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 εu_{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 ε is sufficiently small. Our main result is the construction of a robust family of exponential attractors $\{\mathcal{M}_\varepsilon\}_{\varepsilon \geq 0}$ with smooth basins of attraction.

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