

Abstract Submitted
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Strong hot electron reflection from subsurface 8H-SiC inclusion in 4H-SiC: Ballistic Electron Emission Microscopy (BEEM) study K.-B. PARK, Ulsan National Institute of Science and Technology, Korea, W. CAI, J.P. PELZ, The Ohio State University, M.S. MIAO, W.R.L. LAMBRECHT, Case Western Reserve University, X. ZHANG, M. SKOWRONSKI, Carnegie Mellon University, M.A. CAPANO, Purdue University — The electrical properties of planar 8H stacking-fault inclusions (SFIs) formed during epilayer growth on an 8 degree miscut n-type 4H-SiC substrate were characterized using nm-resolution BEEM. A ~ 0.39 eV lower Schottky barrier was measured along the line where the SFI intersect a Pt metal overlayer, confirming that 8H SFIs are electron quantum wells (QWs). Interestingly, an asymmetry of the BEEM current amplitude was observed around the intersection line, which is believed to be caused by strong hot electron reflection from the subsurface 8H inclusion. We will discuss our modeling to explain this strong hot electron reflection and the lower bound of hot electron attenuation length in 4H-SiC estimated from the measured BEEM current profile. Work supported by ONR.

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