

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Nucleation and Transport in a Low-Dimensional Driven System**

IVAN GEORGIEV, BEATE SCHMITTMANN, ROYCE ZIA, Virginia Polytechnic Institute and State University — Based on high precision Monte Carlo simulations, we discuss the formation of domains in a quasi one-dimensional model of two species driven in opposite directions. We argue that the presence of a single macroscopic cluster is an intermediate stage of a complex nucleation process. A careful finite size analysis reveals many interesting properties: for small systems the single cluster destabilizes and on large systems we observe the formation of many clusters. We also show results for the dependence of the cluster growth exponent on the stochastic parameters and on different lattice geometries.

Ivan Georgiev  
Virginia Polytechnic Institute and State University

Date submitted: 30 Nov 2004

Electronic form version 1.4