A deposition model with temperature dependent diffusion YEN-LIANG CHOU, MICHEL PLEIMLING, Virginia Polytechnic Institute and State University — We study a deposition process where the deposed particles are allowed to hope to their neighboring sites with a probability that depends both on the temperature and on the height difference. Changing the temperature, the model evolves from the random deposition model with surface relaxation at zero temperature to the random deposition model at infinite temperature. A generalized dynamic scaling of the surface width as a function of the lattice size, the deposition time, and the temperature is given. The response to a sudden change in temperature is studied. Two types of quenching behavior are observed: a power law decay within the Edwards-Wilkinson regime and an exponential decay in the saturation regime.

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