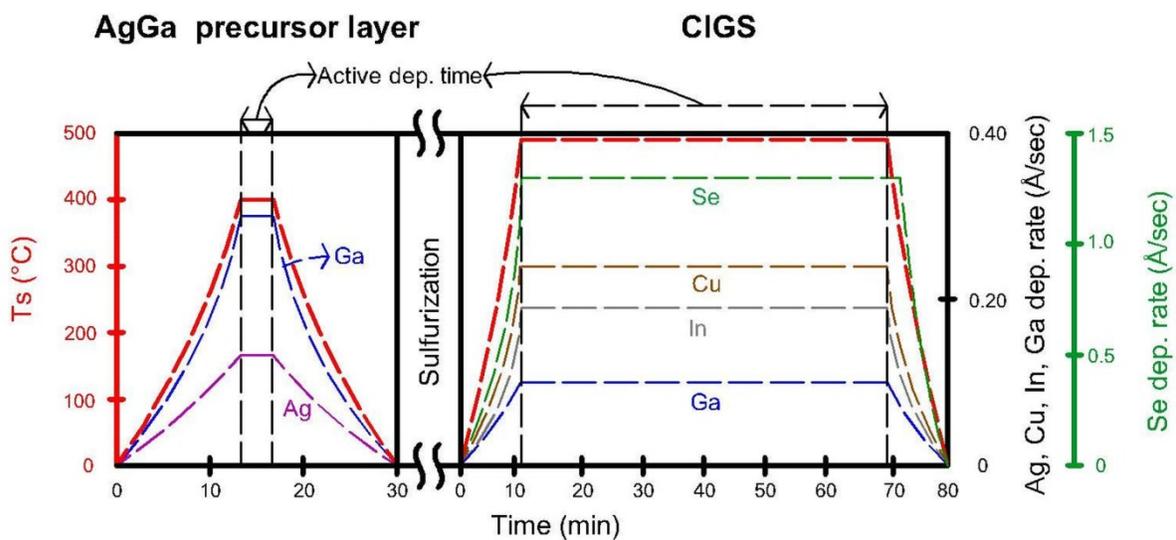


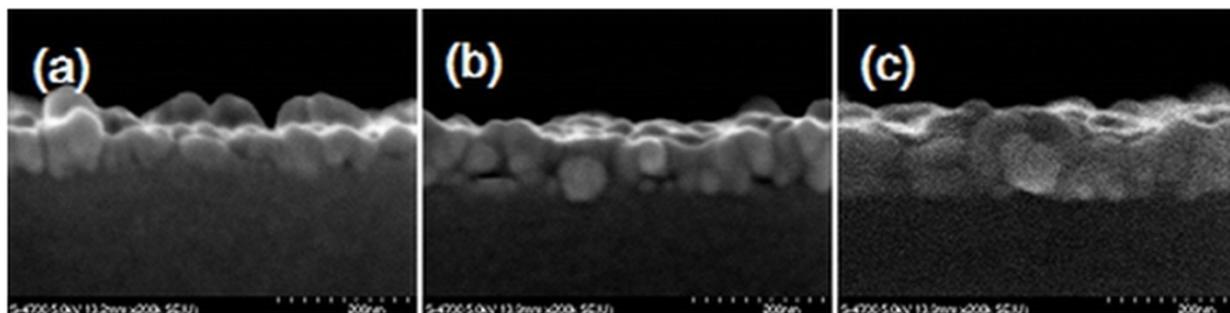
1 Supporting information



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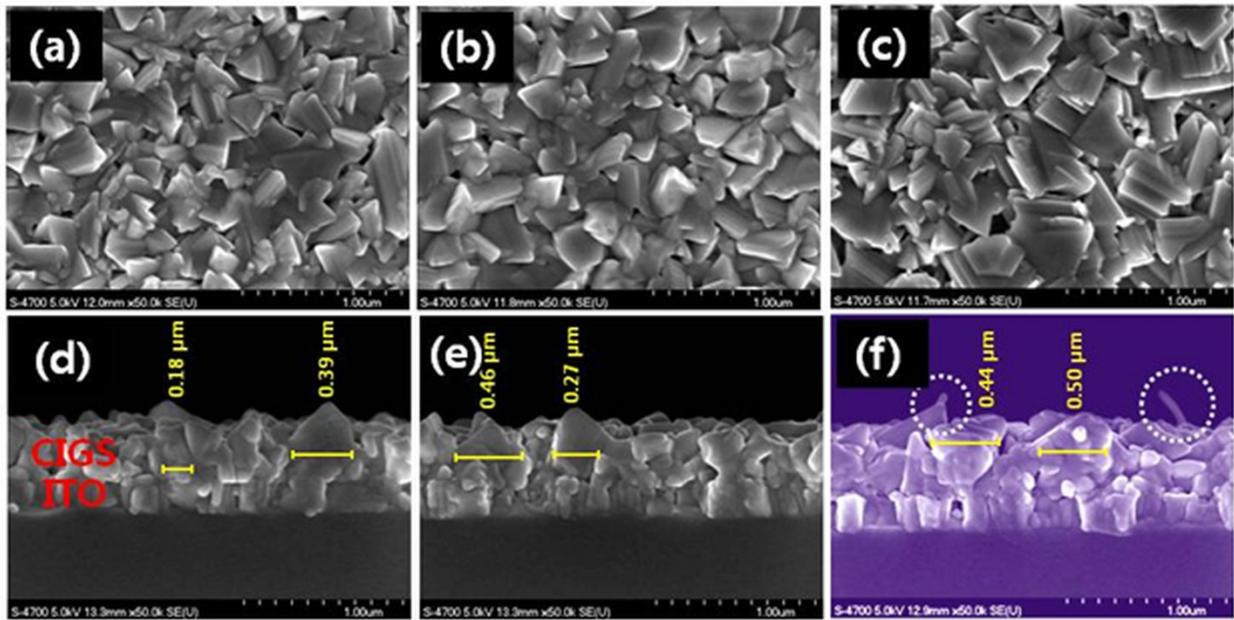
3 Figure S 1: Ts profile and elemental fluxes during the deposition (dep.) of AGS and CIGS
4 thin-films.

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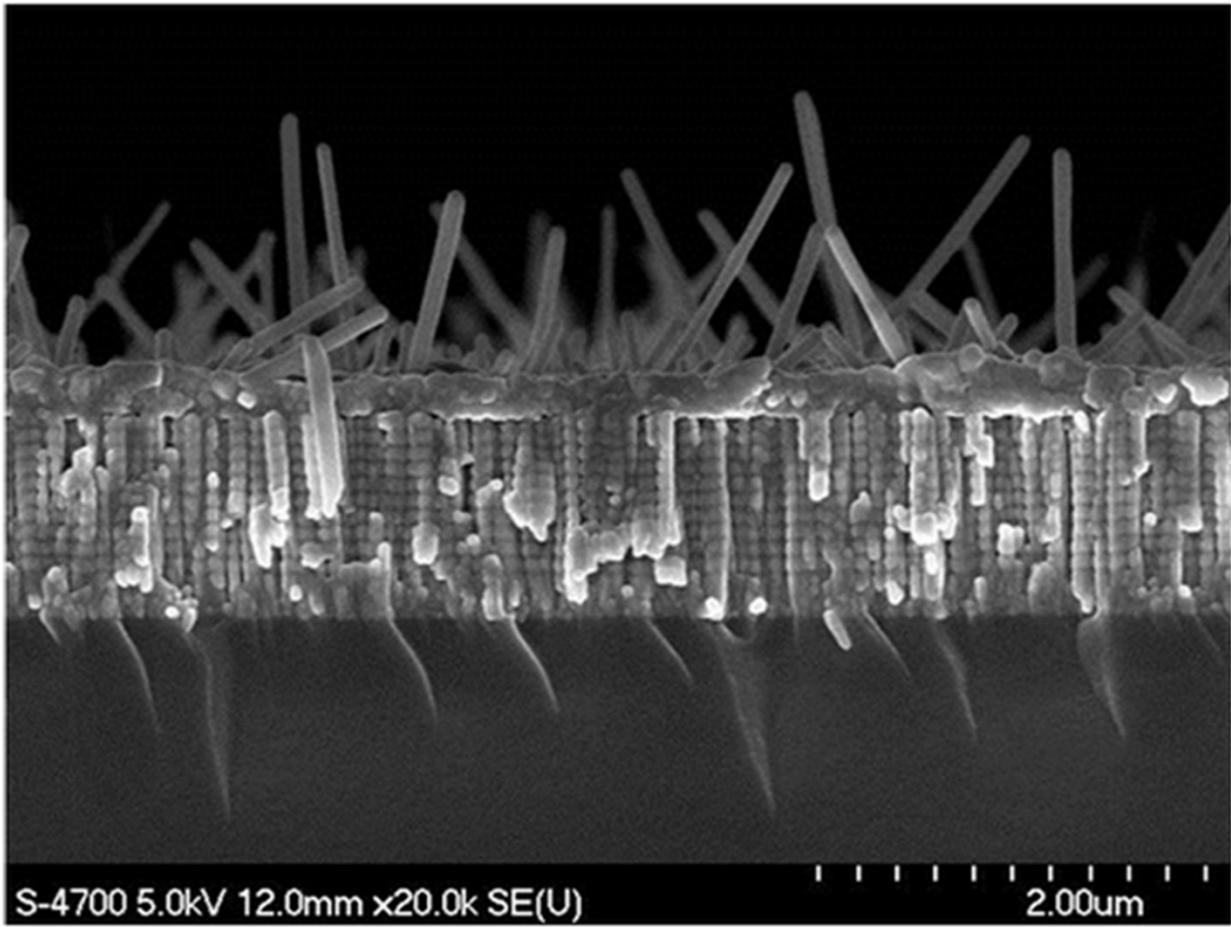
6

7 Figure S 2: SEM cross-sections for (a) 45 nm, (b) 90 nm, and (c) 135 nm thick AGS layer on
8 SLG. (Given scale in the right lower corner of each image is 200 nm.)



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10 Figure S 3: SEM surface and cross-sectional image for (a,d) 380 nm CIGS with 45 nm AGS
 11 layer, (b,e)380 nm CIGS with 90 nm AGS layer, and (c,f) 380 nm CIGS with 135 nm AGS layer.

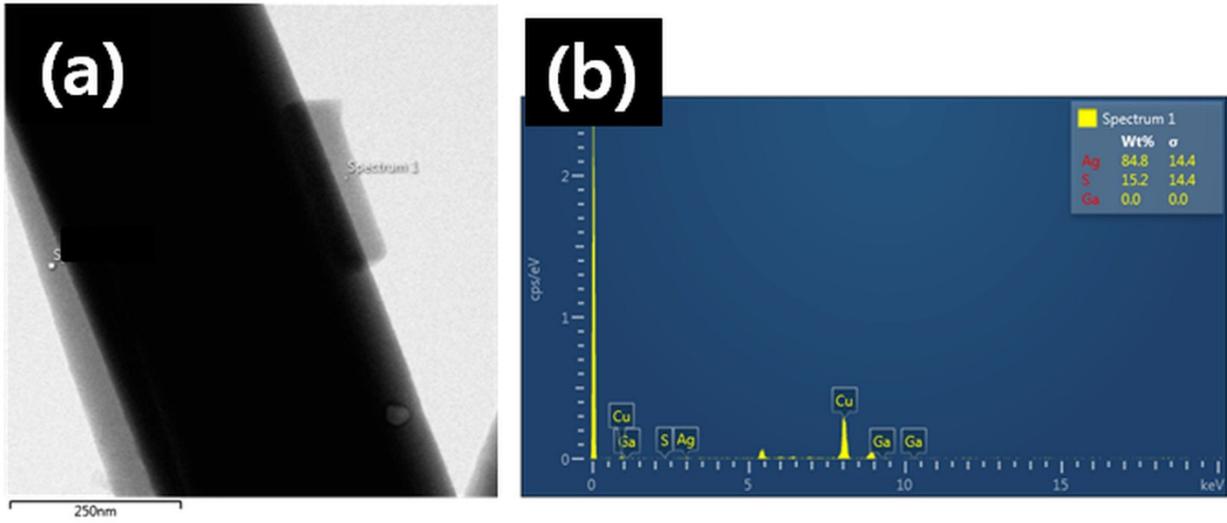


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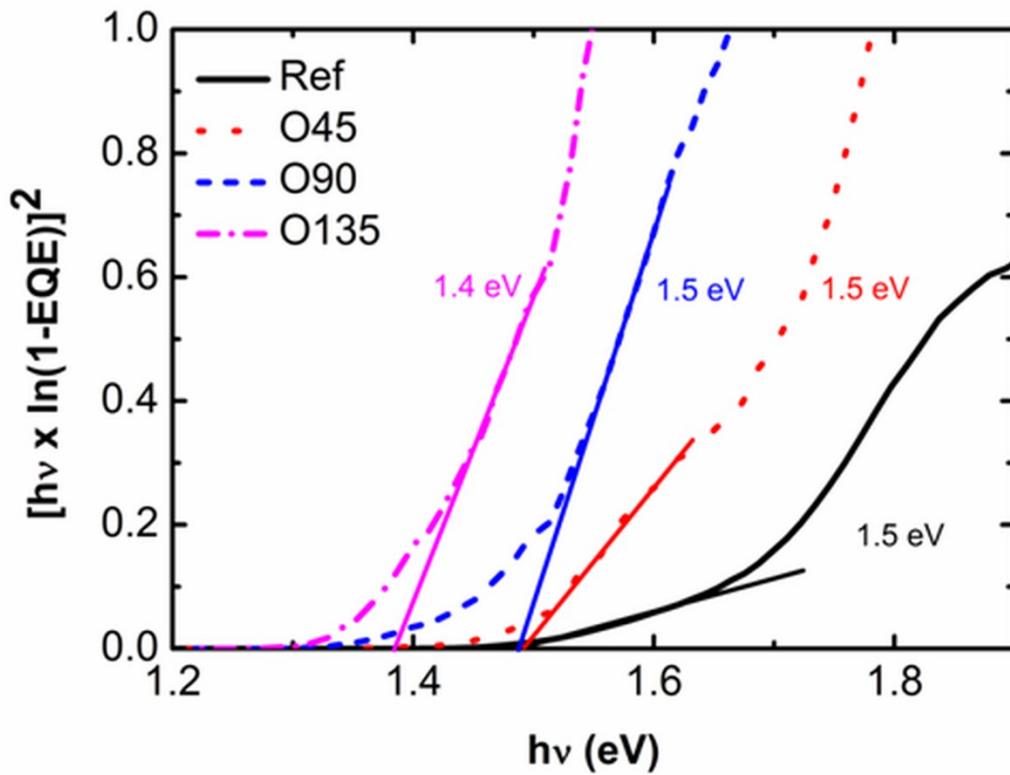
14

Figure S 4: Nanowires growth on the surface of thick AgGa precursor layer upon sulfurization.



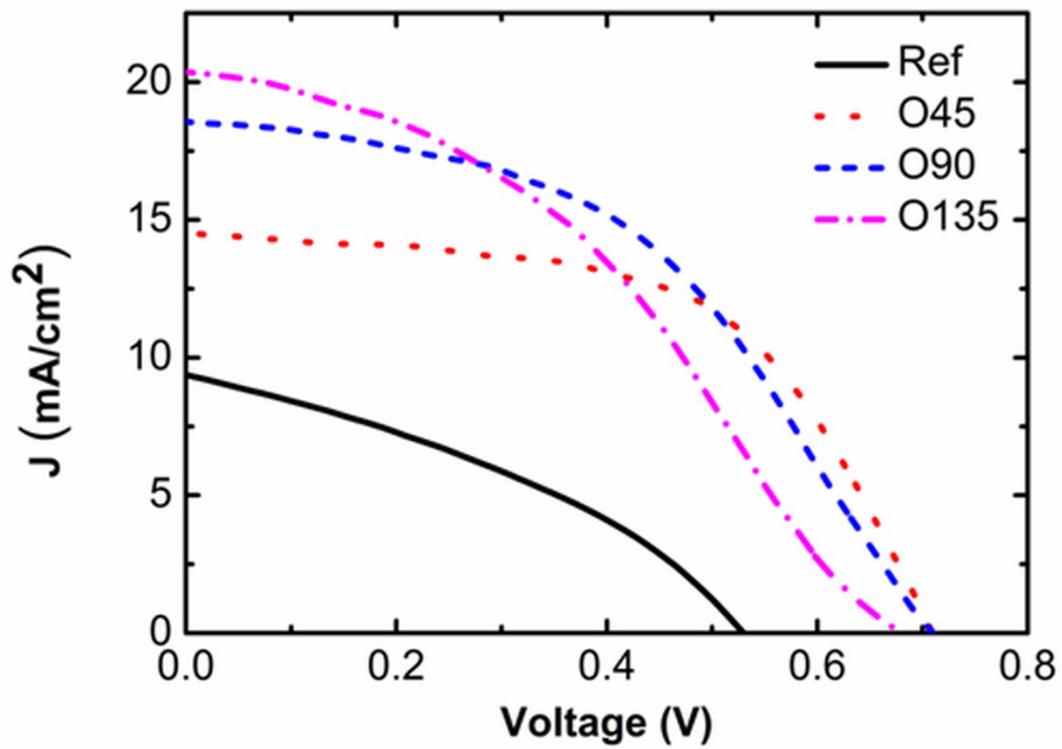
15

16 Figure S 5: (a) TEM image and (b) EDS spectrum of a nanowire attached to Cu mesh wire.



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18 Figure S 6: $h\nu$ versus $[h\nu \times \ln(1-EQE)]^2$ plot for Ref and modified CIGS solar cell.



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Figure S 7: JV curves for Ref and modified CIGS under standard AM1.5 illumination.

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