

Existence of Weak Solutions to a Quasi-Stationary Diffuse Interface Model for Two-Phase Flows with Phase Transition

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We study the flow of two macroscopically immiscible fluids with different densities where a transfer of mass between the phases due to phase transition is permitted. To this end, we work with a quasi-stationary version of a diffuse interface model suggested by G. Aki, W. Dreyer, J. Giesselmann and C. Kraus in 2012 which is then given as the coupling of an inhomogeneous quasi-stationary Stokes system to a Cahn–Hilliard system with mass averaged velocity. A strategy for proving existence of weak solutions using an implicit time discretization is discussed, with focus on how to control the pressure. The talk is based on work in progress with H. Abels and H. Garcke.