

Supplementary Materials: Critical view on buffer layer formation and monolayer graphene properties in high-temperature sublimation

Vallery Stanishev ¹, Nerijus Armakavicius ^{1,2}, Chamseddine Bouhafs ¹, Camilla Coletti ³, Philipp Kühne ^{1,2}, Ivan G. Ivanov ⁴, Alexei A. Zakharov ⁵, Rositsa Yakimova ⁴ and Vanya Darakchieva ^{1,2,*}

Figure S1 shows very similar step height distribution for the buffer layers with the lowest $T_{Ar} = 800\text{ }^{\circ}\text{C}$ and the highest $T_{Ar} = 1300\text{ }^{\circ}\text{C}$, and show no indication of etching. We have also shown earlier that in our growth process, where the inert Ar atmosphere surrounds the SiC substrate in a very tightly closed cavity (no flow), Ar does not contribute to etching up to $1800\text{ }^{\circ}\text{C}$ even for a duration of 1 h [Ref. 45]. We note that the buffer layers investigated in our manuscript are obtained at or below $1800\text{ }^{\circ}\text{C}$ for zero growth time.

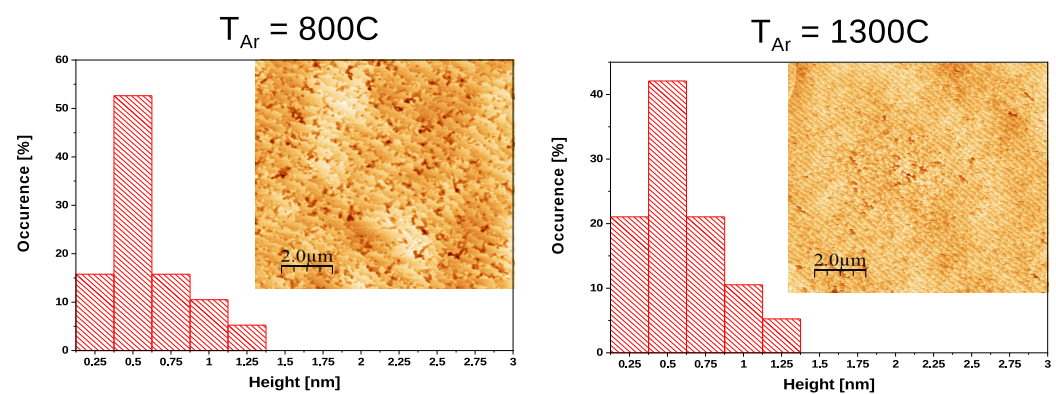


Figure S1. Step height distributions for samples growth with $T_{Ar} = 800\text{ }^{\circ}\text{C}$ and $T_{Ar} = 1300\text{ }^{\circ}\text{C}$ on SI 4H-SiC. Respective representative AFM images are shown in the insets.