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Nucleation and growth of islands during submonolayer deposition on Ag/Ag(100) NUNO ARAUJO, ANTONIO CADILHE, GCEP - Centro de Fisica - Universidade do Minho — The growth of multilayer thin films is strongly influenced by the formation of the first layer. We introduce a kinetic Monte Carlo model to study the nucleation and growth of the first layer in the regime of high values of the incoming flux. We simulate the deposition of Ag adatoms on the Ag(100) substrate at a temperature of 200 K for values of the incident flux of particles ranging between 0.01 ML/s and 1.00 ML/s. To characterize the nucleation process we studied the dependence of the mean island density during growth and the island size distribution on the incident flux of particles. Varying the flux of incident adatoms allows us to tune the relevance of the different elemental processes taking place during the deposition stage. In the limit of high fluxes, we show that scaling functions do not match and the island size distribution function does not have a maximum value coincidental with the mean island size.

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