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Irreversible adsorption of nanoparticles with size dispersion N. A. M. ARAUJO, J. F. MARQUES, GCEP - Centro de Fisica - Universidade do Minho, A. B. LIMA, Instituto de Fisica - Universidade Federal da Bahia- Salvador - BA - Brasil, A. CADILHE, GCEP - Centro de Fisica - Universidade do Minho — The effect of size dispersion on the irreversible adsorption of nanoparticles was studied with Monte Carlo simulation. To this end, we performed a tailored series of Monte Carlo simulations of single monolayer colloidal films with a Gaussian size dispersion around the mean value ranging from 3% (monodisperse) to 20% (polidisperse). To study possible ways of size selection, we used clean and patterned substrates to make a comparative study. In the latter case, the pattern consists of squares of size α, a distance β apart from each other. Adsorption can only take place inside the squares with excluded volume interaction. We follow the kinetics of adsorption and measure their resulting film coverage, mean particle size, dispersion, and the radial distribution of the distances.

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