**METHOD AND STRUCTURE FOR FABRICATING III-V NITRIDE LAYERS ON SILICON SUBSTRATES**


**ABSTRACT**

A method and structure for fabricating III-V nitride layers on silicon substrates includes a substrate, a transition structure having AlGaN, AlN and GaN layers, and a superlattice structure having AlGaN and GaN layers. In the invention, the large lattice mismatch (17%) between GaN and silicon is solved by using AlN as the first buffer layer with a 5:4 coincidence between AlN(0001) and Si(111) lattice to reduce the lattice mismatch to 1.3%.

[Figure 11]