Phase transition systems with dynamic boundary conditions

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This talk is devoted to the mathematical analysis of phase-field systems of Caginalp type subject to dynamic boundary conditions. We recall that such systems model phase transitions in two-phase materials through the (relative) temperature ϑ and the order parameter (or phase-field) χ. We present some recent results for models where the coupling between ϑ and χ is also on the boundary or is nonlinear (i.e., quadratic) in the bulk. In particular, we intend to discuss the following issues: well-posedness, global asymptotic behavior (i.e., attractors) and convergence to single equilibria.