

Preliminary study of GaN films deposition by sol-gel spin-coating methods

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Abstract

Gallium Nitride (GaN) and its alloy have been extensively used for the fabrication of highly efficient opto-electronic and electronic devices. Device quality epitaxial GaN films have been deposited on different substrates by various modern expensive techniques. These include MOVPE, MBE, and MOCVD. In this study we deposite GaN films on Si (100) and Al₂O₃ (0001) substrates by employing the simple technique sol-gel spin-coating. This technique is one of the inexpensive chemical solution methods.

The result suggest that both GaN films deposited on the Si (100) and Al₂O₃ (0001) substrates are polycrystalline, not observe any preferred orientation from the pattern. The quality of surface morphology of a GaN films relatively low. The thickness of films of about 1-1.5 nm. Typical bandgap energy of a GaN film deposited on the Al₂O₃ (0001) substrate of about 3.20 eV.

Keywords: GaN films, sol-gel spin-coating technique, chemical synthesis