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Interface motion of Allen-Cahn equation with Nonlinear diffusivity

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Abstract: Allen-Cahn equation is an equation to model the phase separation of a substance with two stable steady states such as a metal alloy of iron and aluminum. According to this equation, the interface that separates the steady states moves with the speed equal to the mean curvature of the interface. In this talk, we study the interface motion of an Allen-Cahn equation where the diffusivity is no longer a constant, but a function of a density. I focus on deriving the interface motion equation formally, and give a sketch on how relate the Allen-Cahn equation and the interface motion equation.

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