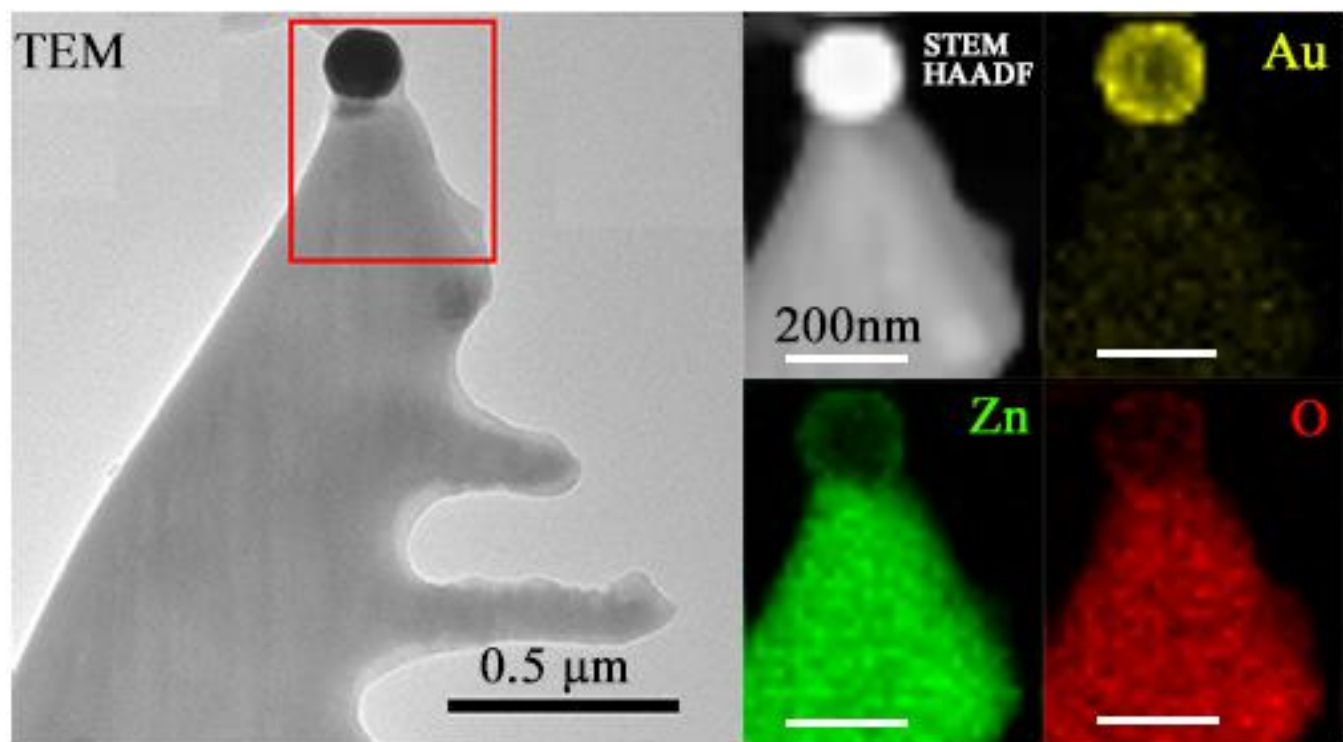


Figure S1. TEM image, HAADF-STEM image and the corresponding elemental (Au, Zn and O) mapping images of ZnO nanocomb, the white scale bar in the Au, Zn, O images are 200nm.

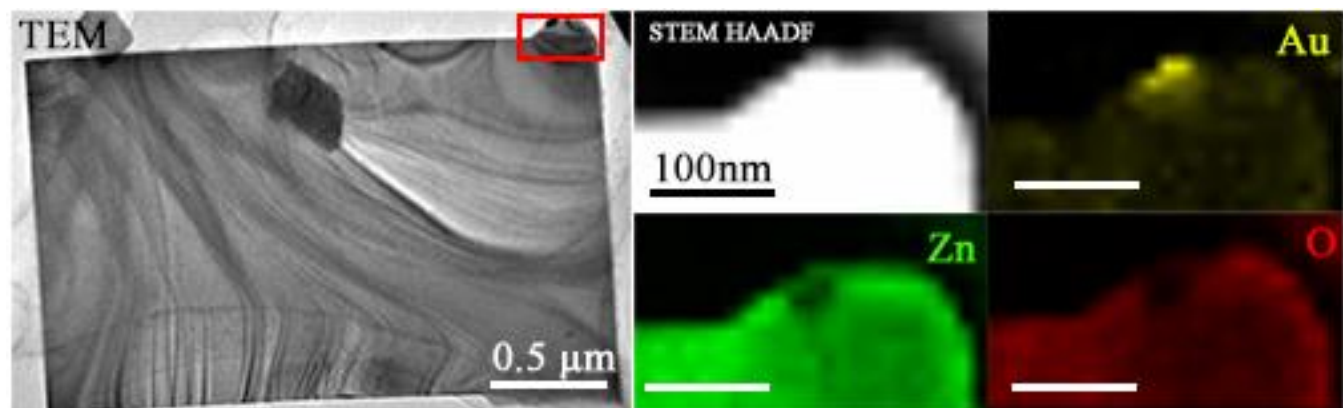


Figure S2. TEM image, HAADF-STEM image and the corresponding elemental (Au, Zn and O) mapping images of ZnO nanoflag, the white scale bar in the Au, Zn, O images are 100nm.

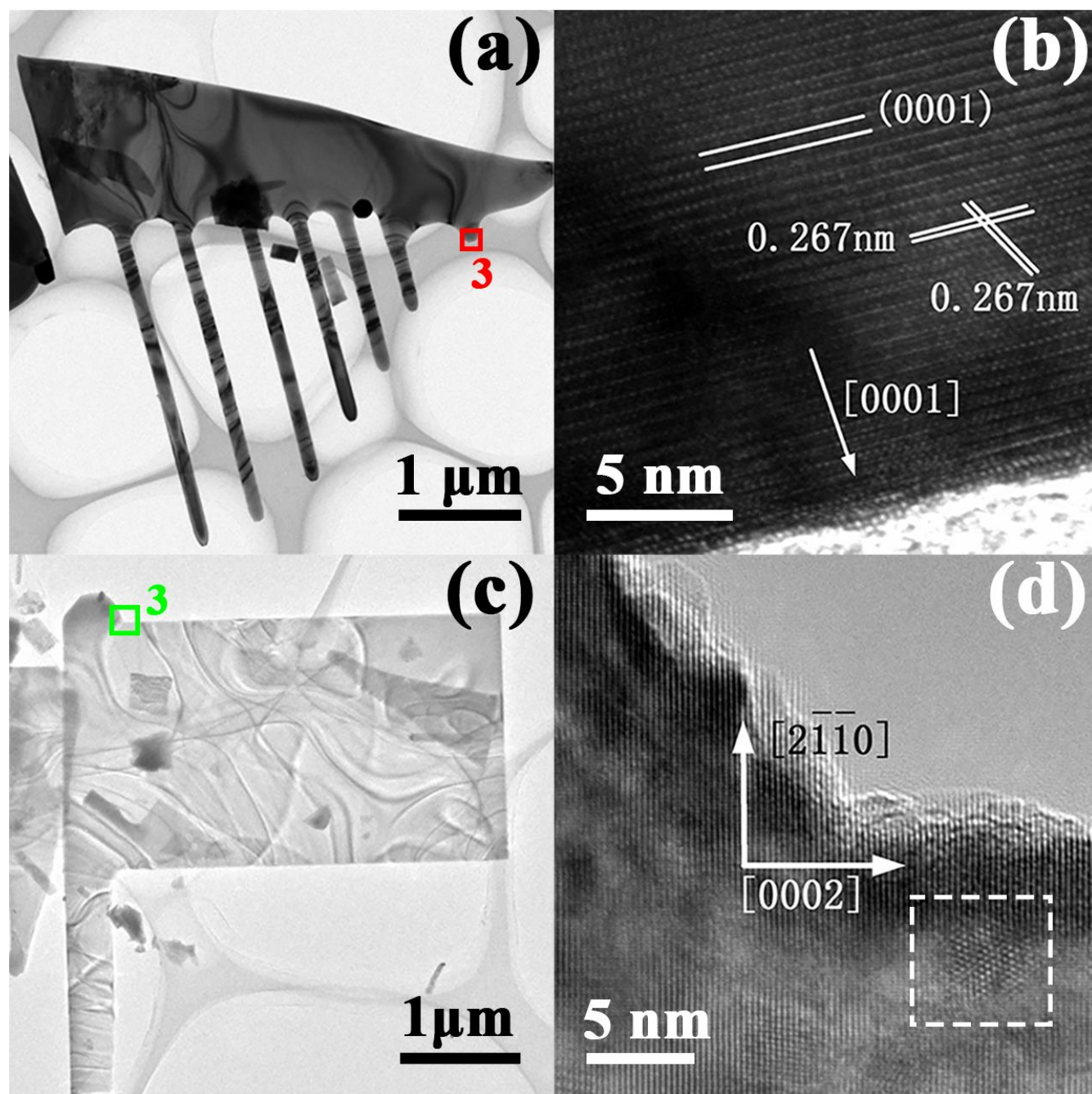


Figure S3. (a, b) TEM image and HRTEM image (from the marked area in red) of ZnO nanocomb; (c, d) TEM image and HRTEM image (from the marked area in green) of ZnO nanoflag.

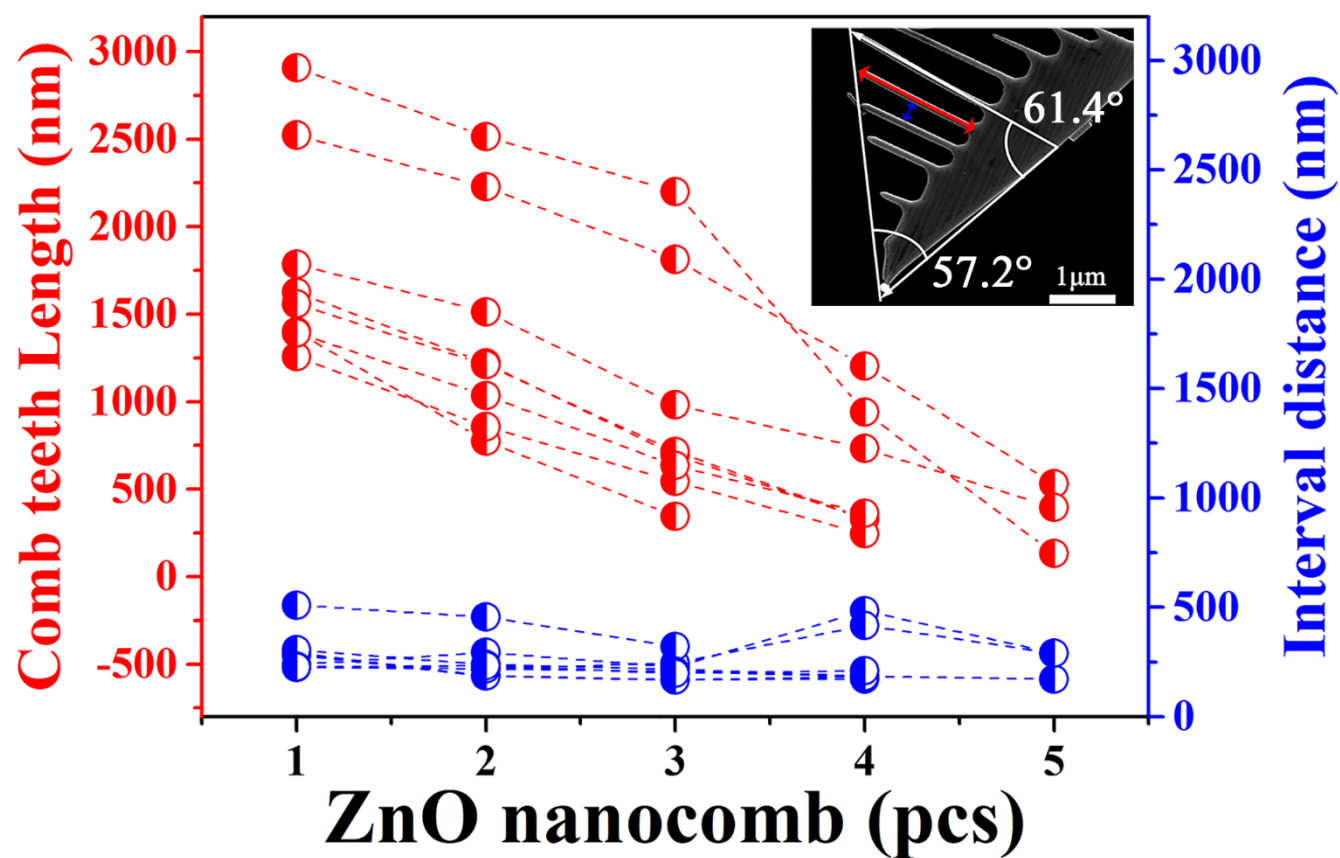


Figure S4. Profiles of the lengths of comb teeth and the intervals between the comb teeth counted from eight nanocombs, inset is the SEM image of single ZnO nanocomb.

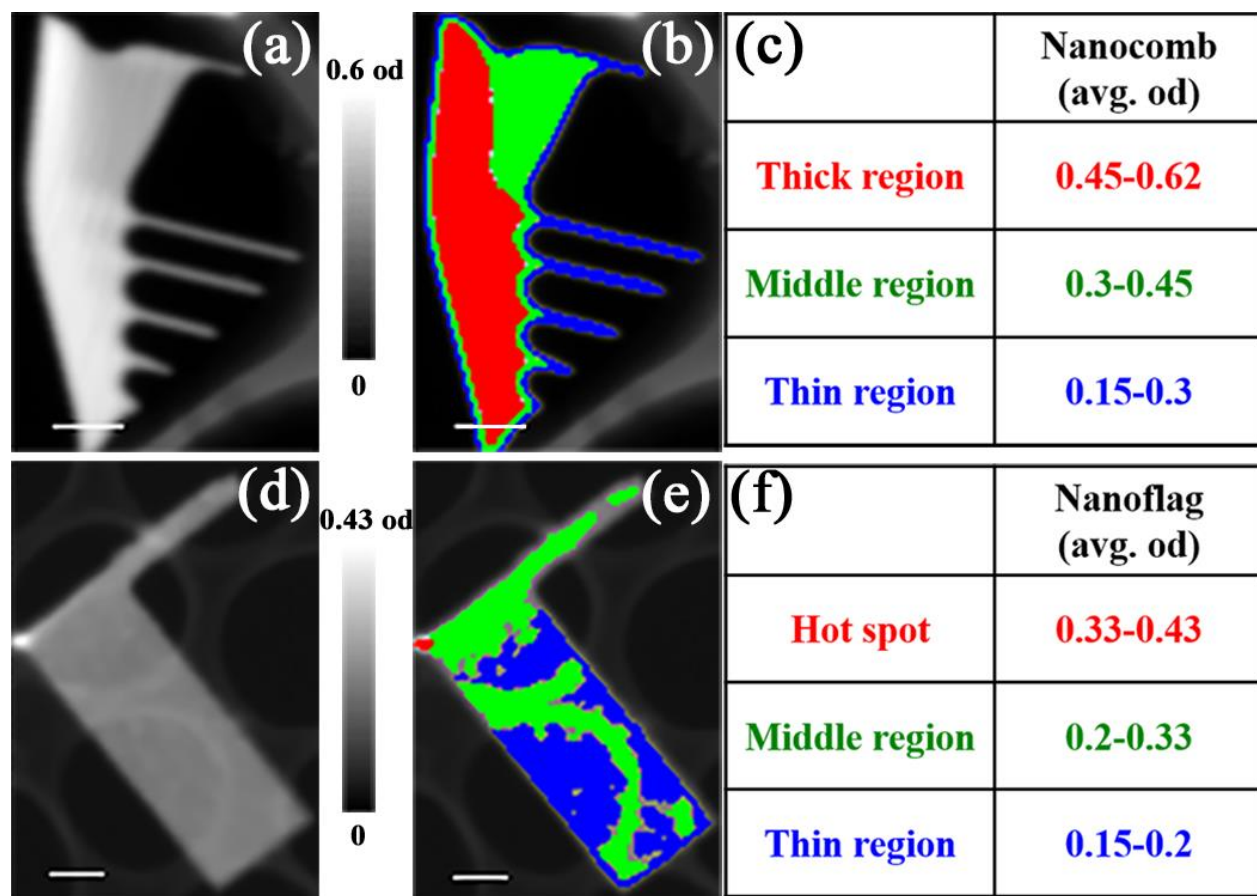


Figure S5. STXM chemical imaging of individual ZnO nanocomb and nanoflag on a holey carbon film coated TEM grid, grey images of average (avg.) thickness maps of ZnO nanocomb (a) and ZnO nanoflag (d), the vertical scales represent the thickness in optical density (od); Color composite maps of different thickness regions (distinguished by red, green and blue) derived from ZnO nanocomb (b) and nanoflag (e), respectively; The detailed thickness values of (b) and (e) were shown in the (c) and (f), respectively. The scale bar shows 500 nm colored in white line at the (a), (b), (c) and (d). The thickness of the ZnO nanocomb and nanoflag were expressed by od, 0.15 od equals to ~53nm estimated with $od = \mu(E) \cdot \rho \cdot t$, where $\mu(E)$ is the mass absorption coefficient at X-ray energy E, ρ is the density and t is the sample thickness, $\rho(\text{ZnO}) = 5.606 \text{ g.cm}^{-3}$, $\mu(\text{Zn L-edge jump}) = 5.057 \times 10^3 \text{ cm}^2.\text{g}^{-1}$ (E=1031.19 eV) which originated from <http://physics.nist.gov/PhysRefData/XrayMassCoef/ElemTab/z30.html>.