

# Existence of a universal attractor for a fully hyperbolic phase-field system

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Here we study a nonlinear hyperbolic integrodifferential system which was proposed by H.G. Rotstein et al. to describe certain peculiar phase transition phenomena. This system governs the evolution of the (relative) temperature  $\vartheta$  and the order parameter (or phase-field)  $\chi$ . We first consider an initial and boundary value problem associated with the system and we frame it in a history space setting. This is done by introducing two additional variables accounting for the histories of  $\vartheta$  and  $\chi$ . Then we show that the reformulated problem generates a dissipative dynamical system in a suitable infinite-dimensional phase space. Finally, we prove that the existence of a universal attractor.