

GROWTH AND CHARACTERIZATION OF EPITAXIALLY GROWN GAN LAYER ON PATTERNED SAPPHIRE SUBSTRATE

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GaN based materials including light emitting diodes, blue laser diodes and high-power microwave transistors have received much attention over the past few years. An important problem of these structures is the high levels of structural defects, mostly dislocations, due to the lack of a suitable lattice-matched substrate. So far, the substrate of choice has been mainly sapphire (Al_2O_3) substrates, which has a large lattice mismatch with GaN or AlN. As a result, (0001) GaN layers epitaxially grown on sapphire substrates include high concentrations of misfit and threading dislocations. In this study, epitaxial GaN layers have been grown on patterned sapphire substrates by using an MOCVD system and high resolution XRD scans are performed to investigate the effect of patterned sapphire substrates on the dislocation density.

Biography

I Altuntas is pursuing PhD from Cumhuriyet University, Physics Department. He is the researcher of Nanophotonics Research and Application Center, Department of Nanotechnology Engineering.

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