

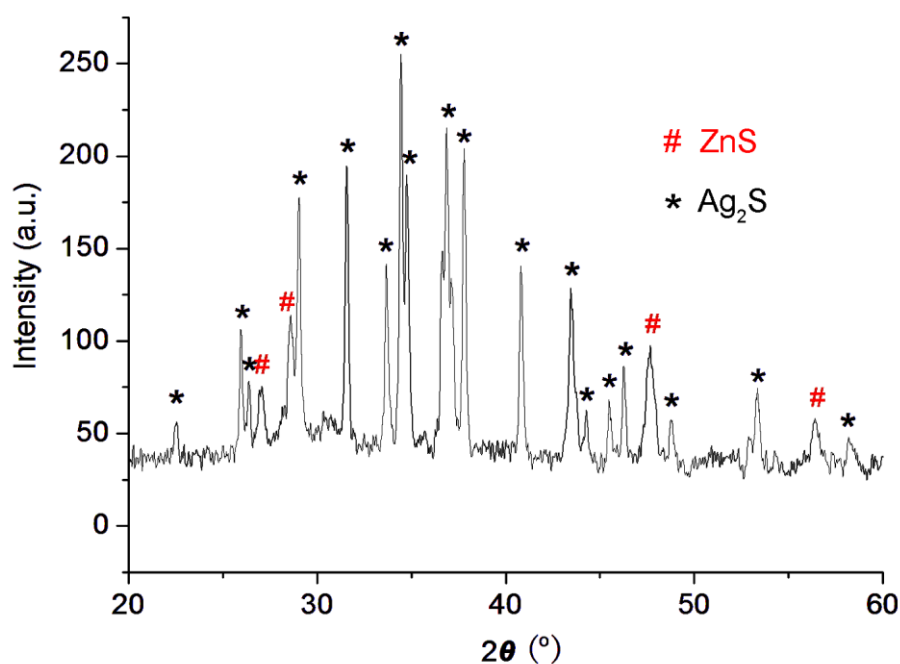
## Electronic Supplementary Information (ESI)

### The competition between template growth and catalytic growth of one-dimensional ZnS nanostructures: nanobelts or nanowires

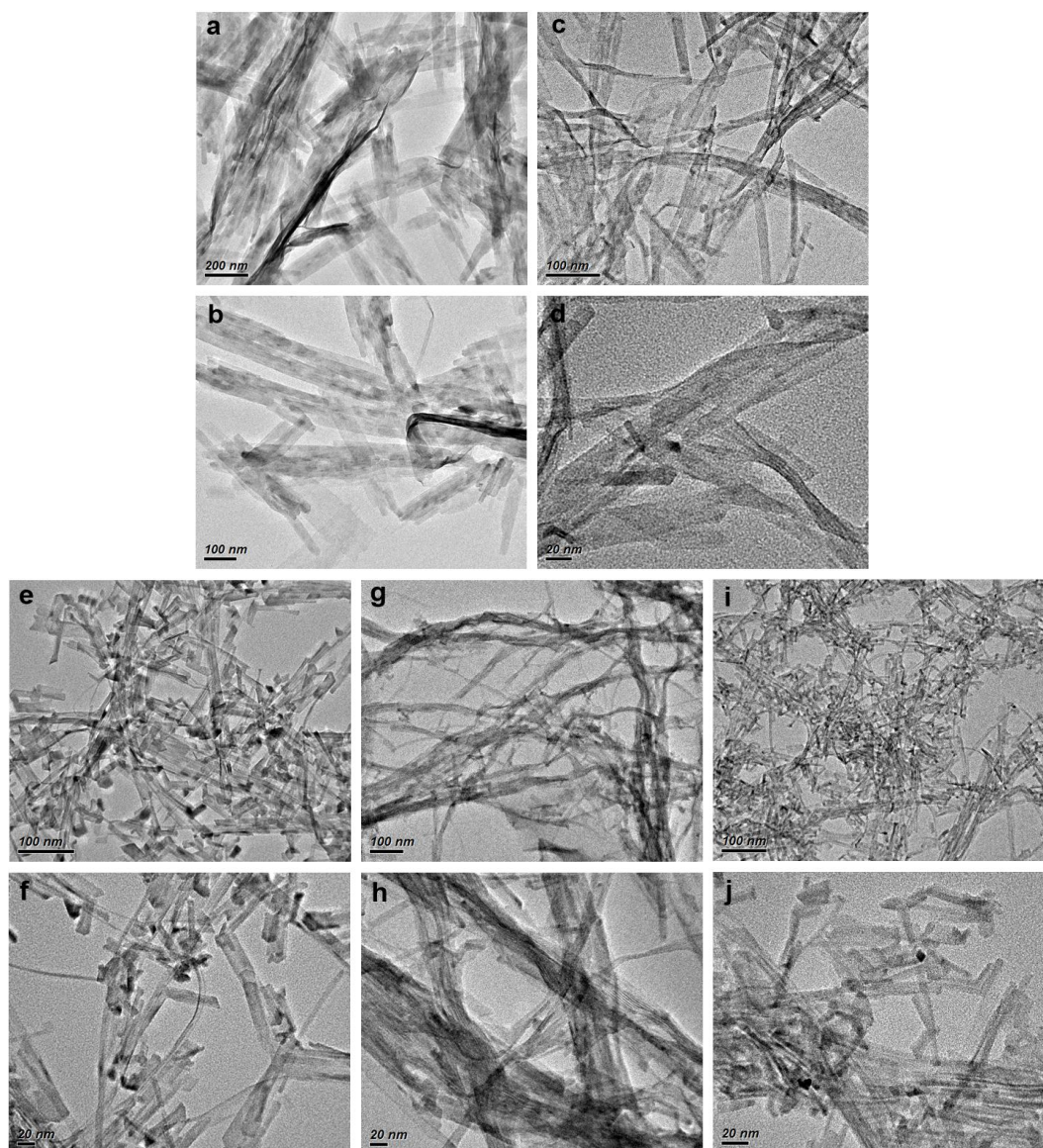
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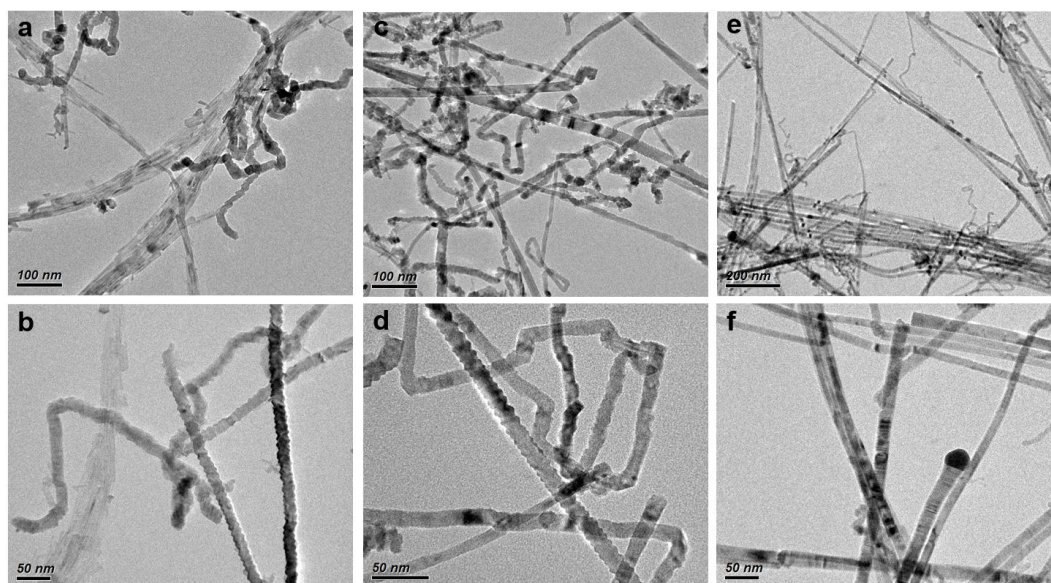
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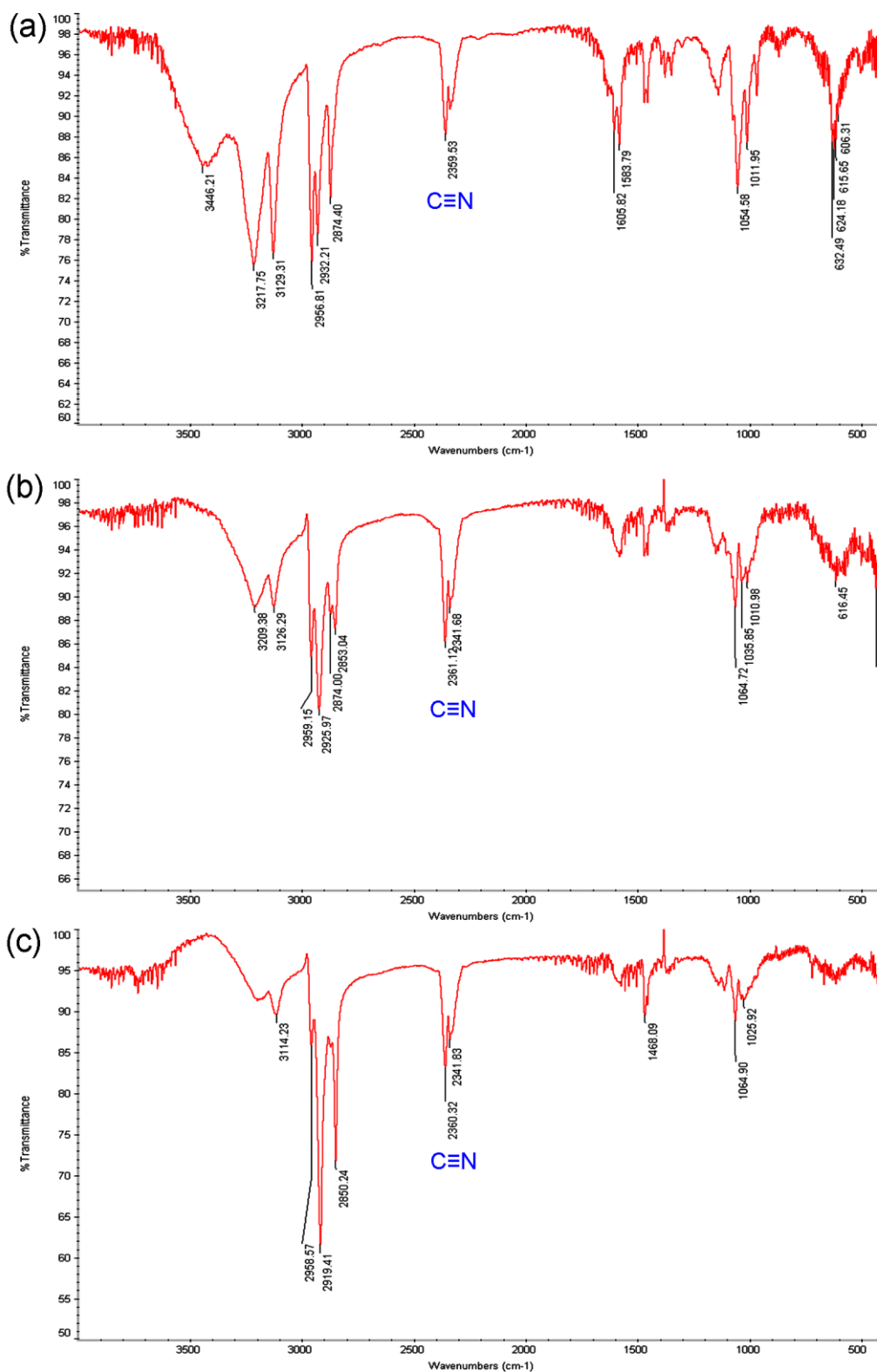
**Fig. S1** XRD pattern of the ZnS sample synthesized with an Ag/Zn molar ratio of 1:1 at 180 °C for 3 h. All the peaks can be assigned to hexagonal wurtzite ZnS (JCPDS No. 36–1450) and orthogonal Ag<sub>2</sub>S (JCPDS No. 89–3840).



**Fig. S2** TEM images of ZnS nanobelts prepared before adding  $\text{AgNO}_3$  in various primary alkylamines: (a,b) propylamine, (c,d) butylamine, (e,f) hexylamine, (g,h) octylamine, and (i,j) dodecylamine.



**Fig. S3** TEM images of the ZnS products prepared after adding  $\text{AgNO}_3$  in various primary alkylamines: (a,b) hexylamine, (c,d) octylamine, and (e,f) dodecylamine.



**Fig. S4** FTIR spectra recorded on ZnS nanobelts synthesized after adding AgNO<sub>3</sub> in various alkyl amines: (a) propylamine, (b) hexylamine, and (c) dodecylamine.