Sliding mode control in some phase field systems

The sliding mode control (SMC) problem is considered for some
phase field systems. As a general approach, we have to prove
the well-posedness and possible regularity results for the systems
modified by the state-feedback control laws. Then, we show
that the chosen SMC laws force the system to reach within finite
time a sliding set, that we chose in order that one of the physical
variables or a combination of them remains somehow fixed.
We study different types of feedback control laws, non-local in space
or local in different cases.