

Abstract Submitted
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Dislocations and Planar Defects in Silicon Carbide after High Pressure and High Temperature Sintering STEPHEN NAUYOKS, Texas Christian University, LEVENTE BALOGH, JENO GUBICZA, WALDEK ZERDA — Nanocrystalline SiC powder is sintered at temperatures of 1400, 1600, and 1800 ° C and pressures of 2, 4, and 5.5 GPa. The microstructure of the sintered SiC is studied with X-ray diffraction line profile analysis. After sintering there is an increase in the average SiC crystallite size indicating a coalescence of the powder particles. Stacking faults are the main lattice defect in sintered SiC with a smaller crystallite size, less than 20 nm, while dislocations are the main defect in sintered SiC with larger crystallite sizes. For the sample sintered at 8 GPa and 1800 ° C there is a decrease in crystallite size, most likely due to subdivision of the grains at the dislocation boundaries.

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