

**Evolution of Island Distributions during  
Submonolayer Potential-Pulse  
Electrodeposition: Dynamical Monte Carlo  
Simulations**

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We report results from kinetic Monte Carlo simulations of pulsed-potential submonolayer electrodeposition. We simulate experiments in which the electrode potential is brought for a limited time past the threshold for submonolayer deposition (which corresponds to a discontinuous surface phase transition), after which it is brought back into the dissolution regime. The morphology and island-size statistics of the electrodeposited layer are reported as functions of the pulse duration and overpotential, as well as the ratio between the time scales of adsorption/desorption and lateral adatom diffusion.

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