

## Supplementary Information

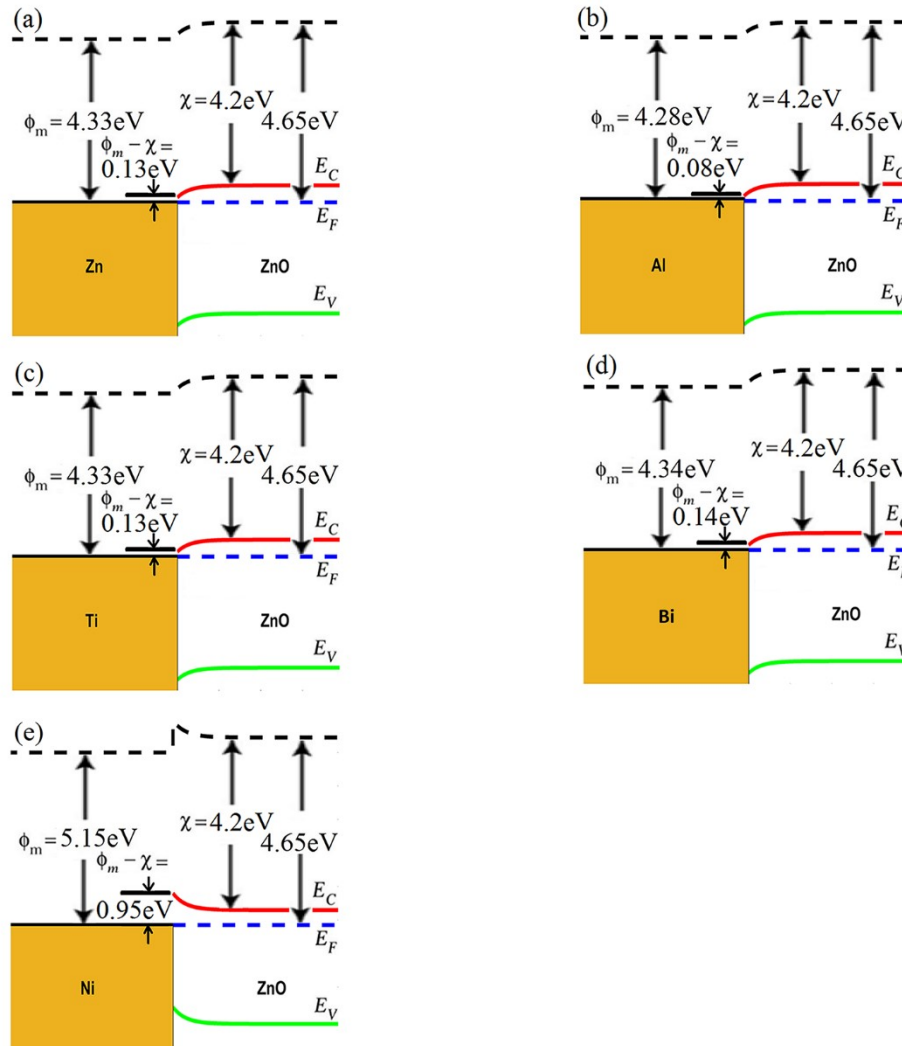
### *Contact resistances between ZnO and Ti, Al, Zn, and Bi: correlation with the density of states at Fermi energies*

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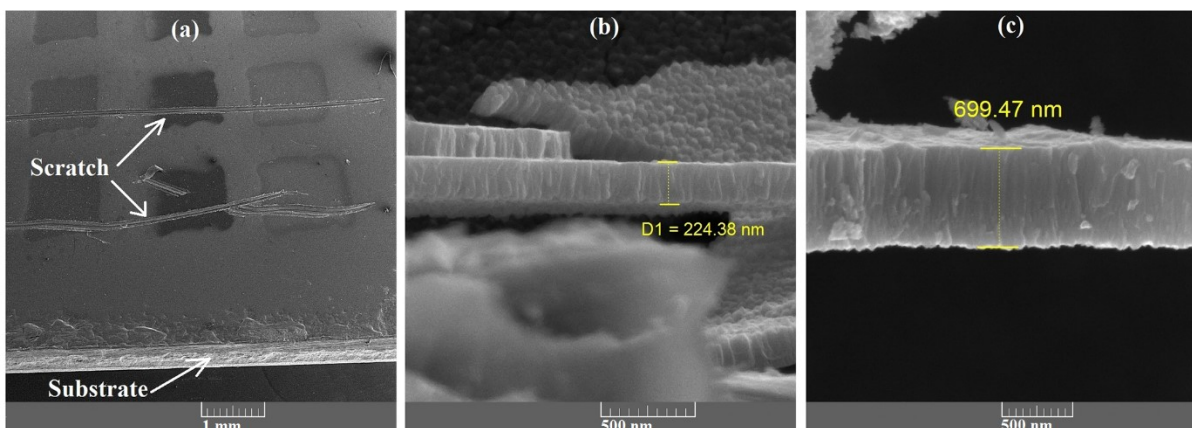
## Section S1:



**Fig. S1:** The simplified band diagrams of the examined metal/ZnO junctions: (a) Zn/ZnO, (b) Al/ZnO, (c) Ti/ZnO, (d) Bi/ZnO, (e) Ni/ZnO and interfaces in thermal equilibrium.

## Section S2:

To obtain the thickness of the ZnO layers sputter-deposited on metal substrates, the oxide layer is scratched using a surgical blade as shown in Fig. S2(a). The scratch is zoomed to obtain the thickness of the oxide layer. Some oxide segments are detached from the substrate surface by the blade and stay around the groove. These pieces are apt for thickness measurements. Two such items are given in the Fig. S2(b) and Fig. S2(c). The provided FESEM images in Fig. 1a-h and Fig. 4a-d are all planview images providing cross-sectional views with different viewing angles. The necessary tilt corrections have been applied in determining layers thicknesses. The stated thicknesses are also in agreement with those estimated based on the sputtering time.



**Fig. S2:** (a) Low magnification planar FESEM images of a ZnO layer with scratches formed to allow cross-sectional view, (b) and (c) high magnification FESEM images of the layers cross-sections deposited on Al and Zn substrates in 1h and 4h of sputtering, respectively.