ON THE HYPERBOLIC RELAXATION
OF THE ONE-DIMENSIONAL CAHN-HILLIARD EQUATION

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Abstract. We consider the one-dimensional Cahn-Hilliard equation with an inertial term \(\varepsilon u_{tt}\), for \(\varepsilon \geq 0\). This equation, endowed with suitable boundary conditions, generates a strongly continuous semigroup \(S_\varepsilon(t)\) which acts on a suitable phase-space and possesses a global attractor whenever \(\varepsilon\) is sufficiently small. Our main result is the construction of a robust family of exponential attractors \(\{M_\varepsilon\}_{\varepsilon \geq 0}\) with smooth basins of attraction.

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