

Abstract Submitted  
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**Changing growth conditions during surface growth**<sup>1</sup> YEN-LIANG CHOU, MICHEL PLEIMLING, R. K. P. ZIA, Virginia Polytechnic Institute and State University — Motivated by a series of experiments that revealed a temperature dependence of the dynamic scaling regime of growing surfaces, we investigate theoretically how a nonequilibrium growth process reacts to a sudden change of system parameters. We discuss quenches between correlated regimes through exact expressions derived from the stochastic Edwards-Wilkinson equation with a variable diffusion constant. Our study reveals that a sudden change of the diffusion constant leads to remarkable changes in the surface roughness. Different dynamic regimes, characterized by a power-law or by an exponential relaxation, are identified, and a dynamic phase diagram is constructed. We conclude that growth processes provide one of the rare instances where quenches between correlated regimes yield a power-law relaxation.

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Michel Pleimling  
Virginia Polytechnic Institute and State University

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