

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 de-
fects exist as the stacking faults and twins including single twin, double twins, and
quasiperiodic placement twins. The results indicate that the important role of de-
fects 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 acknowl-
edges 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