

Electronic Supplementary Information (ESI)

Hybrid A-B-A Type Nanowires through Cation Exchange

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Supporting information 1

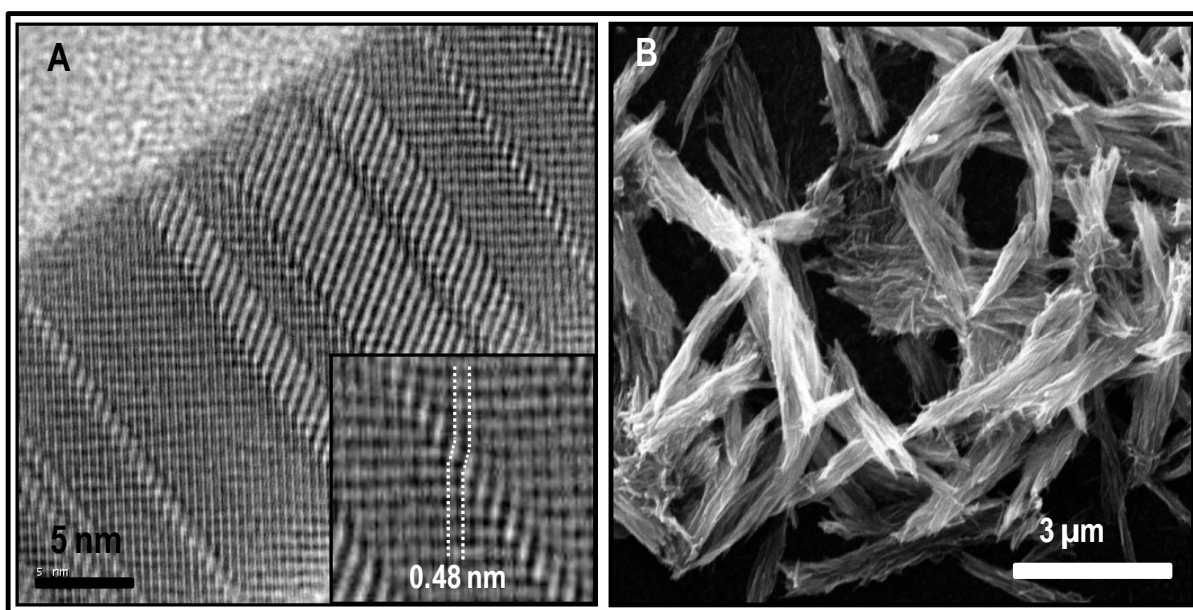


Fig. S1 (A) HRTEM, and (B) large area SEM image of Hg²⁺-reacted Ag₂Te NWs. Inset of A (stacking fault is marked) shows an expanded view of the stacking faults.

Supporting information 2

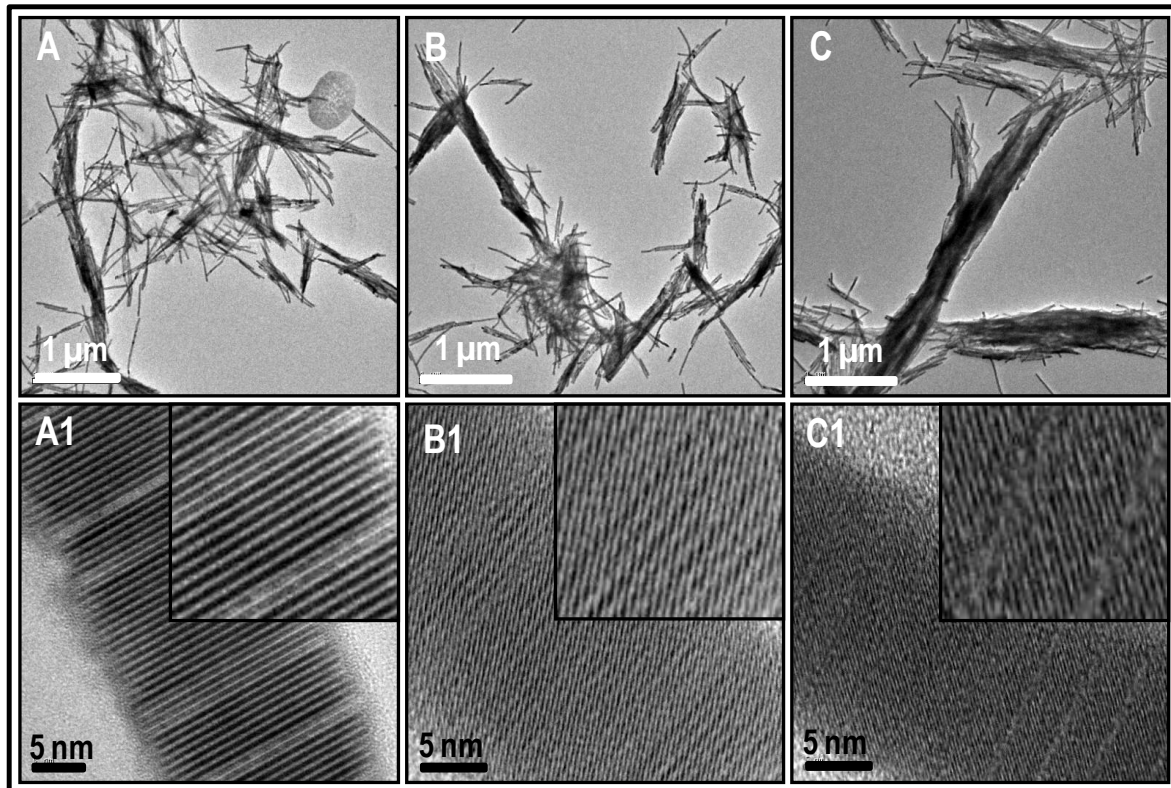


Fig. S2 Large area TEM and HRTEM images of Ag₂Te NWs reacted Pb²⁺ (A) and (A1), Cd²⁺ (B) and (B1), and Zn²⁺ (C) and (C1). Insets show the expanded views of the respective images. No stacking faults are seen.

Supporting information 3

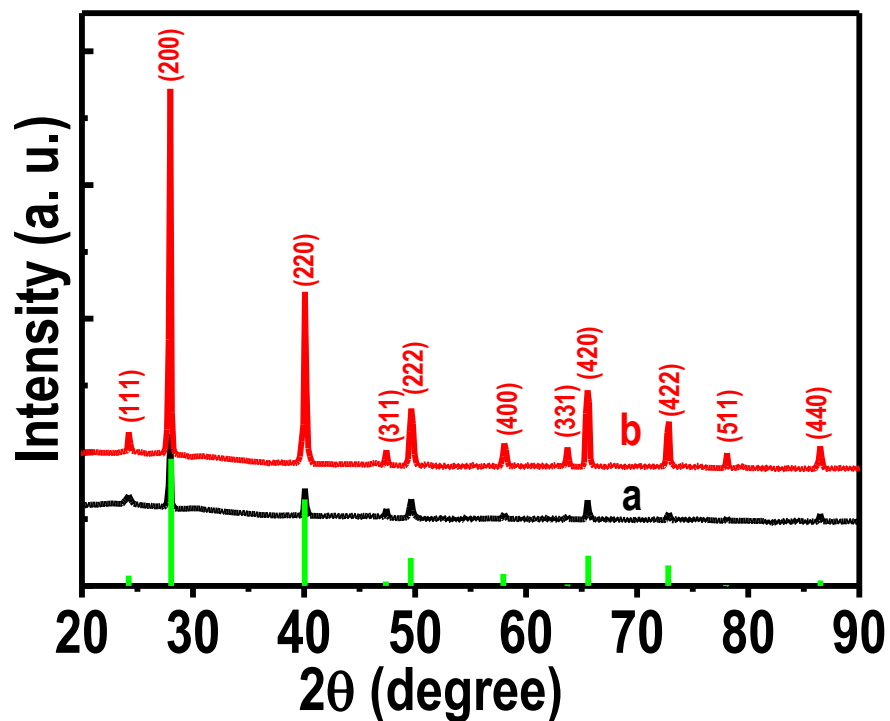


Fig. S3 XRD patterns of Hg^{2+} -reacted Ag_2Te NWs at different concentrations, (a) 100 and (b) 1000 ppm.

Standard peaks of HgTe (JCPDS: 75-2084) is given as stick spectrum.

Supporting information 4

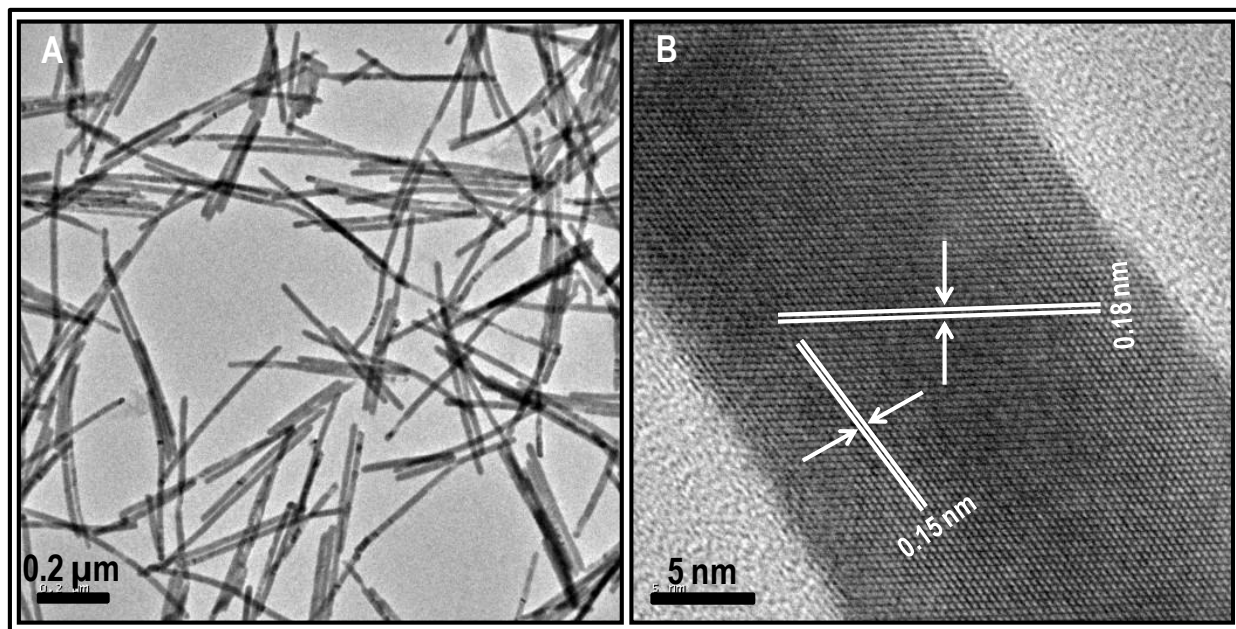


Fig. S4 (A) Large area TEM, and (B) HRTEM image of the body of a single NW of Hg^{2+} (1000 ppm) reacted Ag_2Te NWs.

Supporting information 5

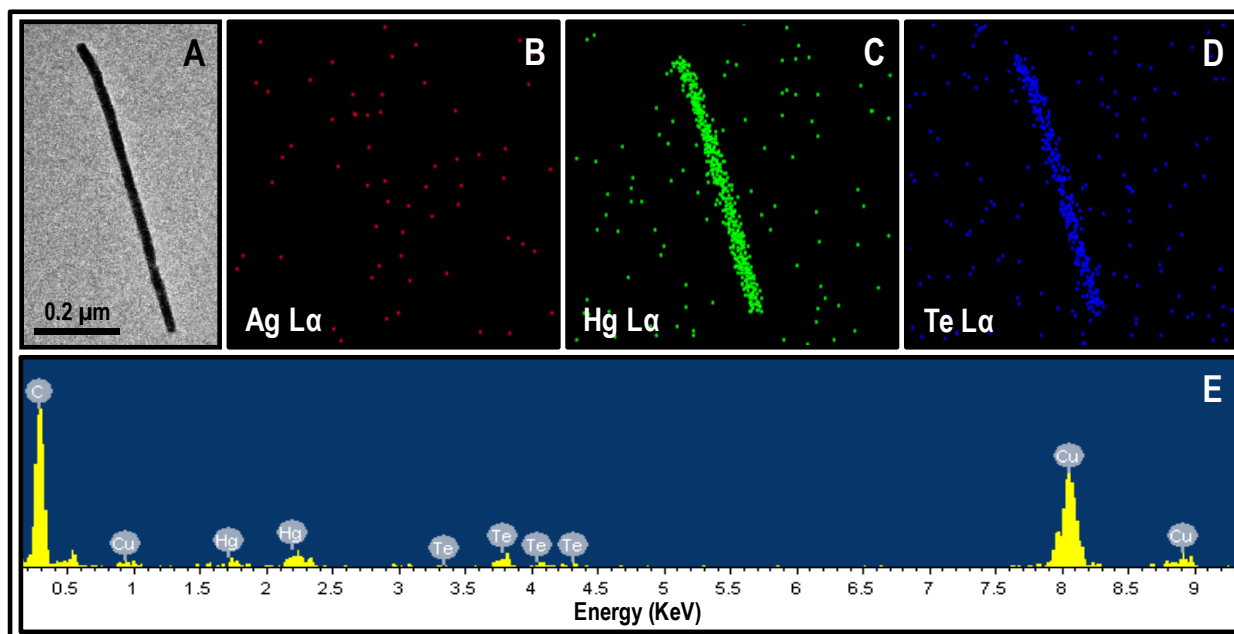


Fig. S5 TEM image used for the elemental mapping (A), elemental mapping of Ag (B), Hg (C) and Te (D), and EDAX spectrum (E) of Hg²⁺ (1000 ppm) reacted Ag₂Te NWs. Cu is from the substrate used for the measurement.

Supporting information 6

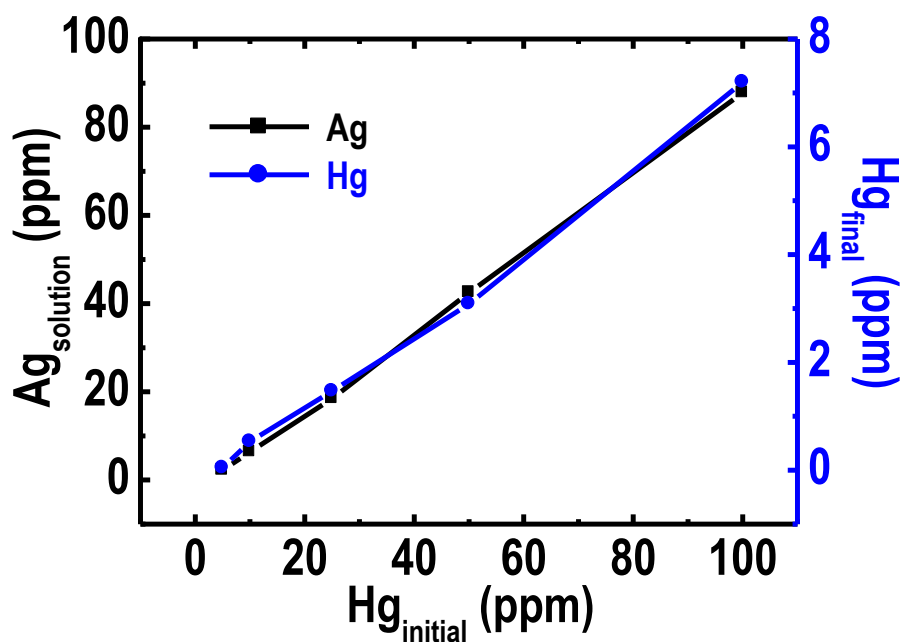


Fig. S6 The plot shows the concentrations of Ag⁺ and Hg²⁺ in the supernatant against Hg²⁺ used.

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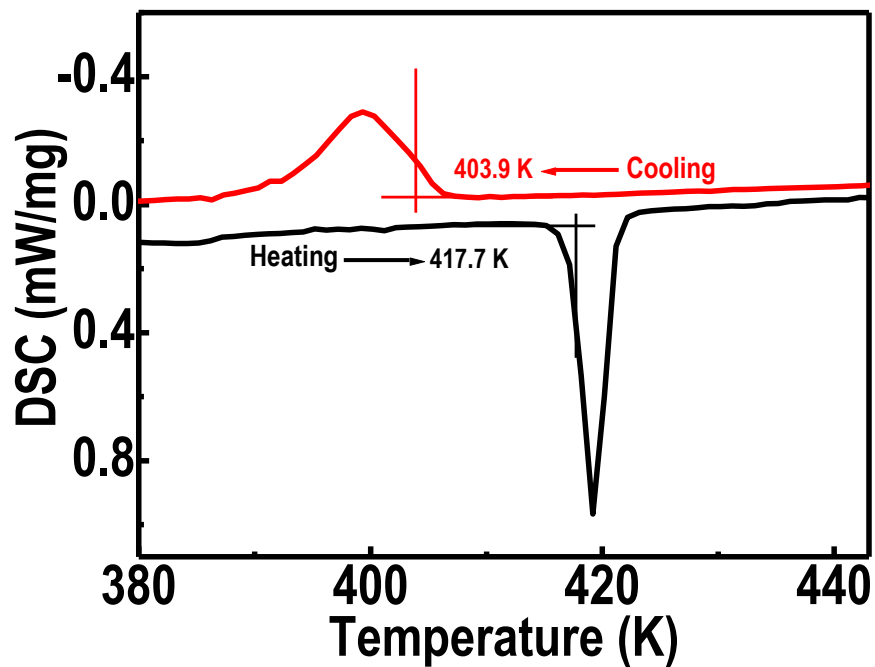


Fig. S7 DSC traces of Ag₂Te NWs.

Supporting information 8

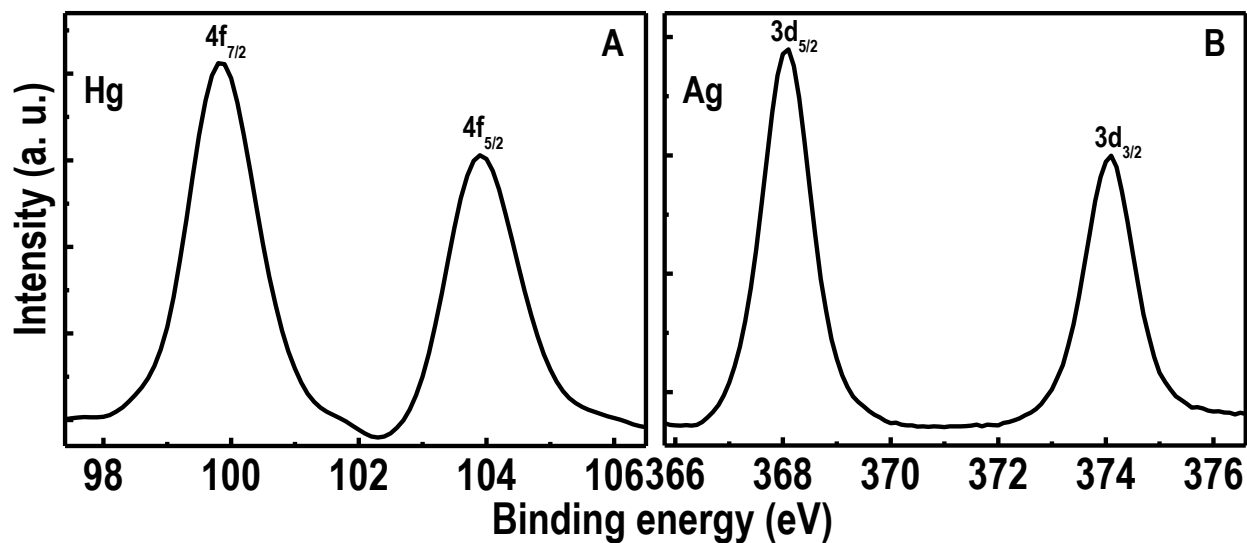


Fig. S8 Expanded XPS spectra in the Hg 4f (A) and Ag 3d (B) regions of Hg²⁺-reacted Ag₂Te NWs.

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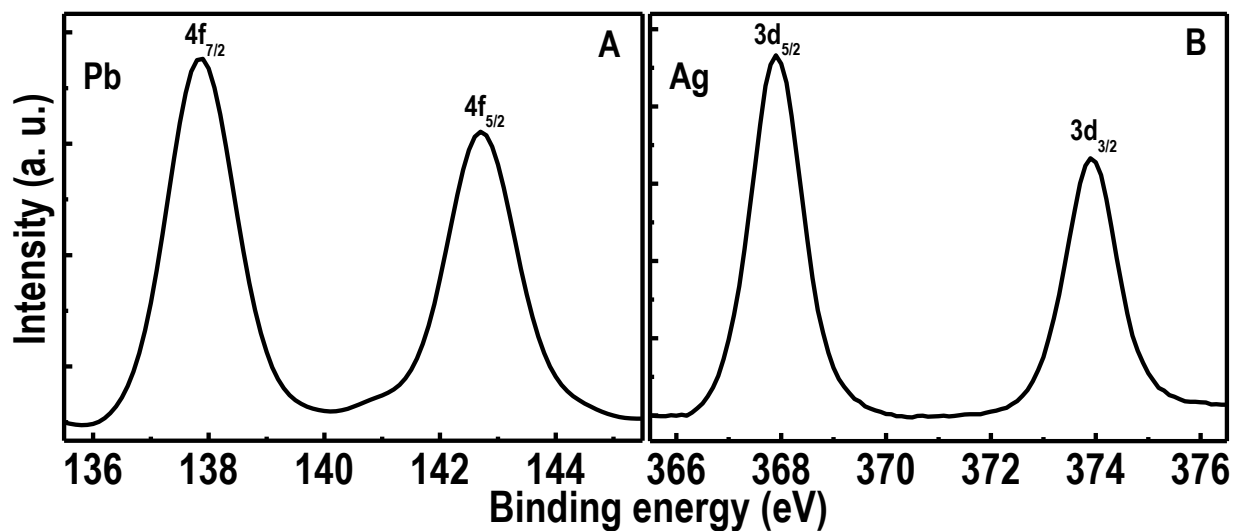


Fig. S9 Expanded XPS spectra in the Pb 4f (A) and Ag 3d (B) regions of Pb^{2+} -reacted Ag_2Te NWs.

Supporting information 10

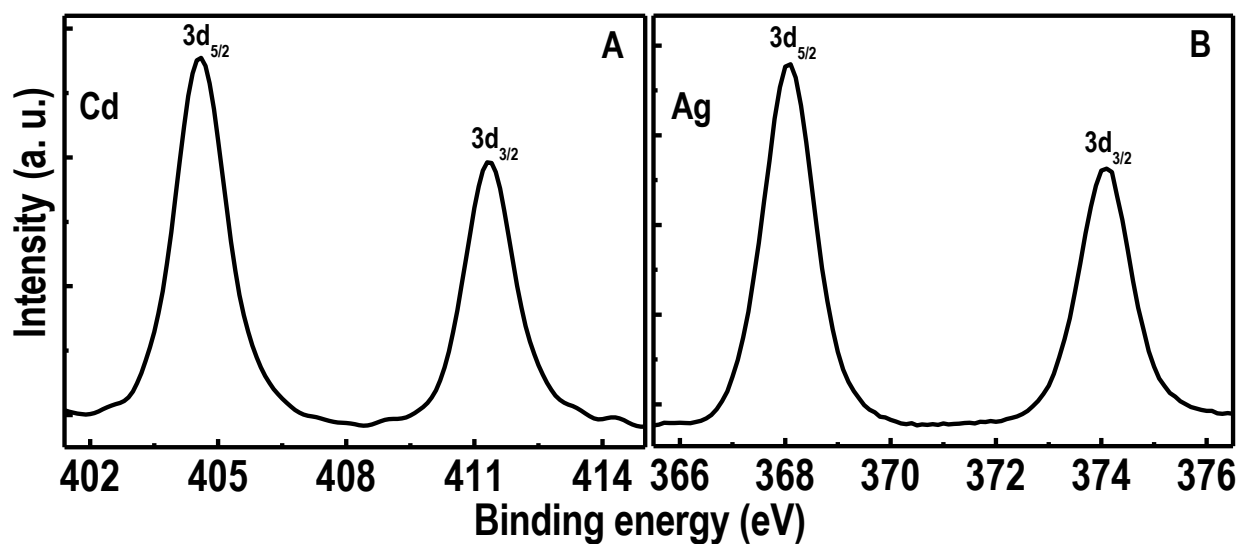


Fig. S10 Expanded XPS spectra in the Cd 3d (A) and Ag 3d (B) regions of Cd^{2+} -reacted Ag_2Te NWs.

Supporting information 11

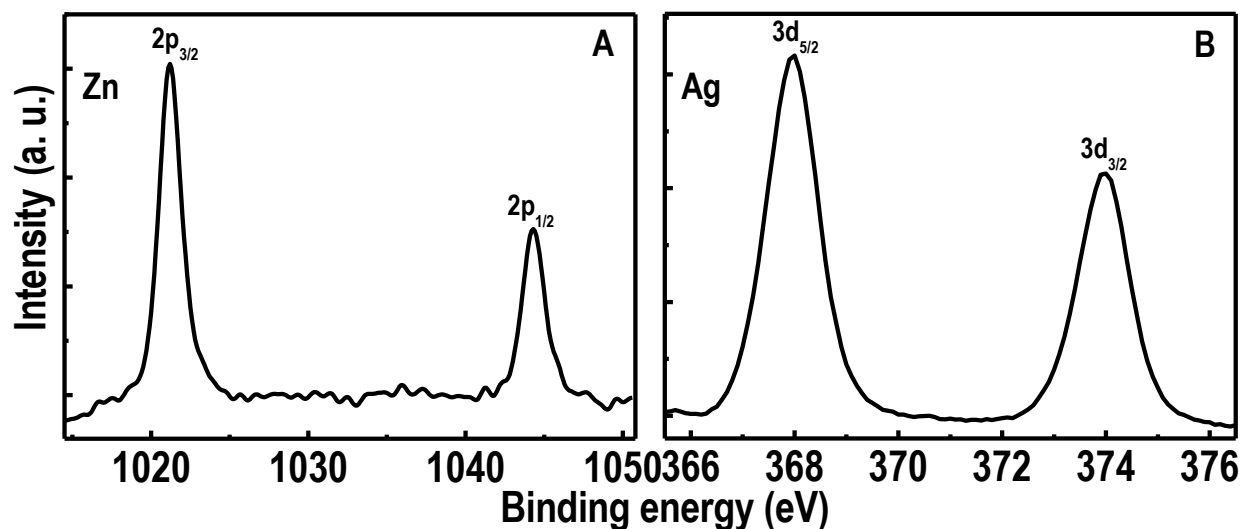


Fig. S11 Expanded XPS spectra in the Zn 2p (A) and Ag 3d (B) regions of Zn^{2+} -reacted Ag_2Te NWs.

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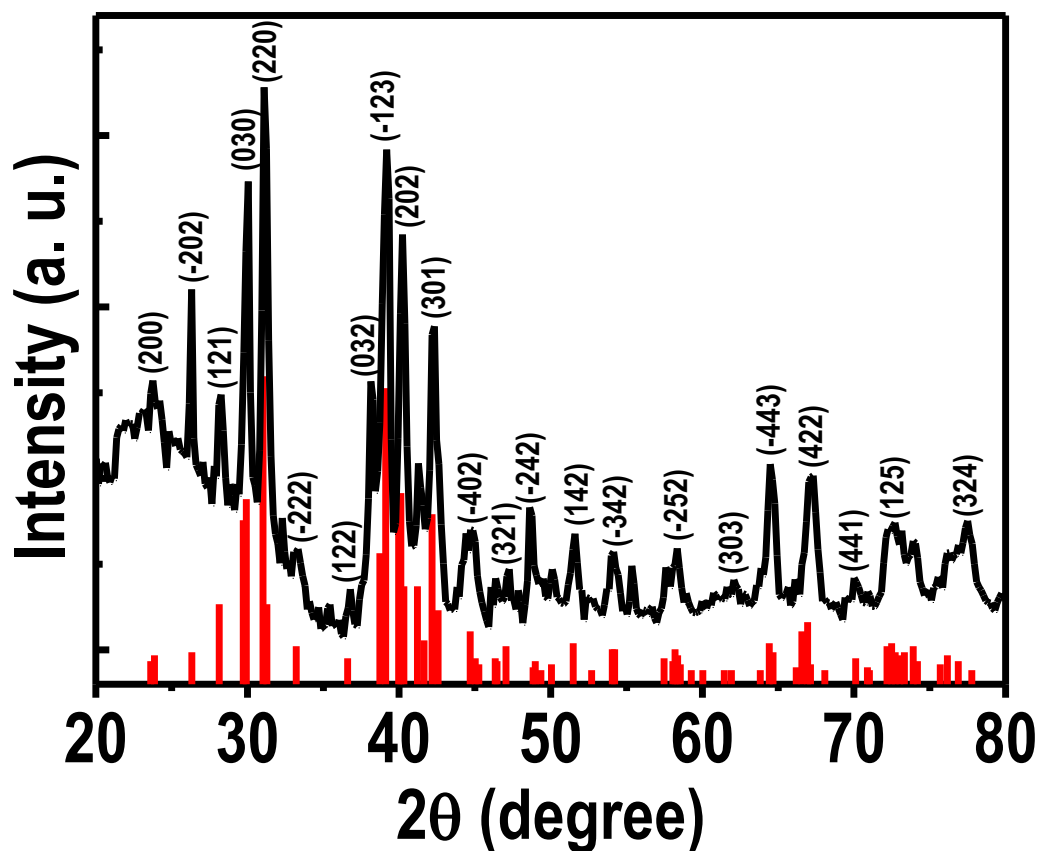


Fig. S12 XRD patterns of Hg^{2+} added to Zn^{2+} -reacted Ag_2Te NWs (black trace), indicating no change occurred after the addition of Hg^{2+} . Standard peaks of Ag_2Te (JCPDS: 34-0142) is given as stick spectrum.