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Shibin Dai* (sdai@nmsu.edu), Department of Mathematical Sciences, New Mexico State University, Las Cruces, NM 88003, and **Qiang Du**, Department of Mathematics, Penn State University, University Park, PA 16802. *Motion of Interfaces Under the Cahn-Hilliard Equation with One or Two Sided Degenerate Diffusion Mobility.*

We use the asymptotic matching method to study the motion of interfaces in two phase systems governed by the Cahn-Hilliard equation with one or two-sided degenerate diffusion mobilities. We find that there is a nonlinear diffusion process that solves a quasi-stationary porous medium equation in the phase(s) where the mobility degenerates, which is the mechanism for such systems to coarsen. When the mobility is disparate, scaling arguments suggest that the coarsening rate depends on the volume fraction of the phases. We will also show numerical simulations to justify our analytical results. (Received January 04, 2014)