Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

The Physics of Phase-Separation Fronts ALEXANDER WAGNER, ERIC FOARD, Department of Physics, North Dakota State University, Fargo, ND 58108 — When phase separation does occur in a sequential manner, e.g. due to the diffusion of a control parameter into the system, the resulting phase-separation structures have a markedly different appearance than homogeneous phase-separation patterns. The reason lies in the influence the already phase-separated material and the recent phase-separation dynamics exert on the newly phase-separating material. We call the region where phase-separation first occurs the phase-separation front. In this talk we will consider the simplest possible phase-separation front, i.e. a sharp transition in the control parameter moving through the system with a prescribed velocity inducing phase-separation. We show numerical and analytical solutions for the structures that are formed by such a front as a function of the front speed and the composition of the overtaken material.

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Date submitted: 10 Nov 2011 Electronic form version 1.4