Exploring Atomic Layer Etching Behavior Differences in ZnO Crystallographic Planes and Surface Energy Analysis via DFT

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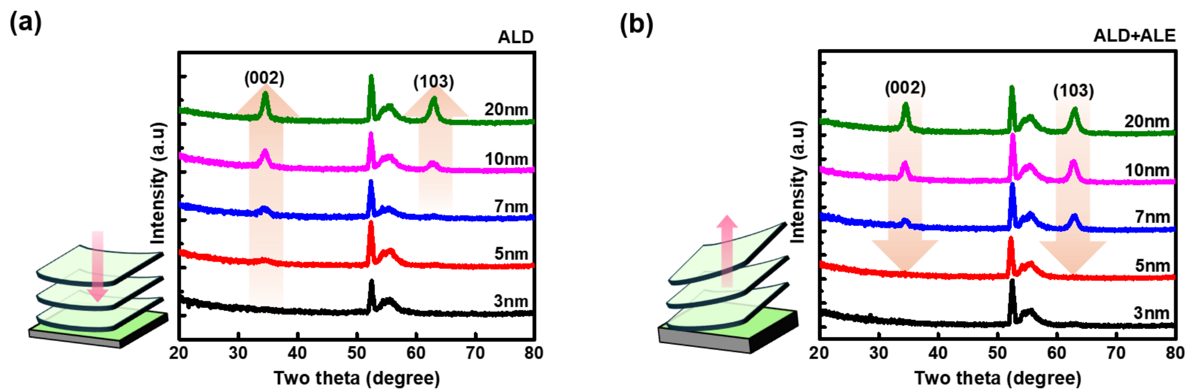

Figure 1. (a) XRD analysis showing the variation of crystallographic planes with increasing thickness of ALD ZnO films. (b) XRD analysis of ALD+ALE ZnO films demonstrating the change in crystallographic planes as the film thickness decreases after ALE processing.

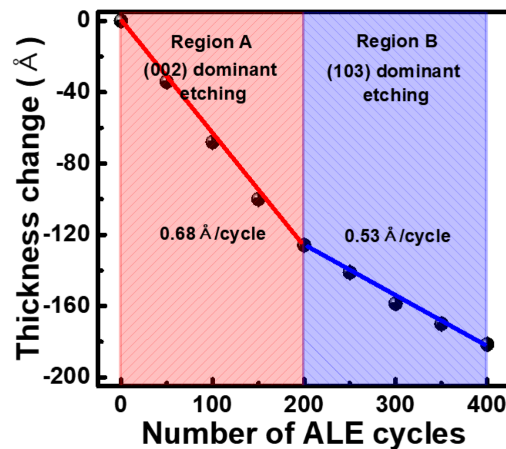

Figure 2. Graph showing the change in film thickness with increasing ALE cycle number. Region A (red) indicates the area where the (002) plane undergoes dominant etching, while Region B (blue) represents the area where the (103) plane undergoes predominant etching.