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Supporting Information

Cationic –exchange approach for conversion of two dimensional CdS to two dimensional Ag₂S nanowires with intermediate core-shell nanostructure towards supercapacitor application

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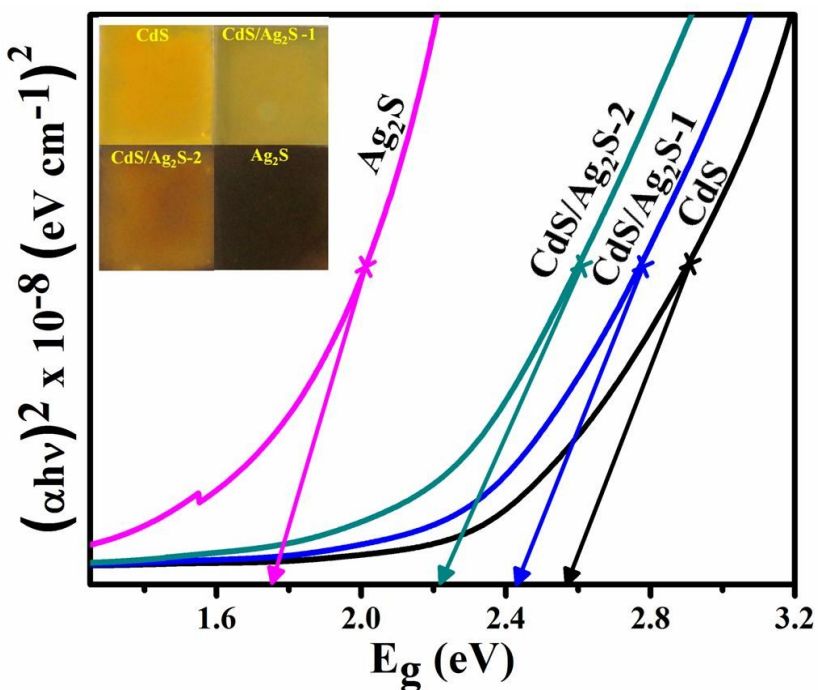


Figure S1 Plot of $(\alpha h\nu)^2$ vs. photon energy $h\nu$ of CdS, CdS/Ag₂S-1, CdS/Ag₂S-2 and Ag₂S

Figure S1 shows the band gap (E_g) of CdS, CdS/Ag₂S-1, CdS/Ag₂S-2 and Ag₂S samples. The value of E_g was obtained by extrapolating the straight portion of the line towards the X-axis. The E_g for CdS is reported to be 2.42 eV while for Ag₂S is ~ 1.7 eV [1-3]. In our case E_g seems to drift from 2.57 eV for CdS to 1.74 eV for Ag₂S, which implies that the NWs behave within quantum confined regime and it is a slow process [4].

References:

- [1] A. I. Kryukov, A. L. Stroyuk, N. N. Zin'chuk, A. V. Korzhak and S. Ya. Kuchmii, J. *Mol.Catal A: Chem.*, 2004, **221**, 209–221.
- [2] B. R. Sankapal, R.S. Mane and C.D. Lokhande, *Mater. Chem. Phys.*, 2000, **63**, 226±229.
- [3] L. Dloczik and R.Koenenkamp, *J. Solid State Eletrochem*, 2004, **8**, 142–146.
- [4] L. Lin, Y. Wen, Y. Liang, N. Zhang and D. Xiao, *Anal. Methods*, 2013, **5**, 457-464.