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The effects of vacuum annealing on the top-most layer of 6H-SiC measured by Positron annihilation induced Auger Spectroscopy[1] S. MUKHERJEE, M. NADESALINGAM, B. DAVIS, The University of Texas at Arlington, G. BRAUER, Institut For Lonenstrahlphysik Und Materialforschung, A. H. WEISS, The University of Texas at Arlington — Silicon Carbide (SiC) in monocrystalline, hexagonal polytype form is a very interesting material for a wide class of novel application in electronics. The wide range of the band gap offered by different polytype with very little lattice mismatch can be utilized to grow smooth heterojunctions. Till now it has not been achieved and hence the surface characterization of such crystals is critical. Positron Annihilation induced Auger Electron Spectroscopy (PAES) is an established tool to characterize the top most atomic surface layer of solids. Here, PAES has been used to study the surface of 6H- SiC after annealing under different thermal and ambient conditions. The PAES measurements indicate that top-most atomic layer becomes C rich after vacuum annealing at 800 C. In additional a large chemical shift in the Si peak of approximately -12 eV was observed with PAES.

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