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**Three-Dimensional self-learning kinetic Monte Carlo model for arbitrary surfaces** ANDREAS LATZ, LOTHAR BRENDEL, DIETRICH E. WOLF, Faculty of Physics and Center for Nanointegration Duisburg-Essen (CeNIDE), University of Duisburg-Essen, D-47057 Duisburg, Germany — The self-learning kinetic Monte Carlo (SLKMC) method combines the calculation of transition rates from a realistic potential with the efficiency of a rate catalog, using a pattern recognition scheme. Originally limited to twodimensional systems with one specific surface orientation, we recently extended the method to three dimensions and arbitrarily shaped surfaces. We showed that by setting up an initial database, the concomitant huge increase of rate calculations on the fly can be decreased significantly. The model is applied to the homoepitaxial growth of Ag on Ag(111) at low temperatures and the drift of voids and islands due to electromigration.

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