

Higher Order Convergence for the Sharp Interface Limit of Navier--Stokes/Allen--Cahn System

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We consider the linearized system for the sharp interface limit of a Navier-Stokes/Allen-Cahn system around a suitable approximate solution. With the aid of a suitable weight taking the distance to the interface and the interfacial thickness into account we obtain optimal regularity estimates, which are uniform in the interfacial thickness. This enables to improve previous convergence results in two space dimensions significantly and extend results to three space dimensions. This is a joint-work with Mingwen Fei, Yadong Liu, and Maximilian Moser.