1014-35-145 **Peter B Howard*** (phoward@math.tamu.edu), Department of Mathematics, Texas A&M University, College Station, TX 77843. *Asymptotic behavior near transition fronts for equations of Cahn-Hilliard type.* Preliminary report.

We consider the asymptotic behavior of perturbations of standing wave solutions arising in equations of Cahn–Hilliard type. Such equations are well known to arise in the study of spinodal decomposition, a phenomenon in which the rapid cooling of a homogeneously mixed binary alloy causes separation to occur in which the mixture resolves into its constituent components, separated by sharp transition layers. Motivated by work of Bricmont, Kupiainen, and Taskinen, we regard the study of standing waves as an interesting step toward understanding the dynamics of these transitions. A critical feature of these equations is that the linear operator that arises upon linearization of the equation about the standing wave has essential spectrum extending onto the imaginary axis, complicating the step from spectral to nonlinear stability. Under the assumption of spectral stability, we develop detailed asymptotics for perturbations from standing wave solutions, establishing phase-asymptotic orbital stability for initial perturbations decaying with appropriate algebraic rate. (Received August 02, 2005)