Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Initial C incorporation on Si(111) studied by STM DOHYUN LEE, Korea Research Institute of Standards and Science, HANCHUL KIM, JA-YONG KOO — We report the initial C incorporation on Si(111) by the C_2H_2 deposition at 500 °C using scanning tunneling microscopy. We find that the thermally decomposed C atoms from C_2H_2 are incorporated into the sub-layer of Si(111) surface preserving 7×7 dimer-adatom-stacking fault structure. C atoms are mainly incorporated into the underneath of corner adatoms of faulted halves of Si(111) surface at 500 °C. Our experimental results are compared with the previous reports of several authors regarding the C-incorporated Si(111)-$\sqrt{3} \times \sqrt{3}$ superstructure induced by the higher C_2H_2 exposure at the similar substrate temperature range.

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Date submitted: 17 Jan 2005 Electronic form version 1.4