

Abstract Submitted
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Theory of the Growth of Epitaxial Graphene on Silicon Carbide

FAN MING, ANDREW ZANGWILL, School of Physics, Georgia Institute of Technology, Atlanta, GA 30332 — We present a one-dimensional kinetic Monte Carlo model for the growth of epitaxial graphene on 6H-SiC. The model parameters are effective energy barriers for the nucleation and subsequent propagation of graphene at step edges. For growth on vicinal substrates with half-unit-cell height steps, we predict first and second layer graphene coverages and the distribution of first-layer graphene strip widths as a function of total coverage, vicinal angle, and the model parameters. Comparing our results to experiment will provide the first quantitative insights into the kinetics of growth for this unusual epitaxial system.

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