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Electronic Structure and Chemical State Analysis of Nanoflowers Decorated GaN and AlGaN/GaN heterostructure

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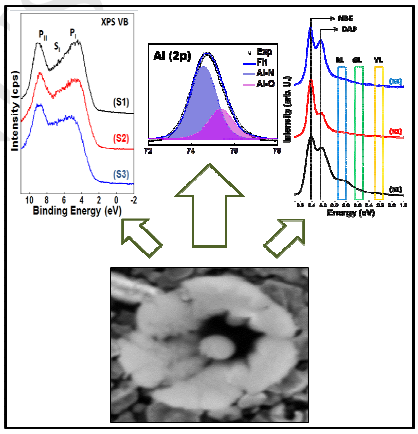
Abstract: The present article reports electronic structure, chemical and defect states analysis of Quasi-continuous GaN film, nanoflowers decorated nanostructured GaN and nanoflowers decorated AlGaN/GaN heterostructure. The nanostructured GaN and AlGaN surfaces were decorated with nanoflowers having a size variation between 200 to 400 nm. Extensive photoemission analysis was performed to analyse surface chemistry and electronic structure and their correlation with surface morphology. Indication of free electron accumulation was perceived by the observed downwards band bending at the interface of AlGaN/GaN heterostructure. The optical response inveterate defects minimization in nanoflower decorated GaN and AlGaN/GaN heterostructure and the presence of minimum residual stress.



Keywords: GaN, Nanoflowers, Photoemission, Electronic structure.