

Abstract Submitted
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Thickness-dependent Adatom-Adatom Binding Energy on Pb(111): The Effect of Quantum Size Effect on Critical Nucleus¹ MIAO LIU, FENG LIU, University of Utah — We perform first-principles calculations to investigate adatom-adatom binding energies on Pb(111) as a function of film thickness. An odd-even thickness-dependent oscillation is found in the adatom-adatom binding energies, in analogy to the similar behavior in adatom surface binding energies and diffusion barriers found previously. We will discuss these results in relation to the thickness-dependent island nucleation density and compactness, as observed in recent experiments.

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