

Abstract Submitted  
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**Scaling behavior of Film growth mechanism**<sup>1</sup> MINA YOON, LEE HO NYUNG, Oak Ridge National Laboratory, ZHIGANG SUO, WEI HONG, Harvard University, HANS M. CHRISTEN, DOUG LOWNDES, ZHENYU ZHANG, Oak Ridge National Laboratory — Experimental evidence has accumulated that a strained film can grow stably on a vicinal surface. Linear perturbation analysis of the step-flow regime results in a dispersion relation which determines the persistence of the step-flow growth. The dispersion relation can also be used to probe the system parameters. Investigating the growth dynamics in the step-bunching regime, we found that there is a critical film thickness above which step-bunching occurs. The critical thickness shows a scaling behavior depending on the terrace width and the deposition flux. Experiments show a qualitative agreement with the theory. Our results may open a way to grow films in a desired way.

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