Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Cluster growth driven by long range de-wetting interactions in thin films ADI CONSTANTINESCU, LEONARDO GOLUBOVIC, West Virginia University, ARTEM LEVANDOVSKY, University of California Riverside — Long range de-wetting inteactions acting across thin films, such as the van der Waals forces, may drive the formation of large clusters (tall multi-layer islands). We study, by analytic arguments and simulations, the growth of these clusters within a unified model explicitly incorporating de-wetting interactions. The ultimate cluster growth scaling laws at long times are universal: Short and long range de-wetting interactions yield the same coarsening exponents. However, long range de-wetting interactions introduce a long lasting early-time scaling behavior characterized by a slow growth of the cluster height/lateral size aspect ratio (i.e., a time-dependent Young angle). This stage of cluster evolution is characterized by effective coarsening exponents that we calculate from our simulations and from an analytic approach.

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Date submitted: 23 Dec 2010 Electronic form version 1.4