

Abstract Submitted
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Evolution of noble gas films on a decagonal Al-Ni-Co quasicrystal surface. WAHYU SETYAWAN, Duke University, NICOLA FERRALIS, RENEE D. DIEHL, MILTON W. COLE, Penn State University, STEFANO CURTAROLO, Duke University — The evolution of Ne, Ar, Kr, and Xe films on an $\text{Al}_{73}\text{Ni}_{10}\text{Co}_{17}$ quasicrystalline surface is studied using grand canonical Monte Carlo simulations with an empirical adsorption potential based on Lennard-Jones interatomic potentials. Layer by layer growth is observed for all the studied noble gases. The monolayer of Ar, Kr, and Xe grows abruptly, where as the monolayer of Ne grows gradually. The next layers of all gases grow step wise. At a comparable range of temperatures, the evolution of the monolayer density profiles shows a continuous commensurate 5-fold to incommensurate 6-fold ordering transition for all gases. However, the degree of completeness of the transition varies and shows an increase from Ne, Ar, Kr, to Xe. Research sponsored by NSF.

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