Well-posedness and ω-limit sets for some doubly nonlinear parabolic problems

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In this talk we present some recent results, obtained in collaboration with A. Segatti and U. Stefanelli, concerning existence, uniqueness, regularity properties, and long time behavior of solutions to the *doubly nonlinear* partial differential inclusion

$$\alpha(u_t) + Bu + W'(u) \ni f \tag{1}$$

complemented with initial and (either Dirichlet or Neumann) boundary conditions. In particular, our existence theory extends former results (mostly due to Colli and Visintin) in the sense that we are able to consider more general operators α (which may be unbounded), elliptic operators B (which may be singular or degenerate) and potentials W (which may be nonconvex). Moreover, we are able to sketch, in particular cases, a uniqueness theory and prove existence and characterization of ω-limits of trajectories.