

Atomic models for interfaces in multilayer structures grown on SiC

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Multilayer (5 layers) and multicomponent structures (based on GaN and related materials) were grown on 4H and 6H-SiC (with a misorientation of ± 0.5 -2 degrees off from the (0001) plane) substrates using the MOVPE method. The layers were grown epitaxially, as it was confirmed from the corresponding electron diffraction patterns. Several types of interfaces were observed between the layers that either ran parallel to the interface or formed V-shaped defects (e.g. the SiC/AlN, GaN/AlN, GaN/AlGaN interfaces etc.)

In this study, atomic models of the interfaces are presented based on experimental High Resolution TEM (HRTEM) micrographs and corresponding computer simulation images.

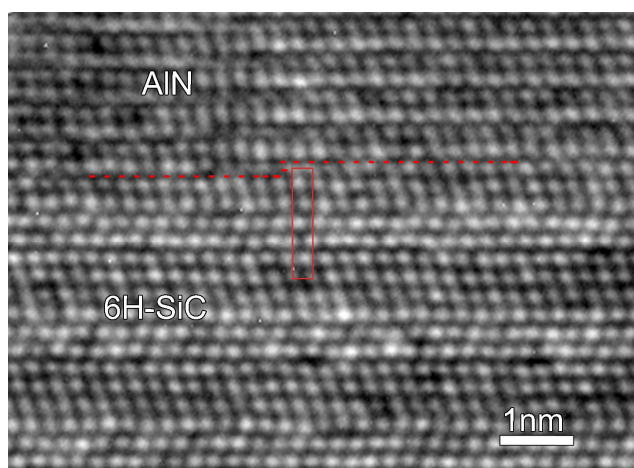


Figure 1: HRTEM image showing an atomic scale step in the 6H-SiC/AlN interface

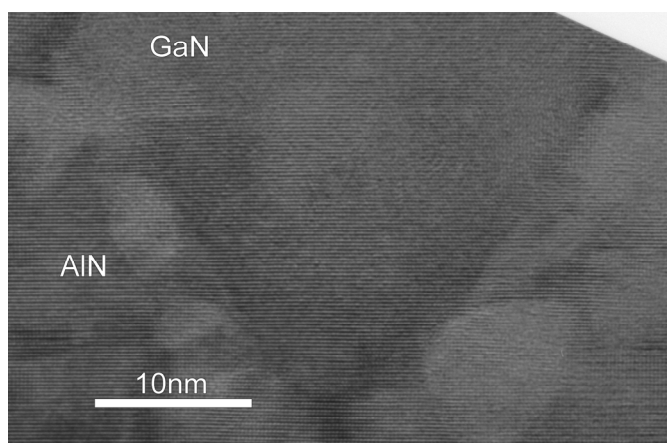


Figure 2: HRTEM image showing a V-shaped defect in the AlN/GaN interface

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