

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Structural defects in SiC nanowires¹ RENBING WU, FENG LIU, Department of Materials Science and Engineering, University of Utah, YI PAN, Department of Materials Science and Engineering, Zhejiang University — High-resolution transmission electron microscopy (HRTEM) and selected area electron diffraction (SAED) are used to investigate structural defects in zinc blende SiC nanowires produced by a vapor-solid (VS) mechanism. It is found that the defects exist as the stacking faults and twins including single twin, double twins, and quasiperiodic placement twins. The results indicate that the important role of defects in determining the morphologies and structures i.e. stacking faults result in formation of branches or junctions, while twins cause kinks, bamboo or a zigzag appearance. Based on the characterizations, the defects formation mechanism and the influence on the nanowire growth kinetics and behavior are also discussed.

¹This work was supported by DOE(Grant No. DE-FG02-03ER), R. B. Wu acknowledges the financial support from China Scholarship Council

Renbing Wu
Department of Materials Science and Engineering, University of Utah

Date submitted: 26 Nov 2007

Electronic form version 1.4