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Comparison of point defects in 4H SI SiC grown by halide chemical vapor deposition and physical vapor transport[1] M.E. ZVANUT, University of Alabama at Birmingham, H.J. CHUNG, ALEXANDER POLYAKOV, Carnegie Mellon University — Semi-insulating (SI) SiC may be produced by chemical vapor deposition using halides (HCVD) or physical vapor transport (PVT). Our electron paramagnetic resonance (EPR) studies address the point defects detected in PVT and HCVD 4H SI SiC substrates. EPR measurements are made 'in equilibrium' prior to illumination and after exposure to light. All samples reported here have resistivity of 10^{10} ohm-cm and activation energy greater than 0.8 eV. PVT samples exhibit the positively charged carbon vacancy (V_c^+) before illumination, which may be quenched by 1.5 eV light and revived at energies greater than 1.9 eV. The 'equilibrium' EPR measurement of the HCVD samples reveals an intrinsic defect which can be quenched by bandgap illumination. The amount of this unidentified defect is estimated to be an order of magnitude greater than that of V_c^+ typically observed in PVT substrates.

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