Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Adsorption of colloids with Gaussian-size distribution on clean and pre-patterned substrates JOAO F. MARQUES, GCEP-Centro de Fisica da Universidade do Minho, 4710 Braga, Portugal, A.B. LIMA, Instituto de Fisica, Universidade Federal da Bahia, Salvador BA, Brasil, NUNO A.M. ARAUJO, GCEP-Centro de Fisica da Universidade do Minho, 4710 Braga, Portugal; T-12 Group, MS B268, Los Alamos National Laboratory, Los Alamos, NM 87545, USA, ANTONIO CADILHE, T-12 Group, MS B268, Los Alamos National Laboratory, Los Alamos, NM 87545, USA; GCEP-Centro de Fisica da Universidade do Minho, 4710 Braga, Portugal — We performed extensive Monte Carlo simulations to study the influence of Gaussian size-distributed colloidal particles on film morphology. Also, we take the limit of irreversible adsorption, which leads to the study of a generalized random sequential adsorption model. We considered size dispersions ranging from 1% up to 20%. The study concerns not only the jammed state but also the full kinetic dependence. Moreover, we also considered the influence of a patterned substrate, consisting of equal sized squares regularly distributed on the surface. Colloids can adsorb solely inside these squares. Results make understandable why colloids with size dispersions up to 4% are considered monodisperse. Finally, we consider in the patterned substrate case cells with a prescribed number of colloids and characterize these deposits.

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Date submitted: 11 Dec 2007 Electronic form version 1.4