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Supporting Information

In-Situ Scanning Electron Microscopy Observation of Growth Kinetics and Catalyst Splitting in Vapor-Liquid-Solid Growth of Nanowires

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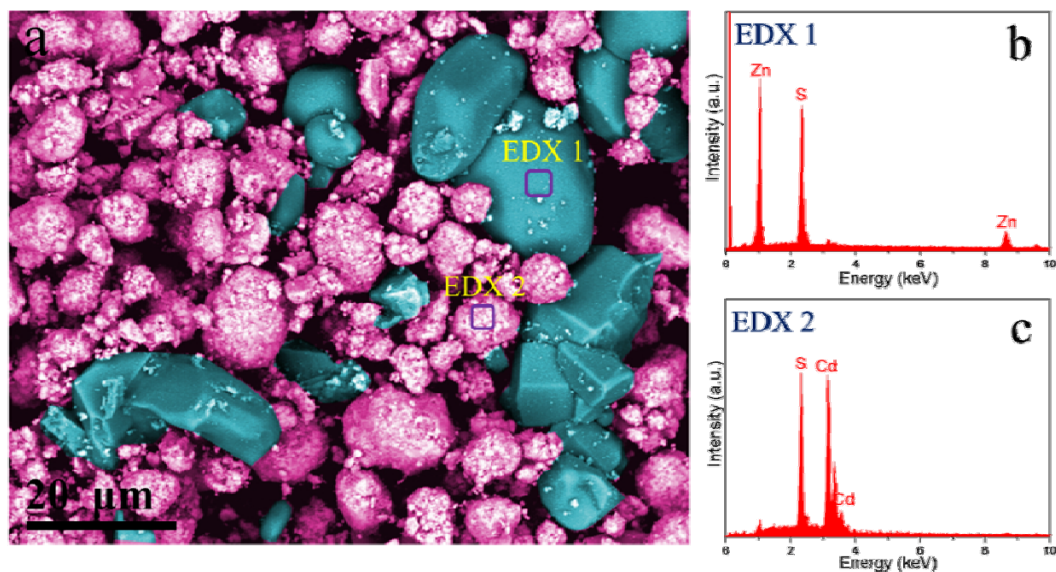


Figure S1. (a) BSE image of the powder mixture; (b, c) EDX spectra recorded from the ZnS and CdS particles, respectively.

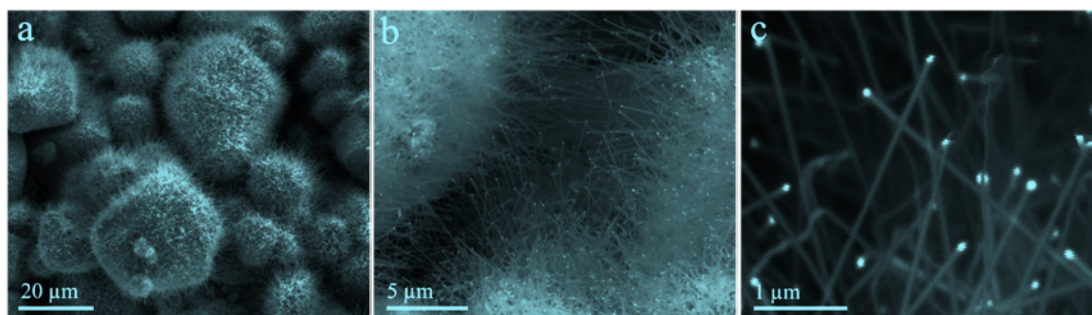


Figure S2. (a) low magnification SEM image of as grown nanowires; (b) Low magnification BSE and (c) high magnification BSE images of nanowires.

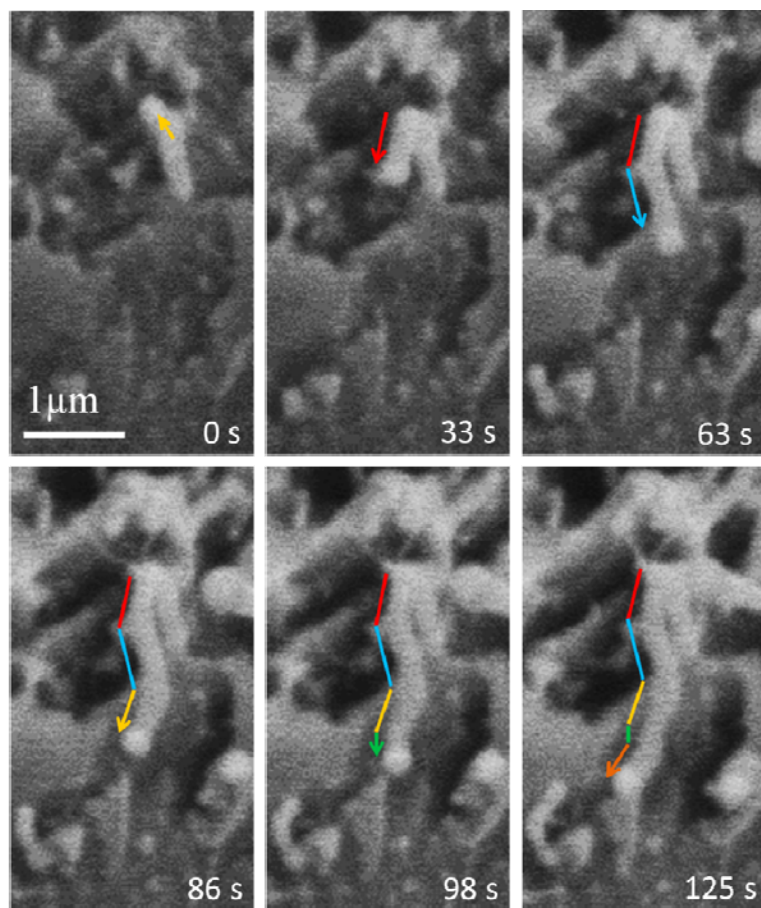


Figure S3. A series of *in-situ* SEM images, showing occurrences of random kinking during growth.

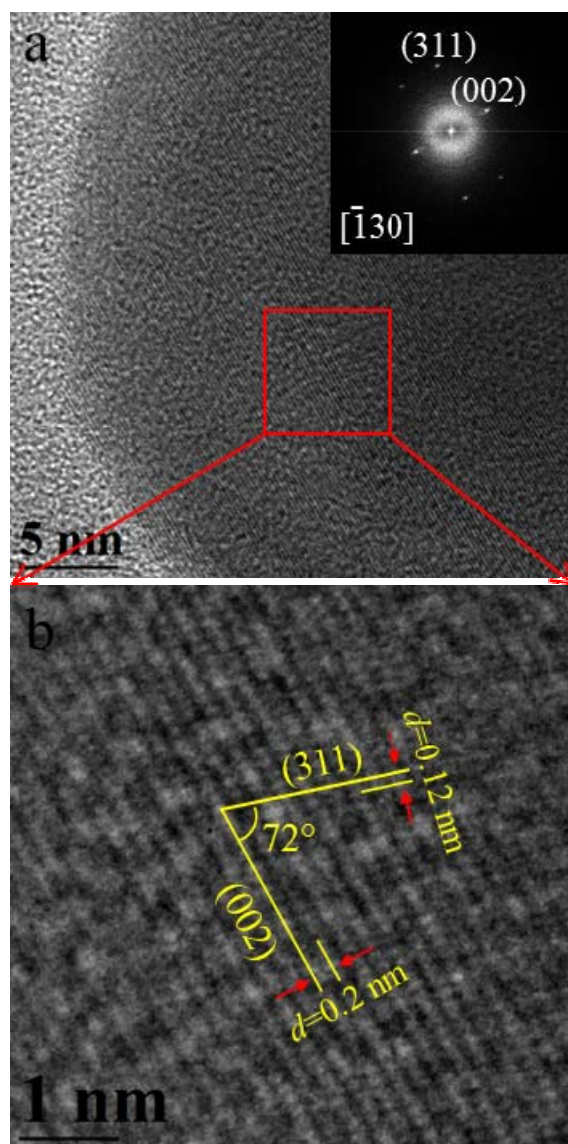


Figure S4. (a) HRTEM image and corresponding FFT of the silver nanoparticle on the tip of ZnS nanowire; (b) Enlarged HRTEM image from the marked region in Figure S4a.

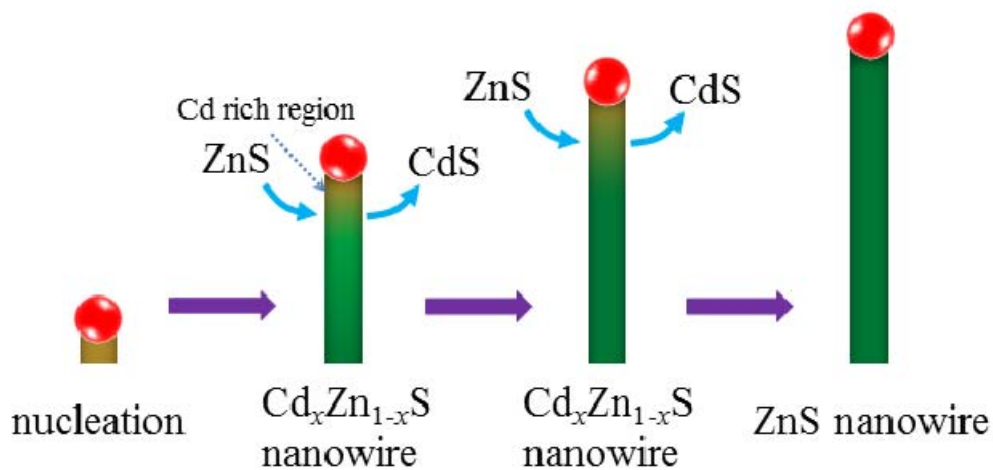


Figure S5. Schematic illustration of cation exchange reaction of Zn^{2+} for Cd^{2+} during the nanowire growth.

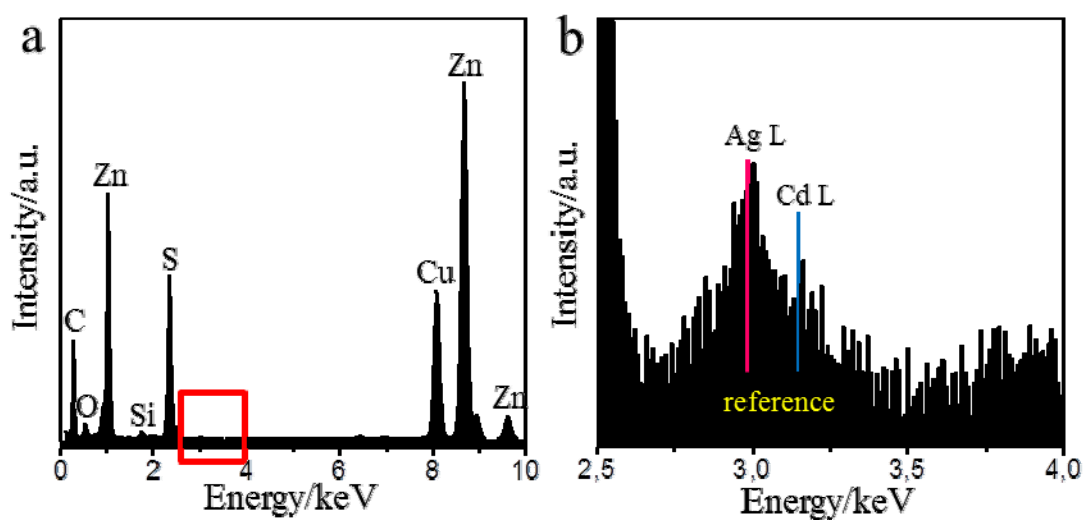


Figure S6. (a) EDX spectrum from the ZnS nanowire shown in Figure 4f; (b) Enlarged portion of EDX spectrum in the range of 2.5-4 keV.

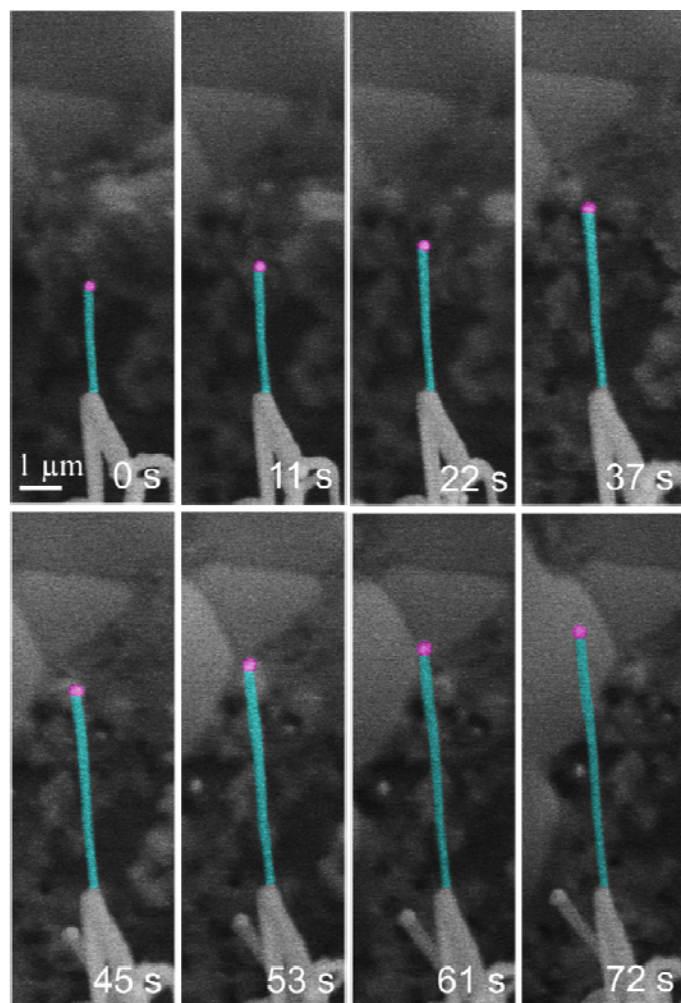


Figure S7. A series of SEM images recorded from a duration of 72 s, showing the growth of a nanowire before catalyst splitting.

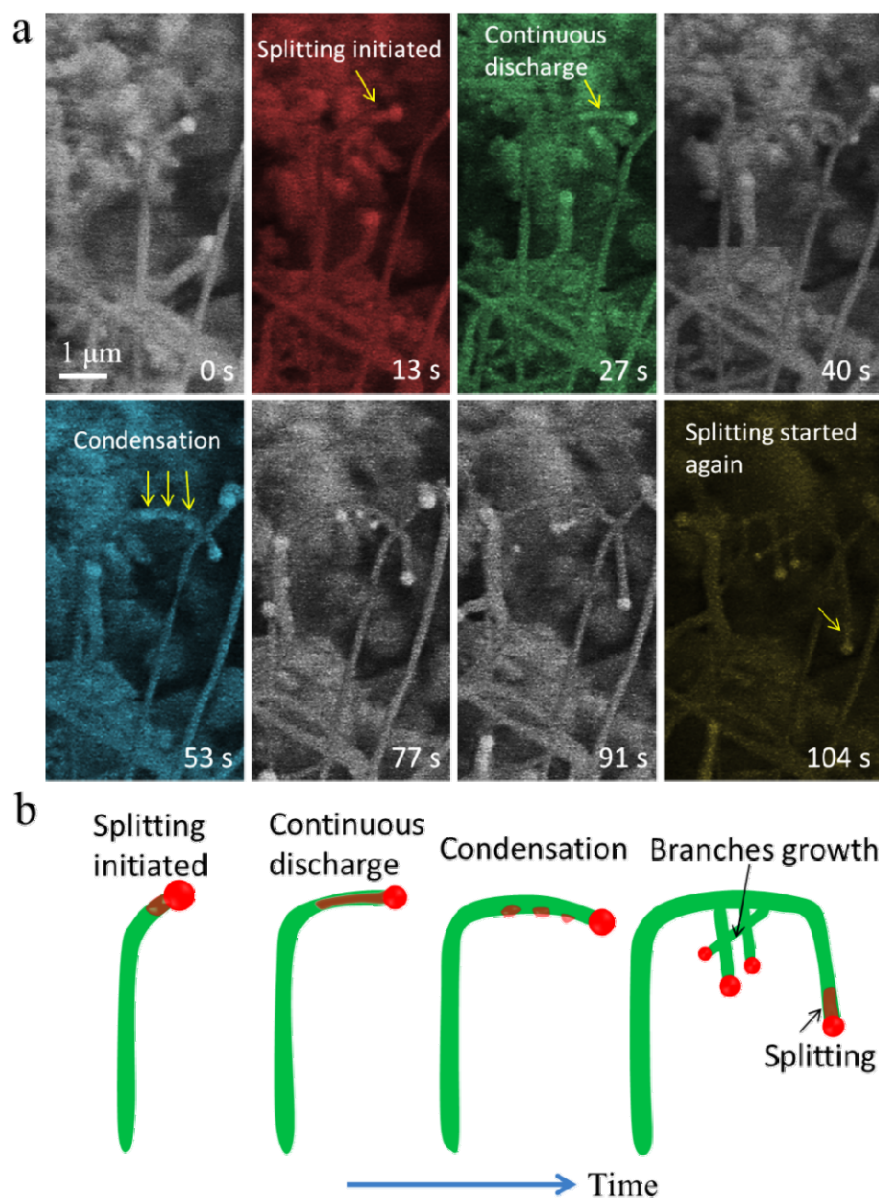


Figure S8. (a) A sequence of SEM images showing a continuous discharge of catalyst droplet during nanowire growth and (b) Schematic model corresponding to Figure S8a.