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Phase field systems for phase separation and damage processes

Materials like alloys, which enable the functionality of technical products, change the microstructure over time. For instance, phase separation and damage processes take place.

In this talk, we introduce a new model describing phase separation and damage effects. To this end, Cahn-Larché equations are coupled with a doubly nonlinear evolution inclusion for an internal variable, describing damage processes. For the introduced system, we present existence and regularity results. This is a joint work with C. Heinemann (WIAS, Berlin).