

Figure 1: Representative 10x10 um AFM micrographs showing the shape change of trapezoidal islands as Bi deposition is increased between $0 < t < 45$ s. With zero Bi deposited (a) the trapezoidal islands parallel sides are oriented perpendicular to the [001] and its trapezoidal legs are oriented along the $[1\bar{1}3]$ and $[\bar{1}13]$. At $t=15$ s (b) the trapezoidal legs begin to shift to lower index facets towards the $[\bar{1}\bar{1}1]$ and $[1\bar{1}1]$. At $t=30$ s (c) the $[\bar{1}\bar{1}1]$ and $[1\bar{1}1]$ facets become more prevalent and pronounced. Finally at $t=45$ s (d) the $[\bar{1}\bar{1}1]$ and $[1\bar{1}1]$ become the predominant facet. The islands also shrink significantly in diameter and height as Bi is added.

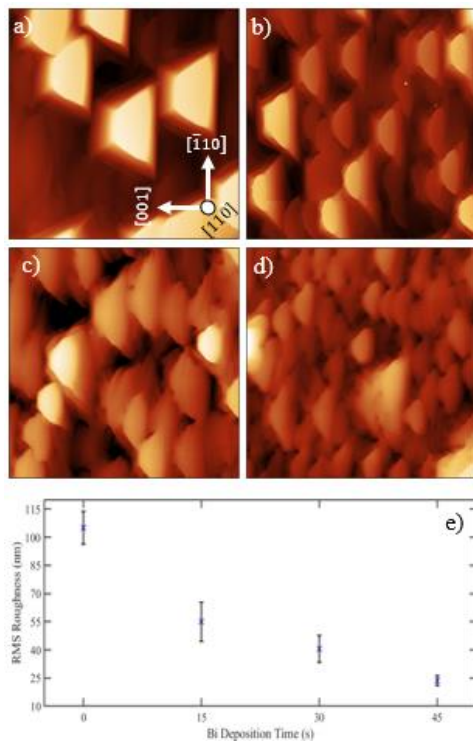


Figure 2: Surface Morphology Changes greatly as Bi is introduced and subsequently increased as shown by the 25x25um AFM micrographs above. When 0 Bi is deposited (a) large trapezoidal islands form on the surface approximately 340nm tall and 4 um in diameter and sit on an otherwise smooth background resulting in an overall large RMS of 105nm. As Bi is added, 15s(b), 30s(c) and 45s(d) the large islands are suppressed, becoming shorter and smaller in diameter and the background initially roughens. This yields a net smoothing effect with RMS roughness decreasing (e) rapidly to approximately 24nm at $t=45$ s.

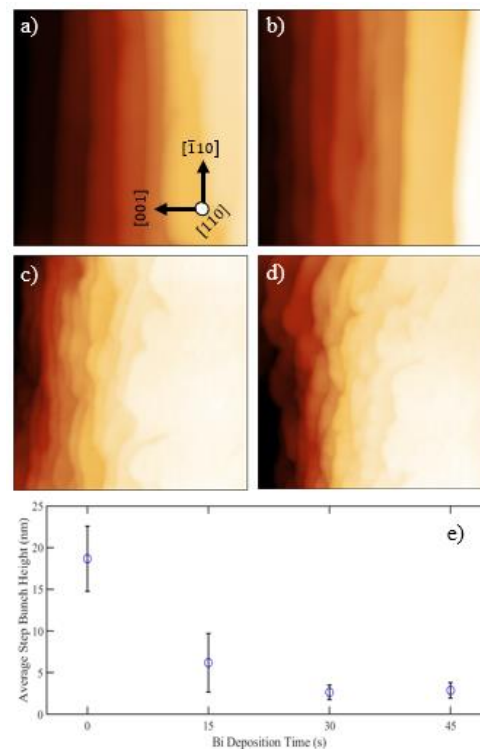


Figure 3: 1x1um AFM micrographs show step structure is altered greatly as Bi is deposited on the surface. (a) without Bi steps of approximately 20 nm form on the surface and have straight edges. (b) the straight edges persist at $t=15$ s however the step height drastically decreases to approximately 6nm demonstrating a reduced step bunching effect. This trend in reduction of step bunching continues to be seen in the $t=30$ s (c) and $t=45$ s (d) with step heights of approximately 2.7 and 2.8 nm, respectively, though the reduction appears to stop after $t=30$ s. Also observed is a de-straightening of the step edges at $t > 30$ sec.